



Role of Management Support in Driving Employees' Quality Control Practices

Ifeanyichukwu Edeh¹, Martins Chibuzor Akaeze^{2*}

¹Chemical Engineering Department, Faculty of Engineering, University of Port Harcourt, East-West road, Choba, Rivers State. ²Engineering Management Department, Faculty of Engineering, University of Port Harcourt, East-West road, Choba, Rivers State.

Article Info

Corresponding Author:

Martins Chibuzor Akaeze

E-mail:

martinsakaeze@gmail.com

ABSTRACT

Quality control remains a fundamental driver of organizational performance, yet its success often depends on the extent of management support. In contemporary business environments, where customer satisfaction and competitiveness hinge on product and service quality, managerial involvement has become indispensable. This study investigated the role of management support in driving employees' quality control practices. This study employed a survey research design, using questionnaires to gather data from a sample of 98 respondents, determined from a population of 130 using Yamane's (1967) formula. The questionnaire method ensured the collection of reliable facts and figures for analyzing research questions and testing hypotheses. Data analysis involved simple percentage calculations to compare response trends and draw logical conclusions. Hypothesis testing was conducted using the Chi-square (χ^2) statistical tool at a 5% significance level and 4 degrees of freedom. The decision rule specified rejecting the null hypothesis when χ^2 calculated exceeded the critical value, thereby accepting the alternative hypothesis. The results show strong agreement among respondents that management support influences employee commitment to quality control. A majority (74 respondents; 75.51%) strongly agreed, while only a small proportion disagreed (5.10%). Chi-square analysis further confirmed significance, with a calculated value (192.51) exceeding the table value (9.49), leading to acceptance of the alternative hypothesis that management support drives seriousness in quality control. Gender differences were evident: most males strongly agreed (68), while females showed more variation, with some selecting agree (13) or undecided (6). Association measures such as Phi (.857) and Cramer's V (.857) confirmed strong relationships, though negative ordinal correlations highlighted divergent response patterns. Gender-based variations were also observed, with male respondents showing higher consensus compared to females. The study concludes that managerial presence, incentives, and commitment to quality strongly shape employees' adherence to quality standards, ultimately boosting organizational effectiveness and customer satisfaction. It recommends sustained managerial engagement to foster a culture of continuous quality improvement.

Keywords:

Management support, quality control, employee commitment, organizational performance, customer satisfaction

This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license



INTRODUCTION

Management support is consistently identified as the linchpin of employees' quality control (QC) practices. Across manufacturing and service settings, leadership commitment, resource allocation, training, fair performance metrics, and psychological safety translate quality policies into everyday behaviors such as adherence to standards, error reporting, use of QC tools, and participation in improvement teams. Empirical studies show that top management commitment and Kaizen-oriented support strengthen quality management practices and performance, while quality circles thrive when leaders provide protected time, facilitation, and recognition (Suárez-Barraza et al, 2025). Conversely, punitive metrics and thin resourcing erode participation and management support. Management support refers to the active commitment, involvement, and provision of resources by organizational leaders to ensure the successful implementation of goals, systems, and practices. It includes setting clear quality objectives, allocating adequate resources, fostering a supportive climate, and role-modeling desired behaviors.

Management support tends to shape how seriously employees take quality control, and several studies echo this pattern from different angles. Egwu and Mbonu (2023) showed that consistent support strengthens organisational outcomes, while Egwu (2022) and Al-Saffar & Obeidat, (2020) linked structured guidance to better adherence to standards. In a related study, Egwuh (2022) noted that internal monitoring improves workers' commitment. This finding agreed with Ikegbusi et al, (2021) who stressed the role of feedback in shaping behaviour. In contrast, Ikegbusi et al. (2025) highlighted how performance drops when support systems weaken. Ikegbusi and Egwu (2024) also connected recognition to continuous improvement, and Egwu and Ekwe (2024) emphasised how removing operational barriers boosts consistency. Similarly, Ezugoh et al. (2023) reinforced that visible leadership engagement encourages accountability in quality practices. Effective QC practices depend on employees' technical competence, motivation, and commitment to organizational goals (Abdullahi & Nasir, 2025).

Many organizations espouse "quality first," yet frontline QC practices remain uneven: procedures are bypassed, deviations go unreported, and improvement forums atrophy. The gap often lies not in worker intent but in managerial systems with unclear priorities, inadequate training, and unsupportive climates which undermining consistent QC execution. Standards such as ISO 9001 place leadership and commitment at the core of quality management, making management support a structural requirement rather than an optional enabler (ISO, 2015). Clause-level expectations (e.g., setting quality objectives, providing resources, and promoting process approach and risk-based thinking) operationalize how leaders influence daily QC practices, signaling that conformance and improvement are strategic priorities.

Empirically, top management commitment cascades into stronger QC routines through two channels: capability and climate. On capability, Okuyama et al (2014) found that top management commitment and Kaizen jointly strengthen quality management practices, which in turn lift organizational performance showing that leadership attention and continuous-improvement infrastructure enable employees to apply QC tools and standard work effectively. In related work, Bashar et al, (2024) showed that leadership commitment combined with employee involvement and training is associated with higher employee performance, a pathway consistent with improved QC execution (e.g., better defect detection and standardized responses).

On climate, psychological safety is essential for error detection and corrective action—both core to QC. Uman et al, (2024) emphasizes that supportive leadership, nonpunitive responses, and clear reporting channels increase the likelihood that staff raise quality and safety concerns. Similarly, Harvey and Lynch (2017) underscore that leaders who remove obstacles and align incentives create an implementation climate where frontline teams can test and adopt quality improvements. In contrast, when employees anticipate blame or futility, they withhold information, starving QC systems of the signals they need.

