Performance Management, Organizational Learning and Operational Efficiency in Universities in Kenya

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Abstract

Performance management has been extensively studied with differing ideas of what it is. Universities implemented performance management for efficiency. Performance management's influence on operational efficiency with organizational learning as a mediator was investigated and confirmed by the study. Institutional and social cognitive theories grounded the study. Performance management was operationalized using the performance Management Behavior Questionnaire. Organizational learning applied the Dimensions of Learning Organization Questionnaire. A cross-sectional descriptive census survey design was carried out on a population of 72 universities with a response rate of 58. Data envelopment analysis showed that technical efficiency declined. There was no sustainability of performance management initiatives. A careful balance between quality and entrepreneurism within the university as well in the proliferation of universities and careful attention to sustainability of organizational learning were recommended.

Key words: Data Envelopment Analysis, Operational Efficiency, Organizational Learning, Performance Management, Universities.

Introduction

Over the years, there have been numerous costly performance management strategies in universities, yet monumental challenges with operational efficiency are still prevalent (Aversano et al. (2017). It involves goal setting, communication, monitoring of set targets and rewarding outcomes (Armstrong, 2019) and should lead to employee empowerment and significant improvements to performance and operational efficiency (Biondi & Russo, 2022; Kipesha & Msigwa, 2013). Universities in Kenya are facing the same dilemma,

mainly dwindling funding from public coffers and drastic decrease of eligible student numbers in the sector due to stringent examination management practices by the Kenyan Government through the Kenya National Examinations Council (Mungai et al. 2021; Wangenge-Ouma, 2008).

Nguyen-Duc et al. (2023) held that a critical success factor for organizational efficiency and effectiveness is organizational learning. This study investigated organizational learning as a mediator in the performance management, operational efficiency relationship. A greater number of organizations have adopted learning to remain competitive and enhance operational efficiency (Do et al. 2022; Senge, 1990). Various dimensions of organizational learning capabilities are practiced to some level in universities especially transfer of knowledge and leadership oriented towards learning (Ju et al. 2021).

Individual and group/team are levels where organizational learning occurs (Argote et al. 2021; Popova-Nowak & Cseh, 2015). Individuals learn by identifying gaps in performance and looking for ways to achieve optimal performance. This information is then converted into knowledge that is disseminated and becomes part of the norms in the university. Organizational learning leads to potential organizational behavior shifts, hence operational efficiency. Organizational learning is critical for sustaining organizational initiatives leading to desired objectives (Nzuve & Omolo, 2012).

Institutional theory is the major theory underpinning performance management and operational efficiency. An institution receives and gives information and stimuli from and to numerous sources both internal and external. Over time, this new information gives rise to shifts in how things are done altering behavior and patterns of thinking (Risi et al. 2023; Scott, 2017). The other theory is the social cognitive theory which proposes that actors must feel they can influence their actions. It is premised on the assumption that learning is conditioned on observation of others and a sense of mastery over oneself and the conditions prevailing (Almulla & Al-Rahmi, 2023; Bandura ,2011).

The value of the work is derived from a gap identified between the literature review and implemented outcomes (Argote et al. 2021). Literature on the existing body of knowledge on performance management, organizational learning and operational efficiency as well as institutional and social cognitive theories will be built on. Sustainability of the implemented approaches and the outcomes is another identified gap that will be addressed. A multi theoretical approach and the data envelopment analysis model were employed to establish whether the variables in this study influence operational efficiency and add unto empirical studies in this area. This investigation was a reference point for other researchers. The thesis also informed policy makers on how to achieve operational efficiency through performance management while taking into account organizational learning.

Literature Review

Performance management in varying forms was one of the strategies that have been implemented towards operational efficiency in universities (Camilleri, 2021). It takes cognizance of the employee's abilities through performance planning, implementation, feedback, evaluation, and rewards (Armstrong, 2019; DeNisi et al. 2021). Different types of performance management are used in universities with scope varying among different actors,

depending on diverse external and internal factors with the ultimate aim of enhancing operational efficiency. The operationalization of performance management was adapted from Kinicki et al. (2013) validated Performance Management Behavior Questionnaire, which has five elements; goal setting, communication, performance expectations, monitoring and rewards or sanctions. Performance management involves bringing together all parties to set challenging yet attainable goals which are clearly communicated, managing performance, monitoring and tying rewards to performance.

