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**Munialo, C. J.,<sup>1\*</sup> & Mukanzi, C. M.<sup>2</sup>**

<sup>1\*</sup> Master Candidate, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Kenya

<sup>2</sup> Ph.D, Lecturer, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Kenya

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**ABSTRACT**

*Distribution of text books to public secondary school in Kenya has been facing many challenges since 2017, the reason being the government took direct supervisory role on how public schools could be supplied with text books. The Government of Kenya directly selected publishers through governmental controlled program which was a departure from the free market dispensation procurement norms. Text books have to be delivered to schools as directed by the Kenya Institute of Curriculum Development which acts on behalf of the Central government without the input of consumer stakeholders who are the teachers of schools. This necessitated for the study of effects of Quality Specification Practices on Effective Distribution of text books to public secondary schools of County Government of Vihiga; Kenya. The study used descriptive survey research design on a population target of all public secondary schools of the County Government of Vihiga, which was considered to be a representative for the purpose of the study. Data collection was done through structured questionnaires. Analysis of data of the study was done by use of Statistical Package for Social Sciences (SPSS 22). Descriptive and inferential contents of the study inclusive of; frequencies, percentages and means, correlations and regression analysis were determined by the use statistical package. The results indicated Quality Specification Practice being significantly positive with Effective Distribution of textbooks. Hence the National and County Governments should encourage public procurement practices and disposal regulations in Public schools, since it improves on efficiency and effectiveness on Effective Distribution.*

**Key words;** *Quality Specification Practices, Effective Distribution*

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## INTRODUCTION

In the study by Ballou (2004) on procurement functions, supply chain has become an important issue for every organization during the last decade. Individual businesses and organizations no longer compete as independent and autonomous entities, but are obliged to form supply chains, and networks of multiple businesses and complex inter-relationships, in order to assure their smooth operation and flow of inputs and outputs. This scholar embraces management of multiple relationships across the supply chain being referred to as supply chain management. Supply Chain Management comes as a development of what businesses call logistics, and captures both the functions of logistics as well as the interactions in place with other functions of the firms as marketing, operations, finance and businesses outside the boundaries of the firm. Porter (2003) in his seminal work *Competitive Strategy* stresses the importance of Logistics and SCM as one of the core activities of a firm and as one of the main forces leading to increased profitability.

In the study by Binioris (2008) on supplies management, distribution is the activity of moving items from manufacturer to the customers or users of the commodities. According to Blanchard (2010), effective distribution is the process of conveying right products from the manufacturer to the final consumers in a cost effective manner at the right time, hence the process could be sustainable in the long run. In the context of this study effective distribution would refer to the activities in which the right textbooks are supplied to the targeted schools in the right quantities, at the right time and sustained over a predetermined period of time. The books are well supplied in public secondary schools based on a proper scientific needs assessment exercise.

In the study by Lavassani *et al.*, (2009) on supply management, supply Chain includes all business activities involved with the flow and transformation

of goods and information of goods from raw materials to the consumer. The flow of products and information can be both from the suppliers to the consumer and the opposite, that means from the consumer to the suppliers-producers.

In the study by Binioris (2008) on supply management, distribution is defined as the transportation of the product from the point of production or transshipment to the point or points where demand has been recorded, in order to satisfy the expectations of the production enterprise and the consumer. Blanchard (2010) asserts physical distribution being part of the supply chain, and its purpose is to deliver goods/services to the consumers, hence specifically to the demand points of the finished product in the right place and time, in the right quantity and at the lowest possible total cost. The selection of the optimal physical distribution system, takes place when the enterprise is able to satisfy the objectives of the distribution function (Fisher, 1997)

According to Msita (2007), Public Secondary schools as public procurement agents must aim at ensuring value for money to the citizens and the public. This is because the public who are the tax payers have an enormous stake in procurement and related activities in such organizations and contracts entered into should be those of value for money. In the study by Kakwezi and Nyeko (2010) on procurement, users' requirement among others includes quality of acquired goods, timely delivery, customer satisfaction, reasonable price and quality of people undertaking procurement functions. In public secondary schools in Kenya; the Act Public Procurement and Disposal Act (2015) has vested procurement activities in the School Evaluation Committee. The Evaluation committee is responsible for dealing with financial and technical aspects of the procurement process in the school.

