Title:	Higher Education Curriculum Orientation and Performance of Universities in Kenya: Industry Linkage Strategies
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Abstract

Quality education and training can only be achieved by orienting the academic curriculum in such a way that its content reflects industry demands. It must also be continuously reviewed after every cycle to capture the emerging issues in the dynamic economic environment. This study sought to contribute to knowledge by assessing the extent to which linking university curricula to the needs of the industry would influence performance of universities in Kenya. Resource based view was used as the main theory anchoring the study. Cross-Sectional survey was adopted as the research design. The population of the study consists of sixty five (65) public and private universities incorporated in Kenya. Out of this, a sample of forty seven (47) universities which had undergone at least one (1) graduation cycle was taken. Primary and secondary data was collected using semi-structured questionnaires and review of existing university documents and regulatory bodies websites respectively. Correlation and regression analyses were used to test hypotheses. ANOVA was used to determine the differences between group means. Balanced score card was appropriately used to represent financial and non-financial aspects that constitute performance indicators. It was established that positive and significant correlations existed between curriculum orientation and university performance. The findings offer insight to university authorities and policy makers by reinforcing the role of collaborative strategies when developing and reviewing academic curricula. University authorities need to enhance collaboration with the industry in order to substantially exploit the synergies resulting from enhanced symbiotic correlations between university and the industry. The main limitation of this study is that primary data was collected from only one respondent per university but common methods bias was mitigated through the use of additional secondary data to validate primary data. Thus, the limitation did not affect the credence of the results as presented and discussed.

Key words: Curriculum Orientation, Linkage Strategy, Industry, Performance, University

Introduction

There is a growing concern that the knowledge and skills acquired by students in most African Universities do not sufficiently meet the requirements of the industry and the wider economy. This mismatch, coupled with under-training in the critical skills of analytical thinking, communication and problem-solving is blamed for the emerging high graduate under-employment and unemployment in many parts of Africa. According to Pauw (2008), African Universities have been criticized as ivory towers that churn out graduates who are largely irrelevant to the needs of employers and the social, economic, and technical challenges facing African economies. There is a critical need for Universities to update and upgrade curriculum to ensure that students graduate with relevant skills and competencies for job fit. Quality educational programmes can only be achieved by orienting University curricula in such a way that the industry demands are adequately fused in the developed or reviewed content. The curricula must also be continually reviewed after every complete cycle in order to capture the emerging issues in the dynamic industry environment. The curriculum must also be consistent with institution's mission and clearly defined outcomes intended to produce relevant graduates in the ever changing technological world. Clear policies must be formulated and implemented to guide curriculum development and review. The entire process must be highly inclusive in order to take care of all the needs of stakeholders involved at every stage (Martin, 2000). In Kenya for example, most Universities have inadequate resource capacity to adequately address the needs of courses in Technology and science related disciplines. They also have inadequately trained manpower to deliver the courses that they provide, thereby making the quality of some of their graduates questionable (Weidman, 1995). According to a report by Commission for University Education (2013), Universities are tasked with the pivotal role of helping Kenya achieve her development goals through education, research and innovation. Curriculum review ensures that degree programmes produce graduates with the required knowledge, skills and competencies for the emerging and dynamic industry issues relevant for workforce. The report further states that, very few Universities adequately involve stakeholders during curriculum development and review process and that just a few professional bodies work closely with the Universities. Proper curriculum orientation requires multi-sectoral approach, where all concerned stakeholders are involved and fully engaged in order to develop relevant curricula that reflect the interests of potential employers, community expectations, and that provide opportunities for self-employment.

Ozsoy (2011) researched on 179 universities across Europe, Latin America and Sub-Saharan Africa. He established the proposition that the performance of a University will be positively associated with its intellectual capital and their capabilities, curriculum orientation, enhanced industrial attachment, teaching and learning facilities and collaborative research. This reinforces the need for linkage strategies with the industry. Studies exploring linkages between higher education and industry have shown that having a strong symbiotic relationship between the two would enable the synergies to be exploited. This implies that performance of a higher learning institution should be measured in terms of quality of collaboration it has with industry. According to Eshiwani (1999), a University can only remain relevant if it promptly responds to the changing technology and emerging industry demands, by formulating proper collaborative strategies. The industry cannot afford to operate in isolation and must foster linkages with universities. Universities on the other hand, cannot ignore the industry which is the consumer of its output and employer of its graduates. This study sought to establish the influence of curriculum orientation on University performance. Different organizations use varying measures of performance. These measures may be quantitative or qualitative. Kaplan and Norton (2008) introduced balance scorecard which considers financial and non-financial measures of performance such as internal business process, learning and growth and customer perspective. This study has appropriately used balanced score card to measure university performance.