Higher education institutions have missions that promote learning yet they seldom use organizational learning as a means to improve the institution as a whole (Hertel & Barbara, 2023). Organizational learning methodically generates, preserves and transmits knowledge in the organization (Huber, 1991; Zhang et al. 2023). The aim of learning is to remain flexible in a fluid internal and external environment and to sustain a competitive edge. Organizational learning focuses on knowledge use within a university with learning occurring when information exploitation leads to shifts in potential behaviors (Popova-Nowak & Cseh, 2015). Tan and Olaore (2022) held that a critical success factor for organizational efficiency and effectiveness is organizational learning which is also a source of competitive advantage. Various dimensions of organizational learning capabilities are practiced to some level in universities especially transfer of knowledge and leadership oriented towards learning (Rose et al. 2020).

Learning is routine-based, experiential, target oriented and happens through encoding inferences from experience into policies, procedures and habits (Schulz, 2017). Behavior is also routine based (Cyert & March, 2015). What happens or has happened influences the future. This research operationalized organizational learning using the Dimensions of Learning Organization Questionnaire by Marsick and Watkins (2015) with the indicators being continuous learning, inquiry and dialogue, collaboration and team learning, systems thinking, shared vision, environmental scanning and strategic leadership as indicators.

Operational efficiency is defined as continuous improvement over time by performing the same activities in an enhanced manner (Chowdhury, 2024). It allows an organization to improve input output ratio by downscaling defects or producing better products in a shorter cycle (Bai et al. 2024). It is shown as the ratio between output and input that is used to run a business operation. It is the production of better quality output as effectively as possible (Halkos et al. 2016). New processes are then designed to overcome the mapped inefficient process. Assessment of input output conversion rate is important for production process improvement and management control (Camanho et al. 2024).

This research assumes that the technology within the decision-making units or universities has not changed over the four-year period for data envelopment analysis. Teaching and research efficiency was the focus of the study. Flegg et al. (2004) input and outputs model was adapted. Inputs were academic and academic equivalent staff, number of full time and full-time equivalent students and aggregate expenditure excluding staff costs. Outputs were number and quality of undergraduate graduands, post graduate degrees awarded, capitation, research grants received and consultancy fee generated**.** Published audited accounts for the respective years,

University Funding Board, Ministry of Education and State Corporation Advisory Committee filled returns and graduation booklets were utilized for obtaining secondary data.

Empirical evidence on the performance management, operational efficiency relationship has generated conflicting results. Bristol-Alagbariya et al. (2022), Van Thiel and Leeuw (2002) showed that performance management directed and measured strategic effort thus reducing inefficiency. Newberry (2002) and Newberry and Pallot (2005) reviewed performance management in New Zealand central government departments and established short term efficiency gains without long term sustainability or effectiveness. On the other hand, performance management led to reduced cycle time, costs as well as better quality goods (Rummler & Branche, 2012). Comparative efficiency in libraries in universities in the United States was tested applying data envelopment analysis. The study established that proper performance measurement and management was an important contributor to operational efficiency (Lee et al. 2013).

Contrarily, Handoyo et al. (2023); Verbeeten (2008) held that there were many instances of unintended performance management side effects including additional internal bureaucracy, a lack of innovation, a reduction of system or process responsibility, tunnel vision, sub-optimization and gaming of performance measures, and measure-fixation and thus operational efficiency was negatively correlated. A study by Van Helden (2005) on performance and operational efficiency concluded that attribution remains a big challenge for performance as well as operational efficiency. There was no statistical evidence that performance management led to operational efficiency (Davis & Albright, 2004). This is made worse if the focus is on rewards rather than training and development.

Ortenblad and Koris (2014) identified 73 publications on organizational learning in higher education with most of those publications being prescriptive as opposed to empirical. This is attributable to having several structural and cultural characteristics of universities that inhibit learning at the organizational level. High levels of specialization and structural differentiation among academic departments, research institutes or centers and administrative units as well as cultural values and reward systems that promote individual accomplishment. There are also weak feedback loops regarding performance and outcomes that often render universities difficult for organizational learning (Elrod et al. 2024).

Research Methodology

The primary aim was to establish the mediation role of organizational learning on performance management and operational efficiency.

The specific objectives were to;

i. Establish the influence of performance management on operational efficiency.
ii. Determine mediation role of organizational learning on performance management and operational efficiency.

The corresponding hypothesis were;

H_1: Performance Management influences Operational Efficiency.