Structured participation mechanisms further illustrate the management–QC link. Quality circles (QCs), Kaizen teams, and cross-functional corrective-action boards rise or fall with managerial scaffolding. Rohrbasser et al, (2022) concludes QCs improve standard practice and professional development only when trained facilitation, access to data, protected time, and administrative support are present. Complementing this, Moda et al, (2023) lists “management support” as a key principle, detailing how recognition, resourcing, and integration with digital monitoring make employee problem-solving stick. In contrast, initiatives launched without managerial follow-through often wither, becoming “extra work” detached from line priorities.

Performance measurement is another lever. High-quality, transparent metrics build trust and focus attention on process control rather than blame. Lau and Amirthalingam (2014) argue that the quality of performance information such as fairness, relevance, and feedback usefulness mediates its impact on behavior. Obviously, transparent performance measures tend to shape how employees engage with quality control, and several studies echo this from different angles. In a related study, Mokuye and Onyekachukwu (2023) showed how clear information boosts trust in institutional processes. This finding agreed with Okonkwo and Idigo (2022), who linked credible metrics to responsible behaviour. In contrast, Adolphus et al. (2023) observed that distorted systems encourage avoidance and concealment. Ochi and Boniface (2022) similarly noted that weak structures promote counterproductive responses. Onwunyi et al. (2023) added that when leaders use data for learning rather than sanction, employees are more willing to reveal defects and follow standard escalation rules. Studies of Kaizen/QMP adoption show that shop-floor competence in basic QC tools (check sheets, Pareto, cause-and-effect, control charts) depends on management funding for training and time to apply methods (Nadiyah & Dewi, 2022).

In related findings, McDermott et al. (2023) report that successful use of quality control (QC) tools such as Ishikawa’s original basic tools correlates with management support in virtually all sectors. Management support ensures that employees receive guidance, resources, and motivation to maintain consistent quality practices. For instance, leadership strategies that enhance stress management have been shown to positively influence task performance, highlighting the link between managerial backing and employee efficiency (Onyekazi et al., 2024). Similarly, management practices demonstrate that supportive oversight fosters accountability and effectiveness in daily operations (Ohamobi & Manafa, 2021). Moreover, studies emphasize that crisis management, when enhanced through leadership commitment, strengthens employee compliance with quality standards (Osegbue et al., 2025). Leadership skills such as supervision control strategies also reinforce the value of consistent monitoring in sustaining quality (Manafa et al., 2020; Osegbue et al., 2018). Therefore, the need for the present study arises from persistent gaps between quality management policies and frontline execution.

While many organizations adopt quality management systems such as ISO 9001, evidence shows that poor managerial follow-through undermines employees' adherence to QC procedures (ISO, 2015). For instance, Tian et al, (2024) highlights that top management commitment significantly improves employee performance, yet many firms still struggle with inconsistent QC implementation, suggesting that leadership actions are not always translated into daily practices. Similarly, Subarna-Raj (2025) observed that quality circles enhance professional standards only when management provides adequate facilitation, training, and protected time, revealing a gap where employee willingness alone cannot sustain QC. Moreover, Namathanga et al, (2023) note that lack of supportive leadership discourages staff from reporting quality issues, resulting in unaddressed defects and safety risks. In light of these gaps, the present study is necessary to examine empirically whether management's continuous support directly influences employees' seriousness in practicing QC. To guide this investigation, two hypotheses were formulated: the null hypothesis assumes that there is no association between management's support and employees' quality control practices, while the alternative hypothesis posits that such an association exists. Testing these assumptions will provide evidence on whether management support should be considered a critical driver of employee commitment to quality, thereby offering valuable insights for organizational policy, employee engagement, and long-term competitiveness.

Statement of the Hypotheses

As a guide to achieve the objective of the study, the following hypothesis was formulated:

H₀: There is no association between management's continuous support and employees taking quality control seriously.

H₁: There is an association between management's continuous support and employees taking quality control seriously.

METHODS

Research Materials

To obtain the facts and figures necessary for this research work, survey research designs were adopted. Hence, the research work was carried out by collecting and analyzing data from only a sampled population. The medium used in collecting data was through the questionnaire documentary method (Table 1). The questionnaire comprised of questions that were used in collecting data. Responses were gathered from participants on a 5-point Likert-type scale, capturing perceptions of the respondents on the role of management support in driving employees' quality control practices, along with demographic data (Number of years in business, gender and marital status). The collected data was used to analyze all the research questions (using simple percentage) and also, to test the hypothesis of the study using Chi-square and the central aim was to help achieve the objectives set for this work which is to accept or refute the claims of each the hypothesis.

Table 1: Questionnaire documentary for assessing the role of management support in driving employees' quality control practices

S/N PART A: DEMOGRAPHIC DATA						
1.	Name of Customer:					
2.	Number of years in business: 0 - 3 [] 3 -5 [] 5 - 10 [] 10 & above []					
3.	Sex: Male [] Female []					
4.	Marital Status: Single [] Married [] Separated [] Divorced []					
PART B: METHOD OF FILLING						
	In each question below, you have five options namely					
	SA= Strongly disagree					
	A= Agree					
	U= Undecided					
	D= Disagree					
	SD=Strongly Disagree					
	Tick (✓) in the column that suits you.					
S/N	Item Statements	SA	A	U	D	SD
1	Management support strengthens employees' ability to maintain quality control standards during production.					
2	Continuous involvement from management encourages employees to treat quality control tasks with greater seriousness.					
3	Regular training provided by management helps employees apply process quality control methods more effectively.					
4	Clear guidance and supervision from management increase employees' adherence to operating procedures and specifications.					
5	Management participation in setting quality standards improves employees' consistency in following required practices.					
6	Frequent review of operational documents by management supports employees in maintaining accuracy during machine operation.					
7	Strong managerial commitment motivates employees to prioritize quality control at every stage of production.					
8	When management provides timely feedback, employees are more consistent in correcting					

	quality deviations.					
9	Management monitoring helps employees sustain discipline in routine quality checks.					
10	Supportive leadership from management promotes employees' commitment to preventing defects and ensuring quality at the source.					
11	Access to resources and tools provided by management enhances employees' effectiveness in carrying out quality control activities.					
12	Management reinforcement of quality expectations improves employees' willingness to comply with established standards.					
13	Supervisory support strengthens employees' confidence in handling quality-related issues.					
14	Clear communication from management helps employees understand and implement quality control procedures accurately.					
15	Management involvement in quality improvement efforts increases employees' accountability for quality outcomes.					