### Statement of the Problem

In the study by Zheng and Zhang (2010) on supplies management, distribution logistics is referred as the management activities to pursue customer satisfaction and order fulfillment, connecting the main body of supply and demand, overcoming space and time obstacles to achieve efficient and rapid movement of goods. It also involves conveying of information related to the distribution of physical goods thus making it slightly distinct from physical distribution; as well the contracts entered into should be those of value for money. In the study by Mamiro (2010) on supply chain management, Value for money, needs continuous improvement in the efficiency of internal processes and systems and requires public entities to maintain structures that avoid unnecessary costs misplacements.

In the study by Paulraj and Chen (2007) on supply management, performance of distribution logistics impacts tremendously on the performance of an entire organization, the reason being it links the organization to the customers and thereby has much influence on customer satisfaction which influences customer loyalty, arguably the single most important asset of an organization. However, despite distribution logistics being very vital, many production organizations perform short of customer expectations in this area. According to Rotich (2011), the main hindrance to public procurement in Kenya, was the tendencies of singling out no compliance to procurement and disposal regulations. Most scholars among them Chen *et al.*, (2007) and Rotich (2011) emphasized on following the right recommended supplies management practice on distribution logistics and recommended for further research on distribution logistics. The Government of Kenya never followed disposal act (2015) and initiated the decision to procure textbooks centrally and distribute them to schools, hence affecting the logistics of distribution of books to public secondary schools of County Government of Vihiga; hence raising a research gap

of not following recommended logistics on distribution. The schools have vested procurement responsibilities and powers in the School Procurement and Evaluation Committees (SPECs). It is out of such disparity as regards to these mentioned scholars that the study aimed at examining the effects of Quality Specification Practices on Effective Distribution of text books to public secondary schools in the County Government of Vihiga.

### Objectives of the study

The objective of this study was to determine the effect of Quality Specification Practices on Effective Distribution of textbooks to public Secondary Schools in the County Government of Vihiga; Kenya

The study was guided by the following hypothesis;

- **H<sub>01</sub>:** Quality Specification Practices have no significant affect Effective Distribution of textbooks to Public Secondary Schools in the County Government of Vihiga; Kenya

### LITERATURE REVIEW

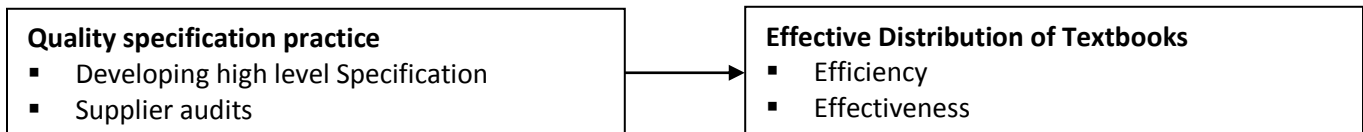
The study relied on theoretical review that included; Supply Chain Management Theory and Distribution Resource Planning Theory:

Lavassani *et al.*, (2009) asserted supply chain management as a cross-function approach including; managing the movement of raw materials into an organization, certain aspects of the internal processing of materials into finished goods, and the movement of finished goods out of the organization and towards the end-customers. As organizations strive to focus on core competencies and becoming more flexible, they reduce their ownership of raw materials sources and distribution channels. According to Marimo (2010), supply chain was a system of information and resources that involves manufacturers/ producers, distributors/ middlemen, and the end customers, collaborating to convert raw materials to work in progress, and then to finished goods. Despite a lot of focus on the forward logistics by supply chain management, the importance of

reverse logistics cannot be ignored, whereby, reverse logistics involves material flow from end users to suppliers. It is the planning, execution, controlling costs of inventories, work in progress and the final products from consumption point to the original point. Mlinga (2009) asserts and embraces on the idea that due to the high asset value which is involved in reverse logistics, it is prudent that firms develop a system that can share information and relate it with the partners besides handling return operations.