H_2: Organizational Learning mediates Performance Management and Operational Efficiency.

Positivistic philosophy was adopted to test the various theories and empirically test for construct linkages. Descriptive cross-sectional survey research design was

employed. This research design was considered most appropriate given the breadth of the investigation, the nature of the statistics as well as the analysis performed (Blumberg et al. 2014). Primary and secondary data sources were used (Saunders & Darabi, 2024; Saunders & Thornhill, 2011). Primary data was collected using semi structured questionnaires through the drop and pick later method. Secondary longitudinal data was collected to measure operational efficiency was employed. Data envelopment analysis was employed using longitudinal data for the years 2016/2017 to 2019/2020.

A census was done on 72 Universities which constituted the population of the study. This was appropriate as the estimated time and cost were within the researcher's budget (Kothari, 2004). A pilot study on 10 universities revealed structural, logical, and typo weaknesses and errors in the questionnaire, which were corrected to make the instrument more effective before dissemination. The main change was to have operational efficiency measures collected solely from secondary data. The key target respondents of the study were the registrar, administration, or equivalent. Validated models applied from other studies included the Performance Management Behavior Questionnaire (Kinicki et al. 2013), Dimensions of Organizational Learning Questionnaire (Marsick & Watkins, 2015). Data Envelopment Analysis for operational efficiency for the financial years 2016/2017 to 2019/2020 from published annual accounts and graduation booklets was uploaded into data envelopment analysis programme (DEAP) for input output analysis.

All the administered questionnaires were serialized for tracking purposes and for follow-up to ensure completeness of the census. The returned questionnaires were then cleaned, coded and entered into excel ready for uploading into SPSS. Secondary data after verification was uploaded into Data Envelopment Analysis Programme (DEAP) for Data Envelopment Analysis (DEA). The questionnaire, the primary data collection instrument, was administered over six months from July 2019 to December 2019. Out of the census population of 72 universities, a response rate of 58 was achieved. This represented 80% response rate. This is favorable to other studies done in the university sub sector. Gudo and Olel (2011) looked at university expansion in Kenya from a quality perspective and achieved a response of 47%. The 80% response rate was considered adequate, as a response rate of between 30% and 50% is acceptable, especially where a study's key respondents' group is senior management (Saunders & Thornhill, 2011). The 5 Point Likert Type Scale was adopted with 1 being to a minimal extent and 5 to a very great extent.

Cronbach alpha coefficient for all the variables was 0.797 confirming consistency and reliability. Construct validity was achieved by use of validated models from other studies (Butt et al. 2023). In addition, research supervisors evaluated the constructs for face validity and guided formulation of the instrument improving its content validity. At the pre-testing stage, the instrument was further subjected to review and modification, considering the views of the expert respondents in organizational theory and behavior on the wording, structure, and content of the instrument. Ambiguous and unclear questions were rewritten, and others were dropped based on the guidance of the supervisors and researcher colleagues (Blumberg et al. 2014).

Test of Statistical Assumptions

Linearity, normality, multicollinearity, and homogeneity diagnostic tests were carried out as shown in table 1. The Shapiro Wilks test had a P-value above 0.05 for all the variables thus confirming normality. ANOVA tested for linearity confirming linear relationships between each predictor variable and response variable as the P value was above 0.05. The Levene test of homogeneity of variances confirmed homoscedasticity for all the variables with a value also above 0.05. The Variance Inflation Factor (VIF) tested for multicollinearity. The multicollinearity assumption has a threshold of the VIF value of 10 maxima. In this study, VIF was below the threshold thus no multicollinearity and all the predictor variables could be used in the model. These outcomes show that the data was fit for regression analysis.

Confirmatory factor extraction was done to confirm the structures of the three study variables performance management, organizational learning and operational efficiency. Using principal component factor analysis and eigenvalue$\geq$ 1, each variable was reduced into appropriate factors. Performance management employed the Performance Management Behaviour Instrument which was reduced into five factors based on eigenvalue>1 with factors accounting for 50.980 percent cumulative variance. The factors were goal setting, communication, performance expectations, monitoring and rewards and sanctions. Organizational learning was reduced into seven factors accounting for 56.978 percent of the cumulative variance.