Literature Review

Curriculum is the tool which guides teaching and learning process. According to Jita (2006), Curriculum can be defined as a web of interrelated and aligned activities working together to achieve certain learning outcomes. It is a plan for learning and teaching process. Curriculum development is a multi-step and cyclical process aimed at designing an effective learning content and resources required to achieve the stated objectives. The development of study contents, learning and teaching resources, work plans and assessment of students are all based on curriculum (Hooghoff and Bron, 2008). Curriculum is viewed as the responsibility of learning institutions and all stakeholders in the society as a whole. There is critical need for stakeholder participation and experts or professional bodies engagement in all aspects of higher education in order to develop curricula that are relevant to industry needs. According to Jita (2006), the processes of stakeholder participation in the higher education quality assurance system have been rather limited and poorly conceptualized. Regular curriculum review is essential to ensuring quality in all academic

programmes. The goal is to ensure that programs continue to offer relevant and emerging issues in the industry and to offer students learning experiences that are inspiring, intellectually challenging and transformational. According to Grant (2010), strategy is the link between the firm and its environment. It is broadly defined to include both goals and means of achieving them. Mintzberg (1987) proposed five definitions of strategy, namely; strategy as a plan, a ploy, a pattern, a position and a perspective. Johnson and Scholes (2006) defined strategy as the direction and scope of an organization over the long term. Strategy thus consists of the means an organization chooses to move from its present state to its future. It focuses on future performance as an organizational link with the external environment and considers internal resources in order to attain a competitive advantage. Theories of strategy embody specific explanations for why firms within and between industries differ in their performance. For example, the market positioning framework views differences between firms as resulting from the different characteristics of the markets they operate in. Resource based approach asserts that firm differences arise from situations where firms actively seek to differentiate themselves through their unique competencies and capabilities (Grant, 2010). The economic sector cannot afford to operate in isolation and must foster linkages with universities. This is because it requires qualified manpower to provide necessary services. Universities on the other hand, cannot ignore the economic sector which is the consumer of the knowledge and products generated. Strategies used to achieve quality University curricula should revolve around stakeholders' engagement, professional bodies' engagement and regular curriculum review. According to Koskei (2015), curriculum development is concerned with reviewing, planning, developing, implementing and maintaining curriculum while ensuring that the stakeholders engaged in this process have a high level of commitment to and ownership of the curriculum. In formulating policy, the challenge lies in the discourse on the form, content, aims and goals of curriculum, often referred to as curriculum orientation. According to Koskei (2015), effective curriculum development and review requires that proper industry analysis is first and foremost conducted in order to infuse market needs identified by all stakeholders and professionals into the content. Second, design and development should then be done in accordance with outcomes based on learning principles. He further states that the delivery of curriculum should be done using a wide variety of mechanisms appropriate to the modern learning market. This model proposes an integrated approach to curriculum development based on multi-stakeholder engagement whose end-result is a relevant and industry-driven curriculum.

Hypotheses of the Study

The following hypotheses were derived from the literature debate.

Hypothesis 1: There is a significant positive correlation between curriculum review and University performance.

Hypothesis 2: There is a significant positive correlation between stakeholders' engagement in curriculum development and University performance.

Hypothesis 3: There is a significant positive correlation between professional bodies' engagement in curriculum development and University performance.

Hypothesis 4: There is a significant joint effect of curriculum orientation on University performance.

Conceptual Framework

An integrated framework to respond to the knowledge gaps identified in the literature review in this study has been designed with two components. While curriculum orientation constitutes independent variable, organisational performance constitutes dependent variable. The study determined the direct relationship between curriculum orientation and university performance.