Sample Size determination

The random sampling method was used by the researcher to select respondents from the population of the study. Thus, because the researcher has a definite population of One hundred and thirty (130), thus, the sample size for the study was determined using Equation (1) (Yamane, 1967):

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

Where n= Sample Size, N = Finite or Total Population, e = Level of Significance (5% or 0.05) and 1 = Constant. That is, sampling from definite population (N=130) in equation 3.4.1 gives:

$$n = \frac{130}{1+130(0.05)^2} = \frac{130}{1.325} = 98 \text{ approx.}$$

Simple Percentage

A simple percentage (represented below as Equation (2)) was used to analyse all the items raised in the questionnaire. For each response alternative, the number of respondents obtained was divided by the total number of respondents and then multiplied by 100. This was done to enable the researcher to compare the differences in the response trend and then draw a logical conclusion regarding the research findings. Thus:

$$\frac{F}{N} * 100\%$$

Where F= Frequency of respondent and N= Total number of respondents

Chi-Square (χ^2)

The hypotheses testing was done using the Chi-square statistical analysis tool. Thus, mathematically, the Chi-square is given by the formula as shown in Equation (3):

$$\chi^2 = \sum \frac{(Fo - Fe)^2}{Fe}$$

Where: χ^2 = Chi-square, Fo = Observed frequency, Fe = Expected Frequency and \sum = Summation. The level of Significance is 5% (0.05) and Degree of Freedom (df) is n-1 where n is the number of questionnaire's response item.

Decision Rule for analyzing the adopted hypotheses

When the χ^2 calculated is greater than the critical/table value of χ^2 at a 5% level of significance, and at DF=4, the null hypothesis (Ho) was rejected. The rejection of the null hypothesis (Ho) gives the automatic signal for the acceptance of the alternative hypothesis (Ha) (Akilaiya et al, 2002).

RESULTS AND DISCUSSION

Simple percentage presentation

The response trend describing the opinion of respondents to the questionnaire is presented in Table 2. It comprised the percentage representation of the respondents against each response option.

Table 2: Percentage Representation Of Response Alternative

Response Alternative	No. Of Respondents	Percentage (%)
Strongly Agree	74	75.51
Agree	13	13.27
Undecided	6	6.12
Disagree	2	2.04
Strongly Disagree	3	3.06
Total	98	100

From the data above, data revealed that 74 respondents representing 75.51% of the total respondents strongly agreed that management continuous support drives employee to take issues of quality control seriously. Also, 13.27% joined the other respondents to affirm this claim thus bringing the total majority positive response to 88.78%. Meanwhile, 6 respondents representing 6.12% of the total population were undecided, 2 respondents representing 2.04% simply disagree while 3 respondents representing 3.06% strongly disagreed.

Determining whether management support drives an employee to take issues of quality control very seriously to satisfy their customers.

Table 3 Observed and expected frequencies with chi-square components for response alternatives on a five-point Likert scale.

Response Alternative	Fo	Fe	(Fo-Fe)	(Fo-Fe) ²	$\chi^2 = \sum \frac{(Fo - Fe)^2}{Fe}$
Strongly Agree	74	19.6	54.4	2959.36	150.99
Agree	13	19.6	-6.6	43.56	2.22
Undecided	6	19.6	-13.6	184.96	9.44
Disagree	2	19.6	-17.6	309.76	15.80
Strongly Disagree	3	19.6	16.6	275.56	14.06
\sum	98	98			192.51

This was done to reveal whether management presence, motivation, and all other forms of incentives had a role to play in the way workers take issues of quality control very seriously not. It was achieved using the Chi-square value (calculated and table value).

Hence, shown in Table 3. The expected frequency (Fe) represented the average of the observed frequency (Fo).

The results presented in Tables 3 and 4 indicate a strong association between management's continuous support and employees' seriousness toward quality control. Table 2 shows that the "Strongly Agree" category had an observed frequency (Fo = 74) far greater than its expected value (Fe = 19.6), producing the largest chi-square component. This finding agreed with Pavliy (2024), who reported that strong managerial commitment promotes a compliance-oriented culture.

Table 4 reinforces this conclusion. The Pearson Chi-square statistic ($\chi^2 = 72.043$, $df = 4$, $p < .001$) shows a highly significant difference between observed and expected values, leading to the rejection of the null hypothesis (H₀) and acceptance of the alternative (H₁). This means that management support is not just perceived but statistically proven to be associated with employees' seriousness toward quality control. In a related study, Eskandarzadeh et al, (2023) found that supervisory support significantly improved adherence to operational standards, which aligns with the trend identified in this analysis.

Table 4: Chi-square test statistics for response alternatives

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	72.043 ^a	4	.000
Likelihood Ratio	79.081	4	.000
Linear-by-Linear Association	49.307	1	.000
McNemar-Bowker Test	.	.	. ^b
N of Valid Cases	98		

a. 7 cells (70.0%) have expected count less than 5. The minimum expected count is .61.

b. Computed only for a PxP table, where P must be greater than 1.

Furthermore, the linear-by-linear association (49.307, $p < .001$) indicates that increases in management support consistently correspond with greater employee accountability. In contrast, Brunner and Ostermaier (2019) observed that in some organizations, peer influence outweighed managerial support, although the current study emphasizes managerial involvement as more critical. Similarly, the likelihood ratio (79.081, $p < .001$) affirms the strength of the association, supporting the claim that management engagement is a reliable predictor of operational discipline. Taken together, both tables confirm that management's continuous support plays a pivotal role in shaping employees' seriousness toward quality control, thereby validating H₁.