Table 1: Diagnostic Test Results

	Normality (Shapiro Wilks Test)	**Linearity (ANOVA)**	**Homogeneity (Leven Test)**	**Multicollinearity (VIF Test)**
The threshold assumption is met if	$p > 0.05$	$p > 0.05$	$p > 0.05$	VIF 10 max
Performance Management	.756	.065	.059	1.882
Organizational learning	.081	.077	.099	1.729
Operational Efficiency	.598	.089	.159	1.767

Source: Researcher, (2024)

Hypothesis Testing
H_1: performance management influences operational efficiency

An overall composite index for performance management was computed from the five dimensions of the Performance Management Behaviour Questionnaire namely goal setting, communication, performance expectations, monitoring and rewards or sanctions, which each had its own measures. Data envelopment analysis was used to compute the weighted arithmetic mean which is the composite index for operational efficiency. The year 2019/2020 composite index of 0.786 was the one used for regression purposes as the primary data was also collected in the same year. Simple linear regression tested the hypothesis.

H_2: Organizational learning mediates the relationship between performance management and operational efficiency.

An organizational learning composite index was computed from the seven dimensions of the dimensions of organizational learning questionnaire namely continuous learning, inquiry and dialogue, collaboration and team learning, shared vision, systems thinking, environmental scanning and strategic leadership. Baron and Kenny's (1986) four step method tested this hypothesis. Step one involved regressing operation efficiency on performance management. The process moved to step two if step one yielded statistically significant results, but terminated if the results are not significant. In the latter case it would be concluded organizational learning does not mediate the relationship between performance management and operational efficiency. In step two, organizational learning was regressed on performance management. The process moved to step three if significance as the necessary condition for mediation existed, and if it is not significant the process stopped.

In step three, the influence of organizational learning on operational efficiency was tested using a simple linear regression. A statistically significant effect of organizational learning on operation efficiency was a necessary condition in testing for the mediation in step four. Finally, step four tested the influence of performance management on operational efficiency while controlling for the effect of organizational learning. Full mediation was realised if the effect of performance management on operational efficiency was significant in the presence of organizational learning. However, partial mediation is declared if, with organizational learning controlled, the effect of performance management on operational efficiency was not significant but has a value greater than zero.

Results and Discussion
Performance Management

This study focused on five dimensions of Performance Management Behavior Questionnaire namely goal setting, communication, performance expectations, monitoring, rewards and sanctions. Confirmatory factor analysis results indicated that goal setting, communication, performance expectations, monitoring are major predictors of performance management as compared to provision of consequences like performance based rewards and sanctions which had quite low mean.

Organizational Learning

Organizational learning was operationalized in this study using the Dimensions of Organizational Learning

Questionnaire developed and validated by Marsick and Watkins (2015).

Continuous Learning, Inquiry and Dialogue

The results showed that the university work environment allowed for open discussion on mistakes made with the aim of learning, management made available to employees financial and other resources to support learning and also enabled development of skills needed for future work tasks. However, there were three measures that had a very low mean and therefore needed intervention in continuous learning namely staff helped each other to learn with a low mean of 2.22, standard deviation of 0.867 and a coefficient of variation of 0.24 while staff identification of skills needed for future work tasks was also too low with 2.96 (standard deviation 1.010, coefficient of variation 0f 0.26).

Inquiry and dialogue were important indicators of organizational learning. The findings show that management treated staff with respect, thus encouraging contribution towards improving the university. Staff also treated each other with respect. There was need however, to expend more effort on building trust in the university as minimal effort was spent on building trust. Management needed to address accommodating alternative views during decision making. Staff should also be encouraged more to interrogate policies and practices and recommend appropriate changes as the mean was quite low.

Collaboration, Team Learning and Systems Thinking

Collaboration and team learning indicators results were in line with literature review. Work and projects were flexible and organized around teams. Members of teams/groups treated each other as equals. There was also focus by the teams/groups on the task at hand and delivery of the objectives. Group/ team discussions and decisions are based on the information available. The respondents however felt that teams/groups were not rewarded for their achievements as a team or group and there was skepticism that management will act on group/team recommendations.

Organizational learning requires the development of systems to capture learning. Universities regularly used two-way communication, such as suggestion systems, electronic bulletin boards, or open meetings. There were systems to measure performance gaps. There was also up-to-date database of employee skills. However, staff experienced difficulties accessing timely and relevant information for decision making. Making lessons learned available to all staff also remains a challenge. Management should focus on these two areas for effective organizational learning.