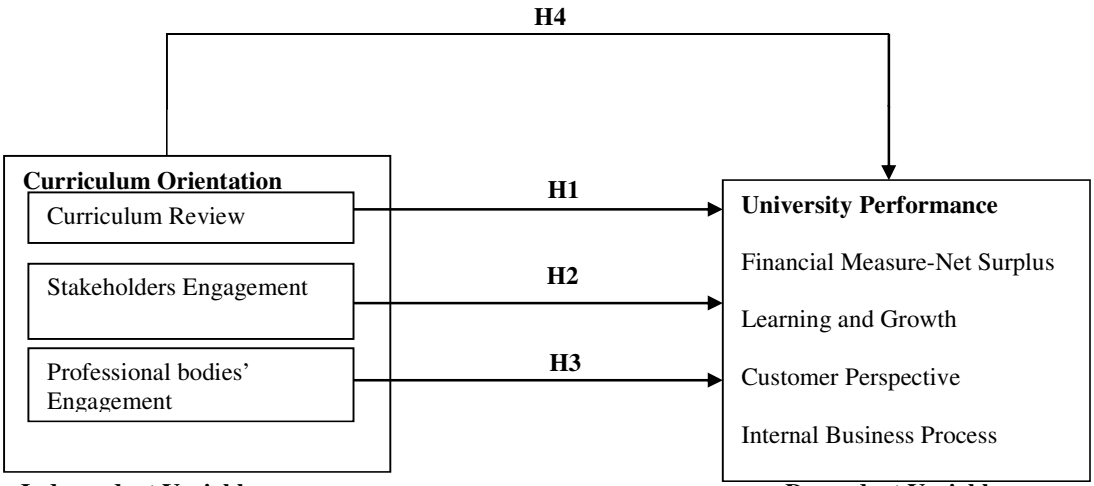

Figure1: Conceptual Model

Methods

The study adopted descriptive cross-sectional survey design. According to Irungu (2007), descriptive cross-sectional survey is appropriate where the overall objective is to establish whether significant associations among variables exist at some point in time. The cross-sectional approach involved collecting and comparing data from the phenomena as at the time of study. The combination of qualitative and quantitative data enabled adequate explanation of the variables and predictions in their behaviour without resorting into inquiries of the temporal effect. The design enhanced uniform data collection and comparison across respondents. In order to undertake comparative analysis between private and public universities, independent sample t-test, standard deviation, arithmetic mean and coefficient of variation (CV) were used. C.V was used to measure variability and consistency in scores of different universities when arithmetic mean and standard deviation is compared. Correlation analysis was used to check the nature and direction of relationships between independent and dependent variables. Regression analysis was used to establish mathematical model relating the variables and to test the set hypotheses. As at the time of this study, there were a total of sixty five (65) universities operating in Kenya according to Commission for University Education report (2013). Thus, population of this study comprised 65 public and private universities incorporated in Kenya. From the 65, forty seven (47) universities which had undergone at least one (1) graduation cycle were sampled. Out of this, twenty two (22) were public and twenty five (25) were private universities. This sample size of 47 constitutes 72% of the population and it is way above the required 10% as a representative sample for a homogenous population. According to Kothari (2004), a population sample constituting 10% and above is appropriate if the researcher is dealing with a homogenous population. Reliability test was undertaken using Cronbach's Alpha whose value was established as 0.992, way above 0.7 as the rule of thumb for testing reliability of data collection instrument. Table 1.1 shows summary reliability scores for 27 questions which were constructed to investigate the study variables.

Cronbach's Alpha	N of Items
.992	27

Table 1.1: Total Statistics on Curriculum Orientation

variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Effectiveness and frequency of curriculum review	91.4651	956.255	.944	.991
Stakeholders engagement in curriculum development and review	91.6047	961.769	.970	.991
Professional bodies' engagement in curriculum development and review	91.1395	953.790	.891	.991

Table 1.2 shows reliability scores for 11 questions which were constructed to investigate University performance variables. Cronbach's Alpha was established as 0.975, which was also way above 0.7 as the rule of thumb for testing reliability of data collection instrument.