Distribution Resource Planning Theory is concerned with the inventory control scheduling technique that applies material requirements planning principles to distribution inventories (Lysons & Gillingham, 2003).

It may also be regarded as a method of handling stock replenishment in a multi-echelon environment. Vollman *et al.*, (2005) observed that Distribution resource Planning (DRP) theory is applicable especially in the coordination and the flow of commodities inside the industry with the system components that place goods in the hands of the customers, and provides the basis for integrating the manufacturing resource planning (MRP II) system from the firm to the field. According to Coyle *et al.*, (2003), distribution resource planning is a widely used and potentially powerful technique for outbound logistics systems to help determine the appropriate level of inventory.



**Independent Variables**

**Dependent Variable**

**Figure 1: Conceptual Framework**

**METHODOLOGY**

The study adopted descriptive survey research design since it could explain the relationship between the study variables. According to Sekaran and Bougie, (2013) descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variable of interest in a situation hence it will be relevant in this study. The study looked at all public secondary schools in the five (5) Sub Counties of Vihiga County. Target population was therefore 151 schools with respect to data records from Vihiga County Education Offices. In order to get a representative sample the study included all head teachers and employees who were directly linked in procurement decisions in public secondary schools. In calculating the sample size the researcher used a formula according to Yamane, (1967) that gave the result of a sample 83 schools. The study used a questionnaire as a tool for collecting the data. The

primary data was gathered using structured questionnaire from respondents.

The data collected data was analysed using descriptive statistics and inferential statistics. The statistical package for social sciences (SPSS) computer software was used for analysis. Ordinary Least Squares Regression model was used for analysis and hence regression model took form of as below;

$$Y = \alpha + \beta_1 X_1$$

Where;

Y= Effective distribution

$\alpha$  =constant

$\beta_0 \dots \dots \beta_1$  = parameter estimates

$X_1$  =Quality specification practices

$\epsilon$  = is the error of prediction.

**FINDINGS AND DISCUSSIONS**

This presented results of the analysis and findings based on the specific objective of the study which

was to examine the effect of Quality Management Specification on effective distribution of textbooks to public secondary schools, County Government of Vihiga; Kenya. Empirical findings and results were presented using descriptive statistics, Pearson correlation and regression analysis.

Eighty four (83) of the questionnaires were administered to sampled respondents in sampled schools in County Government of Vihiga sub-counties. However, 64 questionnaires were returned completely filled representing a response rate of 77% and 23% represented unreturned questionnaires.

The study indicated that all respondents were teachers as the study targeted teachers of public schools in County Government of Vihiga. 70% of the respondents were males and 30% were females. 15.6% of the respondents were found to be between 24 and 30 years old. However, majority of the respondents were between 36 and 40. This implied that they were in position to give the required information concerning the effective distribution of text books to public secondary schools.

On the aspect of highest education attained, majority of the respondents were found to have bachelor's degrees as they represented 54% of the respondents while diplomas were 26.3% of the respondents and 10.2% were certificate level teachers mostly teaching practice. The results also showed that 10.4% had attained post graduate degrees. These results implied that most of the respondents were educated thus knowledgeable and this aided in the data collection. It was also clear that the respondents possessed the requisite skills to perform their duties effectively.

### **Descriptive Statistics**

#### **Quality Specification Practices**

This section was in line with study objective which sought to examine the effect of Quality Specification Practices on effective distribution of text books to public secondary schools in County Government of

Vihiga. Findings of the study indicated that the participants strongly agreed reflecting a mean of 4.11 and Std. dev of .947, hence Quality Specification Practices as an independent variable was very important for effective distribution of text books in public schools of County Government of Vihiga. In the study by Rotich (2011) on quality specification practices, it is better for companies to easily locate the ideal suppliers who are able to deliver exactly what they require; hence it saves both time and resources for the buyer and any potential suppliers who cannot meet the buyer's precise specifications. More so, according to Kim, Kumar and Kumar (2012), it can also be advantageous to those suppliers who can meet the specifications, because it allows them to stand out from their competitors. More-Precise Price Estimates Specifying the exact composition of materials in organization's order can help potential suppliers to provide more accurate and detailed price quotes.