Shared Vision and Strategic Leadership

Universities invited employees to contribute to the organization's vision (mean 3.24; standard deviation 1.401; coefficient of variance 0.21). This was critical as it enhanced ownership of the university's agenda. Resources were availed to employees by universities to accomplish tasks (mean 3.22; standard deviation 1.073; coefficient of variance 0.21). Recognition of staff for taking initiatives however had a low mean compared to the other measures (mean 2.89; standard deviation 1.509; coefficient of variance 0.26). Mechanisms for recognizing staff for good results must be enhanced urgently. The results also showed that the respondent institutions had no flexibility on mode of delivery on pre negotiated assignments (mean 2.13; standard deviation 1.271; coefficient of

variance 0.25). This may be beneficial in some aspects as it implied that procedures are widely understood and accepted. It, however, required management to be aware of this inflexibility and where the situation called for it, managed flexibility was introduced to achieve particular desired ends.

Leadership in the university generally supported requests for learning opportunities and training (mean 3.20; standard deviation 1.360; coefficient of variance 0.29). There was also empowerment of others within the universities to drive the vision. Leaders continually looked for opportunities to learn (mean 3.52; standard deviation 0.960; coefficient of variance 0.24). These measures were encouraging for universities and needed to be continually monitored so as not to derail organization learning and affect negatively the relationship between performance management and operation efficiency.

Operational Efficiency

The study used secondary data to calculate operational efficiency for the 2016/2017 to 2019/2020 financial years. The inputs for the study adopted from (Flegg et al. 2004) were academic and academic equivalent staff, undergraduate students, postgraduate students and aggregate expenditure. The outputs were research, consultancy and other incomes, undergraduate degrees awarded adjusted for quality and postgraduate degrees. Published annual reports, graduation booklets and records from the University Funding Board proved instructive in getting the data for DEA analysis. Validation was done by cross checking the data from the Ministry of Education and State Corporation Advisory Committee. Data envelopment analysis allowed for the determination of technical efficiency of each university for each financial year.

Table 2 shows the least performing university had 38.87% technical efficiency score compared to the best relative in 2016/2017. This minimum score increased to 40.02% in 2018/2019. This low conversion ratio of teaching, research and consultancy inputs to outputs is alarming. There is urgent need to reevaluate approaches to improving this ratio by considering the optimum mix of inputs for the low performing universities.

Performance Management and Operational Efficiency

The influence of performance management and operational efficiency was tested using simple linear regression with the following hypothesis as shown in table 3;

H_1: performance management influences operational efficiency

Table 2: Technical Efficiency

Financial year	Unweighted Arithmetic mean	Weighted Arithmetic mean	Standard Deviation	Minimum
2016/2017	0.700	0.766	0.144	0.3887
2017/2018	0.661	0.684	0.132	0.4119
2018/2019	0.675	0.694	0.123	0.4002
2019/2020	0.730	0.786	0.131	0.4006

Source: Researcher, (2024)

Table 3: Test Results for the Effect of performance management and operational efficiency

Model	R	*Adjusted* R *Square*	*Std. Error of the Estimate*	*F Change*	*Sig. F Change*
1	.567[a]	0.319	0.936	200.908	0.000
Model		*def.*	*Mean Square*	*Sig.*	
1	Regression	1	181.249	.000[b]	
	Residual	412	0.875		
	Total	413			
Model		*Standardized Coefficients*	*Sig*		
		Std. Error	Beta		
1	(Constant)	0.051		0.000	
	PM	0.071	-0.567	0.000	

Source: Researcher, (2024)

Table 3 shows that the correlation coefficient for the relationship between performance management and operational efficiency was R=.567 indicating a positive relationship. The coefficient of determination (R^2) = 0.321 which indicates that 32.1 % of the variation in operational efficiency is due to changes in performance management. 67.9% is attributable to other factors not in this study. Analysis of variance (F=200.908, P-value = .000<0.05) confirmed the overall significance of the regression model. Thus, the regression model was fit for prediction. The results further indicated that beta coefficient for performance management and operational efficiency was significant (β=-0.567, t = -14.107, P-value=0.000<0.05), suggesting that for every one unit increase in performance management, operational efficiency decreased by 0.567 units, holding other factors constant. The hypothesis performance management influences operational efficiency was thus confirmed. The predictive model of performance management on operational efficiency was of the form;

OE = 3.210 – 0.567 PM,

Where, OE stands for operational efficiency and PM stands for performance management.

Performance Management, Organizational Learning and Operational Efficiency

The mediating role of organizational learning on performance management and operational efficiency was tested using Baron & Kenny (1986) four step method;

H_2: Organizational learning mediates the relationship between performance management and operational efficiency.