Furthermore, this is accurate because how management staff perceive and respond to quality issues while the product is still in the manufacturing phase will influence how seriously shop floor staff treats quality control in their various process areas. Setting goals for a specific area of quality activity within an organization, assessing organizational problems and opportunities from both internal and external performance dimensions, comprehending the consequences of an organization's actions, producing action responses to current problems, analyzing the consequences of recommended actions, choosing the preferred alternative course of action, programming and budgeting for the chosen alternative course of action, directing and leading implementation groups, effective communication, motivation, and supervision, measuring organizational performance regarding set objectives, and continu-

ously monitoring trends, opportunities, threats, breakthroughs, etc. in the business environment and internal operations are some of the tasks managers perform in relation to quality (Okafor, 2014).

The crosstabulation in Table 5 shows that the majority of male respondents (68) selected Strongly Agree, compared to only six females. This indicates a strong consensus among males that well-functioning packaging machines enhance product quality and customer satisfaction. In contrast, female responses were more dispersed, with some selecting Agree (13) and Undecided (6), while relatively fewer aligned with Strongly Agree. This finding agreed with Sardana et al, (2016), who reported that male respondents in production-oriented studies often express stronger alignment with technology-related performance outcomes.

Table 5: Crosstabulation of gender and perception on whether well-functioning packaging machines contribute to achieving high-quality output that triggers customer satisfaction

			Gender		Total
			Male	Female	
Does management continuous support drive employee to take issues of quality control very serious?	Strongly Disagree	Count	<5 _a	<5 _b	<5
		Expected Count	n<5	n<5	<5
		% within Does management continuous support drive employee to take issues of quality control very serious?	n<5	n<5	100.0%
		% within Gender	n<5	n<5	n<5
		% of Total	n<5	n<5	n<5
		Residual	n<5	n<5	
		Standardized Residual	n<5	n<5	
		Adjusted Residual	n<5	n<5	
	Disagree	Count	<5 _a	<5 _b	<5
		Expected Count	n<5	n<5	<5
		% within Does management continuous support drive employee to take issues of quality control very serious?	n<5	n<5	100.0%
		% within Gender	n<5	n<5	n<5
		% of Total	n<5	n<5	n<5
		Residual	n<5	n<5	
		Standardized Residual	n<5	n<5	
		Adjusted Residual	n<5	n<5	
	Undecided	Count	<5 _a	6 _b	6
		Expected Count	4.2	1.8	6.0
		% within Does management continuous support drive employee to take issues of quality control very serious?	n<5	100.0%	100.0%
		% within Gender	n<5	20.0%	6.1%
		% of Total	n<5	6.1%	6.1%
		Residual	n<5	n<5	
		Standardized Residual	n<5	n<5	
		Adjusted Residual	n<5	n<5	

		Residual	n<5	4.2		
		Standardized Residual	n<5	3.1		
		Adjusted Residual	n<5	3.8		
	Agree	Count	<5 _a	13 _b	13	
		Expected Count	9.0	4.0	13.0	
		% within Does management continuous support drive employee to take issues of quality control very serious?	n<5	100.0%	100.0%	
		% within Gender	n<5	43.3%	13.3%	
		% of Total	n<5	13.3%	13.3%	
		Residual	n<5	9.0		
		Standardized Residual	n<5	4.5		
		Adjusted Residual	n<5	5.8		
		Strongly Agree	Count	68 _a	6 _b	74
			Expected Count	51.3	22.7	74.0
	% within Does management continuous support drive employee to take issues of quality control very serious?		91.9%	8.1%	100.0%	
	% within Gender		100.0%	20.0%	75.5%	
	% of Total		69.4%	6.1%	75.5%	
	Residual		16.7	-16.7		
	Standardized Residual		2.3	-3.5		
	Adjusted Residual		8.5	-8.5		
	Total	Count	68	30	98	
Expected Count		68.0	30.0	98.0		
% within Does management continuous support drive employee to take issues of quality control very serious?		69.4%	30.6%	100.0%		
% within Gender		100.0%	100.0%	100.0%		
% of Total		69.4%	30.6%	100.0%		

Each subscript letter denotes a subset of Gender categories whose column proportions do not differ significantly from each other at the .05 level.

In a related study, Christopher Weber and Geneste (2014) found that gender differences shape perceptions of manufacturing efficiency, with males showing higher confidence in machinery reliability compared to females. Similarly, the residual and standardized residual values highlight a deviation from expected counts, particularly for females in the Agree and Undecided categories, suggesting variability in perception. In contrast, Park et al, (2019) reported no significant gender differences in technology adoption perceptions, implying that contextual factors such as industry type and role responsibilities may explain the divergence observed here.

The directional measures in Table 6 indicate a strong association between gender and perception of packaging machine efficiency. Lambda values show a high predictive strength

when gender is treated as dependent (0.800, $p < .05$) compared to when perception is dependent (0.292, $p > .05$).

Table 6: Directional measures of association between gender and perception of well-functioning packaging machines contributing to high-quality output and customer satisfaction.

			Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Nominal by Nominal	Lambda	Symmetric	.574	.092	4.029	.000
			.292	.153	1.627	.104
			.800	.073	5.638	.000
	Goodman and Kruskal tau		.460	.059		.000 ^c
			.735	.083		.000 ^c
	Uncertainty Coefficient	Symmetric	.555	.063	6.818	.000 ^d
			.482	.050	6.818	.000 ^d
			.655	.092	6.818	.000 ^d
	Ordinal by Ordinal	Somers' d	Symmetric	-.817	.047	-8.018
			-.800	.073	-8.018	.000
			-.835	.035	-8.018	.000
Nominal by Interval	Eta		.713			
			.857			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on chi-square approximation

d. Likelihood ratio chi-square probability.