#### **Effective Distribution**

This section entailed an analysis of the dependent variable. It examined the understanding of Effective distribution of books in public secondary schools of County Government of Vihiga. The results of the study indicated that the respondents overall mean was 4.19, hence it gave a reflection of compassion that with proper distribution management practices, the managerial aspect of effectiveness on books distribution would be standardized. According to statement questions, mean includes; 4.19, 4.13, 4.38, 3.52, 3.53, 3.94 and 4.04, resulting into an average mean of 4.19. The standard deviations with respect includes; 0.848, 0.911, 0.562, 1.096, 1.119, 0.992 and 1.032. In the study by Binioris (2008) on supply chain management, distribution was defined as the transportation of the product from the point of production or trans-shipment to the point or points where demand has been recorded, in order to satisfy the expectations of the production enterprise and the consumer.

## Inferential Analysis

### Correlation of variables

This study used Pearson product-moment correlation coefficient to obtain a measure of the strength of association between two variables (Independent and Dependent). The Pearson correlation coefficient,  $r$ , can take a range of values from +1 to -1. A value of 0 indicated that there exists no association between

the independent and the dependent variables while a value greater than 0 indicated a positive association meaning that an increase in the value of one variable leads to the increase in the other. A value less than 0 indicate a negative association meaning; hence a decrease in the value of one variable would lead to a decrease in the value of the other.

**Table 1: Summary of Correlations**

		Quality specification practice	Effective Distribution
Quality Specification Practice	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	64	
Effective Distribution	Pearson Correlation	.528**	1
	Sig. (2-tailed)	.000	.000
	N	64	64

The correlation summary shown in Table 1 indicated that the associations between the independent variables and the dependent variable were significant apart from one which was insignificant at the 95% confidence level. Also, the inter-variable correlations between the independent variables were insignificant to affect the relationship with the dependent variable, hence, the effects of multicollinearity were minimized. Therefore, further analysis of the variables were carried out as follows;

### Quality Specification Practices on Effective Distribution

Correlation analysis was carried out to determine whether Quality Specification has any significant effect on Effective Distribution of books in public secondary schools in County Government of Vihiga. The correlation results showed that a strong positive significant relationship existed ( $r = 0.528$ ;  $p < 0.05$ ). This led to the rejection of the null hypothesis and

subsequently the adoption of the view that Quality Specification Practice was instrumental in ensuring Effective Distribution of text books in public secondary schools of County Government of Vihiga. In the study by Sila (2017) on supplies management, the scholar points out that a specification is a statement that describes to the designer exactly what the product has to do and what the design details are.

### Regression Analysis

The linear regression was undertaken for the purpose of examining the influence of Quality Specification Practices on Effective Distribution of textbooks in public secondary schools of County Government of Vihiga. The model summary on table 2 indicated a linear correlation coefficient  $R$  of 0.548 which indicated that the independent variable; Quality Specification Practice had a positive correlation with the dependent variable.

**Table 2: Linear Regression Analysis Model Summaries**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.548 <sup>a</sup>	.300	.264	2.37045

Predictors: (Constant), Quality Specification Practice

Hence, coefficient of determination (R Square) of 0.300 indicated that the independent variable constituted 30% of the variance in the dependent

variable. These results therefore explained 54.8% while the 45.2% is explained by other variables outside the scope of this study.