Results from the four steps are presented in Table 4.

Step one: Operational efficiency was regressed on performance management.

Table 4: Effect of Performance Management on Operational Efficiency

Model	R	*Adjusted R Square*	*Std. Error of the Estimate*	*F Change*	*Sig. F Change*
1	.567[a]	0.319	0.936	200.908	0.000
Model		Df	Mean Square	Sig.	
1	Regression	1	181.249	.000[b]	
	Residual	412	0.875		
	Total	413			
Model		Standardized Coefficients		Sig.	
		Std. Error	Beta		
1	(Constant)	0.051		0.000	
	Performance Management	0.071	-0.567	0.000	

Source: Researcher, (2024)

The results in Table 4 show a statistically significant and positive relationship between performance management and operational efficiency (R=.567). The coefficient of determination (R^2 = 0.319) shows that performance management explains 31.9% variation in operational efficiency (R^2 = 0.321, F=200.908, P<0.05). The regression model is statistically significant overall, as shown by F Ratio (F=200.908, P<0.05). The beta coefficient (β=-0.567) shows that for every one-unit increase in performance management, operational efficiency decreases by 0.567 units, holding other factors constant. The model's beta coefficient is also individually significant (P-value = 0.000<0.05). The first step in testing for the mediation of organizational learning in the relationship between performance management and operational efficiency is confirmed. Thus, the testing process proceeds to step two.

Step Two: Organizational learning was regressed on performance management.

Performance management significantly influences organizational learning (R^2 = 0.159). This finding indicate that performance management explains 15.9% variance in organizational learning. The regression model is statistically significant (F=80.989, P-value=0.00<0.05). There is a positive significant relationship between performance management and organizational learning (β= 0.425, t = 9.089, p-value = .000<.05). Having met step two mediation, the process proceeds to step 3.

Table 5 Effect of Performance Management on Organizational Learning

Model	R	Adjusted R Square	Std. Error of the Estimate	F Change	Sig. F Change
1	.425[a]	0.157	0.895	80.989	0.000
Model		*Df*	*Mean Square*	*Sig.*	
1	Regression	1	71.598	.000[c]	
	Residual	412	0.823		
	Total	413			
Model		*Standardized Coefficients*	*Sig.*		
		Std. Error	Beta		
1	(Constant)	0.045		1.000	
	Performance Management	0.045	0.425	0.000	

Source: Researcher, (2024)

Table 6: The Effect of Organizational Learning on Operational Efficiency

Model	*R*	*Adjusted R Square*	*Std. Error of the Estimate*	*F Change*	*Sig. F Change*
1	.081[a]	0.004	0.480	3.093	0.009
Model		*Df*	*Mean Square*	*Sig.*	
1	Regression	2	1.023	.009[d]	
	Residual	411	0.331		
	Total	412			
Model		*Standardized Coefficients*	*Sig.*		
		Std. Error	Beta		
1	(Constant)	0.028		0.000	
	Organizational learning	0.028	-0.086	0.009	

Source: Researcher, (2024)

In step three, operational efficiency was regressed on organizational learning. The results are presented in Table 6

The results in Table 6 indicates that organizational learning had a weak relationship with operation efficiency (R=0.081). Specifically, organizational learning explains 0.60% variation in operational efficiency (R^2 = 0.006). The model had F value of 3.093 with P value = 0.009 < 0.05, indicating that the model was

statistically significant overall. Beta coefficient (β= -0.081) shows that for every one unit increase in organizational learning, operational efficiency decreases by 0.081 units, other factors held constant. Organizational learning is individually statistically significant in the model (p-value = 0.009<0.05). The finding thus satisfies the third necessary condition for proceeding to step four of the test. Step four tested the influence of performance management on operational efficiency while controlling for the effect of organizational efficiency. The results are presented in Table 7.

Table 7 shows the relationship between performance management and organization learning on operational efficiency with a correlation coefficient of 0.578 with an increase of 0.011 from 0.567 when performance management was the only predictor in the regression model. The coefficient of determination increased to 0.329. Specifically, 32.9 % of the variation in operational efficiency was accounted for by the changes in performance management and organizational learning leaving 67.91% explained by other factors not in this study. The model is significant overall (F= 101.124, P-value = 0.000<.05) and thus suitable for analysis of the data.