Reliability Statistics on University Performance

Cronbach's Alpha	N of Items
.975	11

Table 1.2 Total Statistics on University Performance

Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Net surplus	34.9318	131.693	.909	.972
Total amount of scholarship awards or grants for students	34.9545	130.091	.921	.972
Total number of Students	35.1136	126.801	.955	.970
Teacher to Student ratio	34.9773	127.930	.957	.970
Supervisor to Student ratio	35.0682	128.205	.875	.973
University webometrics ranking in Kenya	35.5682	143.739	.429	.984
Total number of stakeholder conferences held	35.0682	129.600	.863	.973
Total number of collaborative activities with other institutions held	35.0455	128.230	.900	.972
Total number of industry visits made	34.9545	126.882	.939	.971
Total number of guest speakers hosted	34.8864	125.824	.942	.971
Performance of our university has greatly increased over the past five years	34.8864	130.940	.910	.972

Results

Structured questionnaires were administered in the selected forty seven (47) Universities to gather data on frequency of curriculum review and the extent of stakeholders and professional bodies' engagement in curriculum development and review process. Table 4.8 shows the descriptive statistics for each item.

Table 1.3: Descriptive Statistics on Curriculum Orientation

Variable	Frequency			Mean Score			Standard Deviation			Coefficient of Variation (CV)		
	Pu	Pr	Co	Pu	Pr	Co	Pu	Pr	Co	Pu	Pr	Co
Stakeholders engagement	21	23	44	3.0	3.4	3.3	1.4	1.2	1.3	44	36	40
Frequency of curriculum review	21	23	44	3.1	3.5	3.3	1.4	1.2	1.3	35	33	40
Professional Bodies' engagement	21	23	44	3.4	4.2	3.8	1.4	1.4	1.5	39	34	38
Average	21	23	44	3.2	3.6	3.5	1.5	1.3	1.4	41	35	40

Key: pu-public universities; pr-private universities; Co-combined (all universities)

Table 1.3 shows that Private Universities scored higher in frequency of curriculum review (3.5 and lesser variability of 33%) compared to a mean score of 3.1 and wider variability of 40% by public universities. Private Universities also obtained higher mean scores (3.4 and 4.2) in stakeholder and professional bodies' engagement in curriculum development and review process respectively. In overall, private universities recorded stronger curriculum orientation strategies (mean score of 3.6 and variability of 35%) compared to public universities (mean score of 3.2 and variability of 41%) in the area of curriculum orientation. In general, the combined mean score on curriculum orientation for all private and public universities is 3.5 out of 5 which approximates to 70% on a percentage scale.

Table 1.4 Independent Samples t Test for Equality of Means on Curriculum Orientation

	t-test for Equality of Means						
						95% Confidence Interval of the Difference	
Variable	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Effectiveness and frequency of curriculum review	-.97563	42	.33483	-.38716	.39684	-1.18801	.41368
Stakeholders engagement in curriculum development and review	-.97229	42	.33647	-.38302	.39394	-1.17802	.41198
Professional bodies' engagement in curriculum development and review	-1.94958	42	.05792	-.83644	.42904	-1.70227	.02939

The mean scores for the indicators of curriculum orientation were compared by computing independent sample t statistic for equality of means at 95% level of confidence and 42 degrees of freedom to test the significance of the difference between sample means of private and public universities. As shown in table 1.4 values of independent sample t-test are negative i.e. less than 2.5 and all p values are greater than 0.05. It is therefore concluded that there is significant difference between curriculum orientation mean scores when private and public Universities are compared.