**Table 3: Summary of ANOVA**

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	189.854	1	47.463	6.307	.000 <sup>b</sup>
Residual	443.894	59	7.524		
Total	633.750	63			

a. Dependent Variable: Effective Distribution

b. Predictors: (Constant), Quality Specification Practices

The results of Table 3 indicated that there is a significant difference between means of Effective Distribution of textbooks in public secondary schools of County Government of Vihiga ( $F_{0'} = 6.307 > F_c = 2.50$ ;  $\alpha < 0.05$ ;  $df = 1, 59$ ;  $p = 0.000$ ). This finding confirmed that the model predicted showed that it is indeed significant. In order to find out which of the

independent variables was more important when it came to the Effective Distribution of textbooks in public secondary schools of County Government of Vihiga, beta value was used. The results were given in Table 4 that provided a summary of the multiple linear regression analysis correlation coefficients.

**Table 4: Multiple linear regression results**

	Un-standardized Coefficients		Standardized Coefficients	T	Sig.
	Beta( $\beta$ )	Std. Error	Beta( $\beta$ )		
(Constant)	2.240	4.760		.473	.638
Quality Specification Practice	.445	.084	.510	5.295	.000

a. Dependent Variable: Effective Distribution

It was reflected from the findings that the Quality Specification Practices was influential while predicting the variable in the model of Effective Distribution. Hence Quality Specification Practices ( $\beta = 0.445$ ,  $p = 0.000 < 0.05$ ). This indicated that the dependent variable Effective Distribution, would change by a corresponding number of standard deviations when the respective independent variables change by one standard deviation. The study therefore established that Quality Specification Practice had a significant influence on Effective Distribution of textbooks in public secondary schools in County Government of Vihiga.

### Hypotheses Testing

**H<sub>01</sub>:** Quality Specification Practice has no significant effect on Effective Distribution of textbooks in public secondary schools of County Government of Vihiga.

The hypothesis was tested by determining the relationship between Quality Specification Practices and Effective Distribution using regressions. The test was done at a significant level 0.05. The test results reflected existence of a statistically significant correlation between Quality Specification Practice and Effective Distribution where  $\beta$  was 0.445 and Probability ( $p$ ) was less than 0.05 ( $p = 0.000 < 0.05$ ). The result led to the rejection of the null hypothesis



and hence a conclusion that there exists a significant effect of Quality Specification Practice on Effective Distribution of textbooks in public secondary schools of County Government of Vihiga was supported by the findings.

Therefore, the emergent linear model of Quality Specification Practices was as follows;

$Y = 2.24 + .445X_1$  Where the variables are as follows;

Y= Effective Distribution,  $X_1$ = Quality Specification Practice

### CONCLUSIONS AND RECOMMENDATIONS

Regarding the effect of Quality Specification Practices on effective Distribution of textbooks in public secondary schools of County Government of Vihiga; Kenya, descriptive statistics results revealed that Quality Specification Practice was instrumental to Effective Distribution. Moreover, on consideration of correlation of Quality Specification Practice and Effective Distribution, the results indicated a strong positive significant relationship existence.

The study concluded that Quality Specification Practice was instrumental to Effective Distribution of textbooks. The findings also concluded that the secondary schools achieve better cost advantage through quality specification while procuring. However, with regards to adaptation, the study

concluded that Quality Specification Practice has brought with it challenges of adaptation within the secondary schools. Besides, the schools benefit a lot from getting the right quality of books, right price applied and proper delivery time so that the quality is maintained without delay that may affect goods and services under the cycle of delivery process. However, apart from other factors affecting Effective Distribution, Quality Specification is instrumental for Effective Distribution.

The study recommended that public schools should use Quality Specification Practice for Effective Distribution of textbooks. From the conclusions the study also recommended that, the institutions should achieve right quantity and quality books, textbooks delivered at a cost advantage and as well delivered on right time. However, with regards to how to adapt, the study recommended that Quality Specification Practice should be embraced to bring changes in schools on consideration that costs would be lowered and the textbooks delivered on time. More so, the deliveries would of right quality and quantity. Besides, from the study the recommendation was that, through Quality Specification Practice of schools it enables the schools to explore other modes of adaptation. In addition, it was recommended that Quality Specification should not be implemented in a way that it affects the Effective Distribution innovativeness.

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