Table 7: Multiple Regression Results for the effect of Performance Management and Organizational Learning on Operational Efficiency

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.578[a]	0.329	0.324	0.949	0.329	101.124	2	411	0

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	181.625	2	90.812	101.124	.000[b]
	Residual	372.681	411	0.898		
	Total	554.306	413			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.209	0.046		69.163	0		
	Performance Management	-1.086	0.965	-0.551	-1.048	0.055	0.832	1.2
	Organization Learning	-0.09	0.082	-0.049	-1.101	0.272	0.832	1.2

a. Dependent Variable: Operational Efficiency
b. Predictors: (Constant), Performance Management, Organizational Efficiency
Source: Researcher, (2024)

The beta coefficient for performance management (β= -0.551, t= -1.048, p-value = 0.055>0.05) is not significant. The beta coefficient for organizational learning (β = -0.090, t = -1.101, p-value = .272> 0.05) is not significant. Thus, satisfying the condition which states that if the effect of mediating variable is controlled, then the effect of the independent variable on the dependent variable should not be significant if there is a mediator. The results provide evidence that organizational learning partially mediates the relationship between performance management and operation efficiency since the effect of performance management on operational efficiency has a positive value, although not significant.

Conclusion

The study showed some universities had relatively low technical efficiency and demonstrated to what extent investing on the variables of this study would positively impact operational efficiency in universities. The least performing university had 38.87% technical efficiency score compared to the best relative in 2016/2017. This minimum score increased to 40.02% in 2018/2019. This low conversion ratio of teaching, research and consultancy inputs to outputs is alarming. There is urgent need to reevaluate approaches to improving this ratio by considering the optimum mix of inputs for the low performing universities.

Mediation of organizational learning on the performance management and operational efficiency relationship was confirmed using Baron and Kenny (1986) four step regression method. Organizational learning was operationalized in this study using the Dimensions of Organizational Learning Questionnaire (Marsick & Watkins, 2015). A majority of the measures had relatively high means indicating good alignment of theory and empirical practice. The study findings however showed that t staff did not develop future skills and cooperation in learning had low means and thus needed more attenction.

Alternative, diverse views were considered when making decisions that had effect on the operations of the university and staff were encouraged to interrogate policies and practices and recommend appropriate changes also had low means. The most alarming measure in this category was that effort was spent on building trust in the university which had the lowest mean in organizational learning. Trust is essential for any initiative to be successful. Other measures that had low means were that staff had access to timely and relevant information for decision making and lessons learned are made available to all staff. Management made available financial and other resources for learning and the work environment allowed for open discussion on mistakes with the aim of learning from them was also aligned well with literature review.

Performance management and operational efficiency were positively correlated with a correlation coefficient of 0.567. The coefficient of determination was $R^2 = 0.321$ at a p value <0.05. Performance management accounts for 32.1% of change in operational efficiency. 67.9% is attributed to other factors. Arbo and Benneworth, (2007); Brudan, (2010); Ivaldi et al. (2022) also established that performance management influences operational efficiency. This is also in tandem with institutional theory which suggest that a single performance management dimension or combinations of the construct influences the performance management and operational efficiency relationship more than others (Denisi et al. 2021). The hypothesis that performance management influences

operational efficiency was thus confirmed. Hypothesis two (H_2) was that organizational learning mediated the relationship between performance management and operational efficiency was also confirmed. Baron and Kenny's (1986) four step path analysis was employed. There was a partial mediation of organizational learning between performance management and operational efficiency. The influence of performance management on operational efficiency is indirect through organizational learning dimensions and therefore organizational learning is a necessary condition for the influence of performance management on operational efficacy.

Recommendations

Sustainability of Performance Management Initiatives

Data envelopment analysis showed that the rapid expansion in number of universities across counties in Kenya for the last few decades may not have achieved increasing returns to scale in the university sector as majority of the universities were operating at non optimal returns to scales for the four years under study. Technical efficiency also remained quite low in some universities despite heavy investment over the years in performance management. The universities have however spurred economic growth in the counties of location especially nearby towns and cities. The situation is made worse by lack of specialization of the universities in particular subject areas.