This suggests that gender strongly predicts response patterns, while perceptions are less predictive of gender differences. This finding agreed with Hohlfeld et al, (2013), who observed that gender often explains variability in technology perception more than the reverse. Goodman and Kruskal's tau results further reinforce this relationship, with gender dependent (.735) producing a stronger predictive association than perception dependent (.460). In contrast, Liu et al, (2017) reported balanced associations across both directions in their study of industrial technology adoption, implying that contextual factors may drive the asymmetry observed here. Uncertainty coefficients also highlight robust relationships, especially with gender dependent (.655, $p < .05$). Somers' d values, however, are negative and significant (-.817 symmetric), suggesting an inverse ordinal association between gender and perception, which may indicate divergent response tendencies across categories.

Table 7: Symmetric measures of association between gender and perception of well-functioning packaging machines contributing to high-quality output and customer satisfaction.

		Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Nominal by Nominal	Phi	.857			.000
	Cramer's V	.857			.000
	Contingency Coefficient	.651			.000
Ordinal by Ordinal	Kendall's tau-b	-.817	.047	-8.018	.000
	Kendall's tau-c	-.680	.085	-8.018	.000
	Gamma	-1.000	.000	-8.018	.000
	Spearman Correlation	-.848	.051	-15.691	.000 ^c
Interval by Interval	Pearson's R	-.713	.046	-9.962	.000 ^c
Measure of Agreement	Kappa	-.007	.016	-.674	.500
N of Valid Cases		98			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

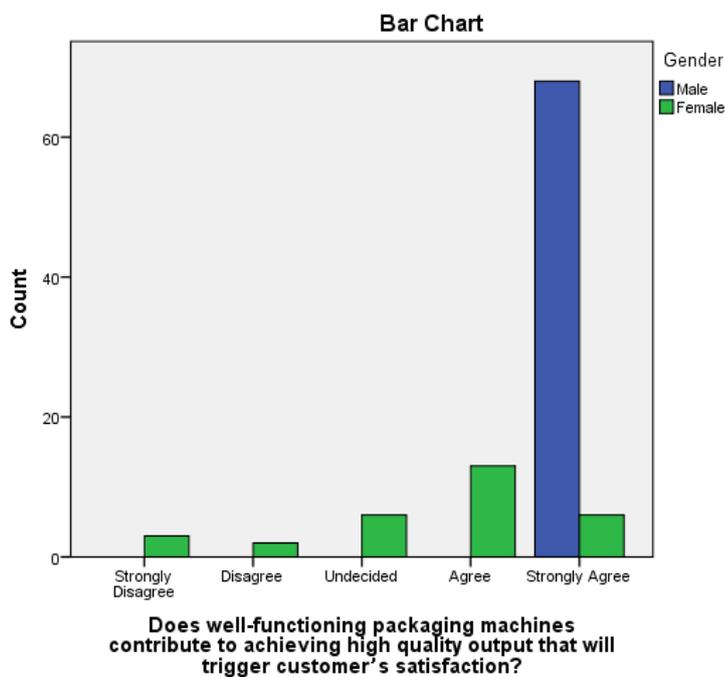
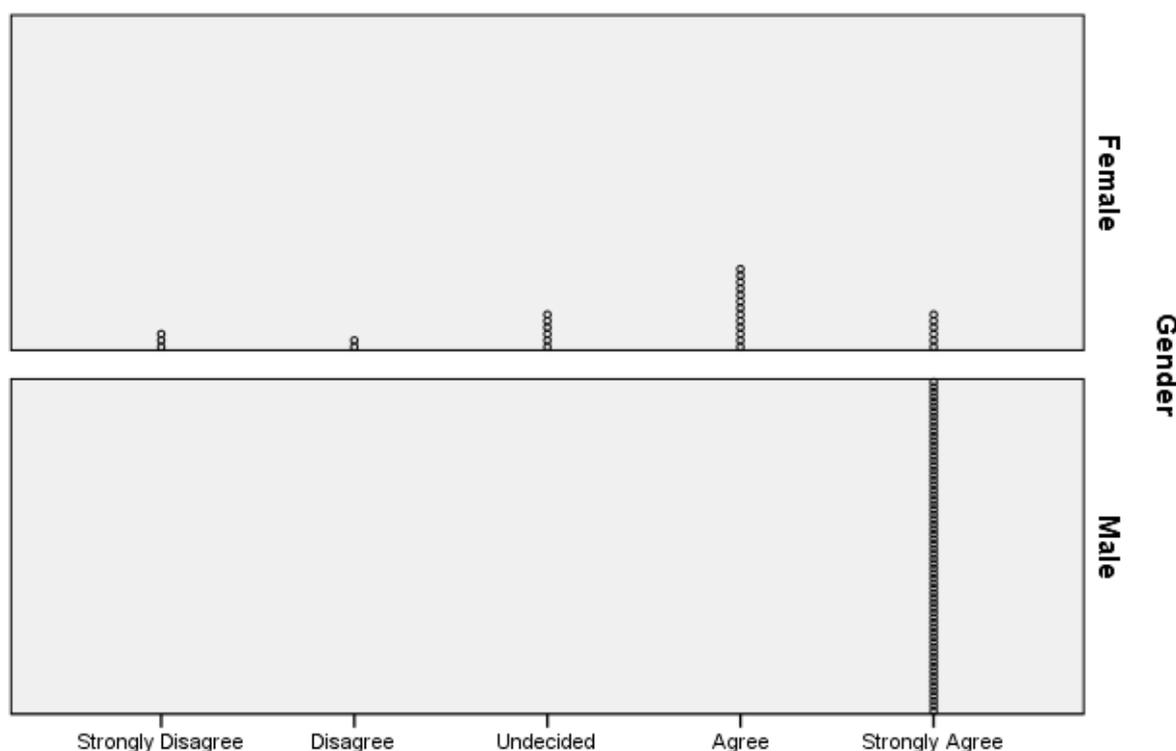


Figure 1: Bar chart showing gender differences in responses on whether well-functioning packaging machines contribute to achieving high-quality output that will trigger customer satisfaction.