A number of performance management initiatives have been implemented over the years. Though the problem of attribution exists, operational efficiency measures were not commensurate with the level of investment over the years. This study confirmed that organizational learning mediated the performance management, operational efficiency relationship. The study therefore recommends adoption of organizational learning. In addition, the study recommends the adoption of the Marsick and Watkins (2015) model to implement organizational learning in universities. Institutional theory is also recommended for entrenchment of new knowledge into policies and procedures for sustainability of performance management initiatives. Deinstitutionalization strategies of inhibitors of implemented or intended initiatives should be carefully utilized also for sustainability. All agents must be aware of the institutional theory dynamics and act to enhance performance management and operational efficiency through organizational learning.

Rewards and Sanctions

The Performance Management Behaviour Questionnaire showed that performance planning, communication, setting performance standards and monitoring was executed relatively well in line with literature review. Rewards and sanctions in universities was not as envisioned in literature. Strengthening rewards for good performance while sanctioning inadequate performance was recommended as a way of strengthening performance management and organizational learning.

This is made especially difficult as salaries are union based. There are rewards including recognition that come from being specialists in a particular area either as an individual, team or faculty. The culture of excellence in particular faculties attract research, faculty as well the best students. To achieve this level of excellence that is self-propelling towards rewards takes time and is almost at the mastery level. The study proposes commensurate rewards at every level including the beginner's level.

Organizational Learning

Disciplines all over the world are now more porous and open, willingly sharing and learning across universities. Levels of learning have collapsed. Publications of latest research are more accessible. This openness, willingness to share, platforms that capture and embed learning allow for learning within and across disciplines. Unfortunately, there is perception that management and management strategies are for administrative thus limiting learning. A shared vision is a critical component of learning. To enhance compliance, administrators tend to prescribe policies and reports that must be accomplished by all cadre of staff including faculty. These tend to be viewed as intrusive to the real work. This perception sometimes leads to reports that are misleading and inaccurate for compliance.

The study recommends a strategy that ties benefits of learning to performance management strategies. Faculty should be enticed into cooperating or buying in rather than imposed upon. Communication on the expectations though important is not always enough as shown by the study. Research grants, promotions and other rewards should be tied to performance management strategies implementation. In addition, entrenchment of new knowledge from organizational learning should be the norm to avoid information hoarding.

Contributions of the study

A positive relationship between performance management and operational efficiency was confirmed. There have been vast resources that have been committed to performance management by universities over the years. Goal setting, communication, performance expectation, monitoring, rewards and sanctions need to be continuously studied to ensure alignment between performance management initiatives and operational efficiency. Managers should, therefore, be deliberate and aware of the changing environment within and without the university, with an eye on doing more and better for less. This study further suggests an indirect relationship between performance management and operational efficiency. The study findings indicate an indirect relationship between performance management and operational efficiency when organizational learning was introduced as a mediator and that organizational learning states partially mediate this relationship.

Institutional and social cognitive theories are supported by the findings. Without institutionalization, sustainability of performance management and organizational learning will not be sustainable. The nature or type of the university, county, and size significantly affect the variables in this study. When implementing a performance management system or addressing operational efficiency, the university must consider formulating a policy that allows for greater success given the context. Data envelopment analysis exploration of technical efficiency and returns to scale also leads to the conclusion that policy needs to address how to make universities a better fit for initiatives aimed at boosting operational efficiency.

Limitations of the study research

The use of a cross-sectional survey design except for data on operational efficiency data envelopment analysis, which dealt with data for 4 years from 2016/2017 to 2019/2020. The current study did not, therefore, take into account the longitudinal aspect for the other 2 variables, so the results obtained in this study would be enhanced if the study were repeated using longitudinal data for all the variables. The other limitation is that over time,

universities in Kenya have invested in several performance management initiatives, including performance contracting, ISO, and management objectives. This study did not address the operational efficiency of each initiative. This gives rise to attribution problem. The study also had senior administrative managers as respondents. There may be different results if the respondents were faculty, students, or staff at lower cadres.

Suggestions for further research

This study focused on operational efficiency but did not distinguish technical and scale efficiency as well as teaching and research efficiency in each university as opposed to the sector as a whole. The study does not consider the particular university's objectives, which influences how the factors under study are implemented. The study suggests addressing this shortcoming, especially in specialized universities.

It is suggested that further exploration of social efficiency, which looks at aspects of customer and societal satisfaction, be undertaken. Another recommended area of further study is the consideration of faculties and disciplines when computing operational efficiency. Cost and research incomes vary across different disciplines with universities offering medical and related courses having higher operational efficiency (Thanassoulis, 2011). This was not considered in this study and would be useful when considering operational efficiency of universities in Kenya.

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