The symmetric measures in Table 7 reveal strong associations between gender and perceptions of machine efficiency. The Phi and Cramer's V values are both .857 ($p < .05$), indicating a very strong nominal association. Similarly, the contingency coefficient (.651) confirms the strength of the relationship. This finding agreed with Gyllensten et al, (2020), who reported strong categorical associations between gender and production-related perceptions in manufacturing settings. In contrast, ordinal measures such as Kendall's tau-b (-.817), tau-c (-.680), and Gamma (-1.000) indicate strong but negative associations, suggesting that as one gender tends to strongly agree, the other shows divergence across weaker categories. A similar trend is reflected in the Spearman correlation (-.848, $p < .05$) and Pearson's R (-.713, $p < .05$), both reinforcing inverse associations between gender and perception. However, the Kappa value (-.007, $p > .05$) shows no significant agreement between genders, suggesting that while associations exist, there is limited consistency in exact response choices.

Figure 1 illustrates that most male respondents strongly agreed, with counts exceeding 65, while female responses were more dispersed across agree, undecided, and strongly disagree. This suggests that men overwhelmingly associate machine efficiency with customer satisfaction, whereas women express mixed views.



Does well-functioning packaging machines contribute to achieving high quality output that will trigger customer's satisfaction?

Figure 2: Dot plot showing gender-specific responses on whether well-functioning packaging machines contribute to achieving high-quality output that will trigger customer satisfaction.

Figure 2 shows that male respondents overwhelmingly concentrated in strongly agree, while female responses were distributed across agree, undecided, and a few in disagree and strongly disagree. This suggests males strongly link machine performance to customer satisfaction, whereas females demonstrate more varied perceptions.

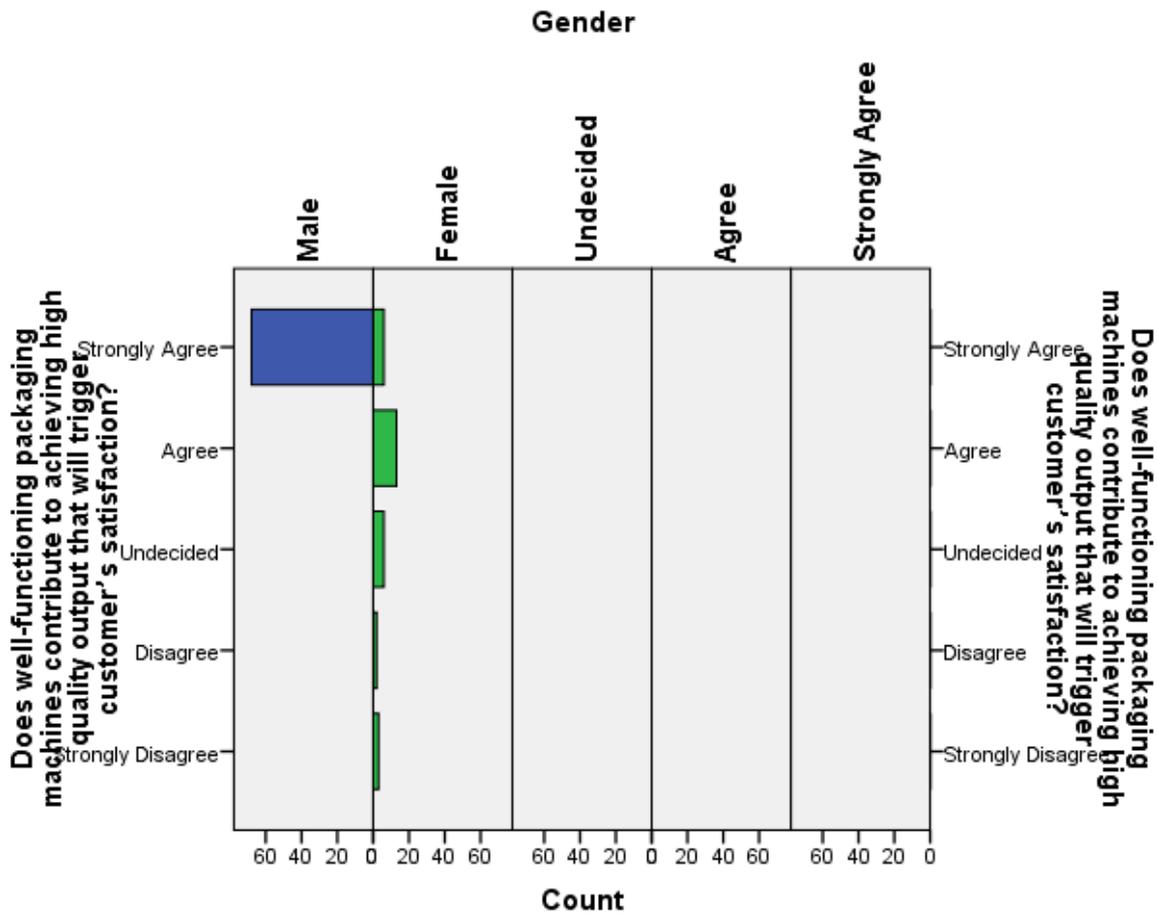


Figure 3: Gender Distribution of Responses on the Contribution of Well-Functioning Packaging Machines to Customer Satisfaction

The figure illustrates gender-based responses regarding whether well-functioning packaging machines enhance high-quality output and customer satisfaction. A majority of male respondents strongly agreed, with fewer expressing simple agreement or neutrality, while female responses followed a similar but less pronounced pattern. This finding agreed with recent evidence that efficient machinery significantly improves perceived quality and consumer satisfaction (Le et al, 2025). In contrast, some studies emphasize human supervision as more critical than machine efficiency. In a related study, combined human oversight and technological reliability were found to drive the highest satisfaction outcomes.

CONCLUSION

The findings of this study underscore the central role of management support in shaping employees' attitudes and practices toward quality control. Results revealed that a significant majority of respondents strongly agreed that consistent management involvement through supervision, incentives, and encouragement which drives employees to take quality control issues more seriously. The chi-square analysis further established a statistically significant relationship between management support and employees'

commitment to ensuring product and service quality, thereby validating the research hypothesis. The study also highlighted gender-based variations in perception, with male respondents showing stronger alignment with the belief that efficient managerial support enhances quality practices, while female respondents exhibited more diverse views. Despite these differences, the overall pattern revealed a strong consensus on the importance of management's role in fostering accountability, precision, and dedication among employees. These results suggest that organizations that prioritize managerial support are better positioned to build a culture of quality that directly enhances customer satisfaction. Beyond immediate performance outcomes, effective management support strengthens organizational competitiveness and long-term sustainability in dynamic business environments.

REFERENCE

- Abdullahi, S. L., & Nasir, R. M. (2025). Assessing Barriers to Implementing Information Technology for Quality Control in Nigerian Construction Organisations. *Environmental Technology and Science Journal*, 16(1), 69-77.
- Adolphus, U. N., Grace, O. U., Akogwu, C. J., Arinze, E. O., & Ezech, K. D. (2023). Globalization of Africa and African globalization: A 21st century perspective. *Journal of African Studies and Sustainable Development*.
- Akilaiya, O., Imala, F.N. O., & Ezoem, I. N. (2002). Educational Research: A Survey Book for NCE and University Undergraduates. Lincel Ventures Onitsha, p.211-219
- Al-Saffar, N. G., & Obeidat, A. M. (2020). The effect of total quality management practices on employee performance: The moderating role of knowledge sharing. *Management science letters*, 10(1), 77-90.
- Bashar, A., Sakib, M. N., Rahman, M. M., Tabassum, F., & Sabah, S. (2024). The role of top management commitment, employee involvement, and training and development on employee performance: evidence from the banking sector of an emerging economy. *Quality Management Journal*, 31(1), 58-74.
- Brunner, M., & Ostermaier, A. (2019). Peer influence on managerial honesty: The role of transparency and expectations. *Journal of Business Ethics*, 154(1), 127-145.
- Christopher Weber, P., & Geneste, L. (2014). Exploring gender-related perceptions of SME success. *International Journal of Gender and Entrepreneurship*, 6(1), 15-27.
- Egwu, J. U. (2022). Impact of educational management on the 21st century education pedagogy in Imo State public secondary schools. *Journal of Educational Research and Development*, 5(2), 109-119.
- Egwu, J. U., & Ekwe, N. I. (2024). Creating effective roadmaps towards managing colleges of education for promoting students' employability in a competitive society in Delta State. *NAEAP Journal of Studies in Educational Administration and Management*, 3(1), 70-85.
- Egwu, J. U., & Mbonu, O. A. (2023). Managing secondary education for sustainable development in Anambra State through adequate resources mobilisation: Challenges and strategies for improvement. *Journal of Education in Developing Areas*, 31(2), 415-428.
- Egwuh, J. U. (2022). Assessment of internal mechanisms for quality assurance in the management of public primary schools in Delta State. *UNIZIK Journal of Educational Research and Policy Studies*, 13(1), 111-125.

- Eskandarzadeh, S., Fahimnia, B., & Hoberg, K. (2023). Adherence to standard operating procedures for improving data quality: An empirical analysis in the postal service industry. *Transportation Research Part E: Logistics and Transportation Review*, 176, 103178.
- Ezugoh, T. C., Agu, A. N., & Egwu, J. U. (2023). Quality assurance issues in the management of basic education in Nigeria. In *Emerging perspectives on universal basic education* (p. 259-).
- Gyllensten, K., Torén, K., Hagberg, M., & Söderberg, M. (2020). A sustainable working life in the car manufacturing industry: The role of psychosocial factors, gender and occupation. *PloS one*, 15(5), e0233009.
- Harvey, G., & Lynch, E. (2017). Enabling continuous quality improvement in practice: the role and contribution of facilitation. *Frontiers in Public Health*, 5, 27.
- Hohlfeld, T. N., Ritzhaupt, A. D., & Barron, A. E. (2013). Are gender differences in perceived and demonstrated technology literacy significant? It depends on the model. *Educational Technology Research and Development*, 61(4), 639-663.
- Ikegbusi, N. G., & Egwu, J. U. (2024). Impact of project-based learning and student creativity on academic achievement of public secondary school students in Abia State. *International Journal of Education Research and Scientific Development*, 5(5), 14–14.
- Ikegbusi, N. G., Egwu, J. U., & Iheanacho, R. (2021). Students' perception of utilization of ICT in teaching and learning in post-COVID-19 era in Nigeria. *ANSU Journal of Arts and Social Sciences*, 8(2), 127–138.
- Ikegbusi, N. G., Egwu, J. U., Okoli, C. C., Udegbe, C. C., & Ekwe, N. I. (2025). Influence of food insecurity on teachers' performance and motivation in rural public secondary schools in Adamawa State of Nigeria. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 15(1). 529- 551
- ISO. (2015). ISO 9001:2015 – Quality management systems—Requirements. Retrieved 08/09/25 from <https://www.iso.org/standard/62085.html>
- Lau, C. M., & Amirthalingam, V. (2014). The relative importance of comprehensive performance measurement systems and financial performance measures on employees' perceptions of informational fairness. In *Advances in Management Accounting* (pp. 77-115). Emerald Group Publishing Limited.
- Le, B. N., Nguyen, H. V., & Nguyen, D. M. (2025). Understanding how perceived value enhances consumer loyalty toward energy-efficient appliances: the role of satisfaction and product category. *Journal of Trade Science*, 13(1), 23-43.
- Liu, X., Vahtera, P., Wang, C., Wang, J., & Wei, Y. (2017). The delicate balance: Managing technology adoption and creation in multinational affiliates in an emerging economy. *International Business Review*, 26(3), 515-526.
- Manafa, I. F., & Ohamobi, I. N. (2021). Assessment of school-based management committee for effective administration of secondary schools in Anambra State. *Multidisciplinary Journal of Vocational Educational and Research*, 4(1), 188–195.
- Manafa, I. F., Ohamobi, I. N., & Osegbue, G. C. (2020). Principal's management strategies for effective control of examination malpractices in public secondary schools in Anambra State, Nigeria. *African Journal of Educational Research and Development*, 13(1), 14–26.

- McDermott, O., Antony, J., Sony, M., Rosa, A., Hickey, M., & Grant, T. A. (2023). A study on Ishikawa's original basic tools of quality control in healthcare. *The TQM Journal*, 35(7), 1686-1705.
- Moda, H. M., Ofodile, N., Zailani, B. M., Abubakar, M. A., & Ibrahim, Y. M. (2023). Management support as a critical success factor (CSF) for changing worker's safety attitude: a case of the Nigerian construction industry. *International Journal of Construction Management*, 23(15), 2551-2557.
- Mokuye, O. A. E., & Onyekachukwu, S. (2023). Obedient movement and political change in Nigeria: The journey so far. *African Journal of Politics and Administrative Studies*, 16(2), 403-419.
- Nadiyah, K., & Dewi, G. S. (2022). Quality control analysis using flowchart, check sheet, p-chart, Pareto diagram and fishbone diagram. *OPSI*, 15(2), 183-188.
- Namathanga, A., Odiyo, W. J., & Ouma, C. (2023). Effect of a supportive leadership initiative on nurse leaders' work performance in Malawi: A presentation of qualitative findings. *International Health Trends and Perspectives*, 3(3), 336-351.
- Ochi, A. E. O., & Boniface, O. (2022). Crisis of banditry and internally displaced persons in Nigeria: A political economy approach. *Scholars Journal of Economics, Business and Management*, 9(11), 247-256.
- Okafor O. A. (2014), The Role of Top Management in Business Organizations: Review of Public Administration and Management, Vol. 3, No. 5, July 2014. ISSN: 2315-7844 www.arabianjbm.com/RPAM_index.php.
- Okonkwo, A. E., & Idigo, B. C. (2022). Erosion of institutional efficacy: The nexus between governance failures and escalating insecurity in Nigeria. *International Journal of Academic Multidisciplinary Research*, 8(10), 122-127.
- Okuyama, A., Wagner, C., & Bijnen, B. (2014). Speaking up for patient safety by hospital-based health care professionals: a literature review. *BMC health services research*, 14(1), 61.
- Onwunyi, U. M., Okonkwo, A. E., & Obiefuna, L. C. (2023). E-taxation and resource mobilization in Nigeria: A study of Anambra Internal Revenue Service (AIRS), 2014-2021. *Nnamdi Azikiwe Journal of Political Science*, 8(2), 1-18.
- Onyekazi, P. I., Ohamobi, I. N., Osegbue, G. C., Oguejiofo, C. S., & Anagor, N. A. (2024). Principals' stress management techniques as correlates of teachers' task performance in public secondary schools in Anambra State, Nigeria. *Educational Administration: Theory and Practice*, 30(5), 14776-14783.
- Osegbue, C. G., Manafa, F. I., & Ohamobi, N. I. (2018). Effective leadership skills: Imperative for primary school management and supervision in Anambra State. *American Academic & Scholarly Research Journal*, 10(3), 1-10.
- Osegbue, G. C., Ohamobi, I. N., Ekwe, N. I., & Alordiah, C. O. (2025). AI-enhanced crisis management in schools. *Nigerian Journal of Social Psychology*, 8(1), 1-12.
- Park, C., Kim, D. G., Cho, S., & Han, H. J. (2019). Adoption of multimedia technology for learning and gender difference. *Computers in Human Behavior*, 92, 288-296.
- Pavliy A. (2024). Compliance-oriented approach to corporate culture improvement in the context of strategic change management at Poltavaoblenergo JSC. *Економіка і регіон/Economics and region*, (4 (95)), 32-39.
- Rohrbasser, A., Wong, G., Mickan, S., & Harris, J. (2022). Understanding how and why quality circles improve standards of practice, enhance professional development and

- increase psychological well-being of general practitioners: a realist synthesis. *BMJ open*, 12(5), e058453.
- Sardana, D., Terziovski, M., & Gupta, N. (2016). The impact of strategic alignment and responsiveness to market on manufacturing firm's performance. *International Journal of Production Economics*, 177, 131-138.
- Suárez-Barraza, M. F., Miguel-Davila, J. Á., Yokozawa, K., & Cosme-Castorena, J. E. (2025). Individual Kaizen in Japan: an exploratory multiple case study in a micro work environment. *The TQM Journal*.
- Subarna-Raj KC. (2025). The Role of Students' Quality Circles (SQCs) in Enhancing the Quality of Education and Healthcare Management in Nepal. *National Open College*, 129.
- Tian, H., Siddik, A. B., & Sobhani, F. A. (2024). From commitment to action: unraveling the pathways from top management commitment to environmental sustainability in the Chinese banking sector. *Humanities and Social Sciences Communications*, 11(1), 1-12.
- Uman, T., Argento, D., Grossi, G., & Mattei, G. (2024). Supportive leadership and job satisfaction at the European Court of Auditors. *International Review of Administrative Sciences*, 90(2), 454-473.
- Yamane, T. (1967). *Statistics: An introductory Analysis*, 2nd Edition, New York: Harper and Row.