Table 1.5: Descriptive Statistics on University Performance

Variable	Frequency			Mean Score			Standard Deviation			Coefficient of Variation (CV)		
	Pu	Pr	Co	Pu	Pr	Co	Pu	Pr	Co	Pu	Pr	Co
Net surplus	21	23	44	3.4	3.8	3.6	1.2	1.1	1.1	35.3	28.9	30.6
Total amount of scholarship awards or grants for students	21	23	44	3.6	3.6	3.6	1.3	1.2	1.2	36.1	33.3	33.3
Total number of Students	21	23	44	3.3	3.5	3.4	1.4	1.3	1.3	42.4	37.1	38.2
Teacher to Student ratio	21	23	44	3.5	3.7	3.6	1.4	1.2	1.3	40.0	32.4	36.1
Supervisor to Student ratio	21	23	44	3.1	3.8	3.5	1.3	1.4	1.4	41.9	36.8	40.0
University webometrics ranking in Kenya	21	23	44	2.7	3.3	3.0	1.1	1.2	1.2	40.7	36.4	37.1
Total number of stakeholder conferences held	21	23	44	3.4	3.6	3.5	1.3	1.3	1.3	38.2	36.1	37.1
Total number of collaborative activities with other institutions held	21	23	44	3.4	3.6	3.5	1.4	1.2	1.3	41.2	33.3	37.1
Total number of industry visits made	21	23	44	3.4	3.8	3.6	1.3	1.4	1.3	38.2	36.8	36.1
Total number of guest speakers hosted	21	23	44	3.5	3.8	3.7	1.4	1.4	1.4	40.0	36.8	37.8
Performance of our university has greatly increased over the past five years	21	23	44	3.4	3.9	3.7	1.2	1.1	1.2	35.3	28.2	32.4
Average	21	23	44	3.3	3.7	3.5	1.3	1.2	1.3	39.0	34.2	36.3

Key: pu-public universities; pr-private universities; Co-combined (all universities)

Table 1.5 shows that private universities performed better (mean score of 3.7 out of 5) compared to public universities (mean score of 3.3 out of 5). The overall mean score of university performance for both public and private universities is 3.5 out of 5 with the

lowest score of 3.0 for webometrics ranking. Private universities have lesser variability in all performance indicators compared to those of public universities. This demonstrates that the responses on performance from private universities were more consistent and better than public universities. Among public universities, responses on net surplus were the most consistent with smallest variability of 35.3% and largest variability of 42.4% in total number of students. Among private universities, responses on net surplus were also the most consistent with smallest variability of 28.9% and largest variability of 37.1% in total number of students. When the universities are combined, responses on net surplus remained the most consistent with the smallest variability of 30.6% and largest variability tied at 40% in supervisor to student ratio. The findings imply that net surplus is the most stable indicator of university performance.

Table 1.6: Independent Samples t Test for Equality of Means on University Performance

Variable	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Net surplus	-1.025	42	.311	-.35404	.34557	-1.05142	.34334
Total amount of scholarship awards or grants for students	-.101	42	.920	-.03727	.36854	-.78102	.70648
Total number of Students	-.469	42	.642	-.18841	.40173	-.99912	.62231
Supervisor to Student ratio	-1.592	42	.119	-.63975	.40194	-1.45090	.17140
University webometrics ranking in Kenya	-1.751	42	.087	-.59420	.33938	-1.27909	.09069
Average	-0.82345	42	0.472364	-0.31018	0.3835	-1.08412	0.463755

The mean scores for the indicators of University performance were compared by computing independent sample t statistic for equality of means at 95% level of confidence and 42 degrees of freedom to test the significance of the difference between sample means of private and public universities. As shown in table 1.6, values of independent sample t-test are negative i.e. less than 2.5 and all p values are greater than 0.05. It is therefore concluded that there is significant difference in performance between public and private Universities.

Correlation and Regression Analyses between Curriculum Orientation and University Performance

Correlation analysis was done after aggregating the variables as composite indices. When Pearson's product moment correlation coefficient (r) was computed, it was established that there exists high positive correlation between curriculum orientation and University performance since r= 0.895, which is greater than 0.7. The correlation is significant at p value (0.000) < 0.05 as shown in Table 1.7

Table 1.7: Correlations between Curriculum Orientation and University Performance

		University Performance
University Performance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	44
Curriculum Orientation	Pearson Correlation	.895**
	Sig. (2-tailed)	.000
	N	44

***. Correlation is significant at the 0.05 level (2-tailed).*

Correlation coefficients between curriculum orientation indicators and University performance were further analysed as shown in table 1.8. Results show strong positive correlations between each indicator and University performance. Stakeholders' engagement and University performance demonstrates the strongest positive correlation among other variables, at r = 0.919 and p value less than 0.05.

Table 1.8: Correlations between Curriculum Orientation Indicators and University Performance

		University Performance
University Performance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	44
Frequency of Curriculum Review	Pearson Correlation	.868**
	Sig. (2-tailed)	.000
	N	44
Stakeholders' Engagement	Pearson Correlation	.919**
	Sig. (2-tailed)	.000
	N	44
Professional Bodies Engagement	Pearson Correlation	. 864**
	Sig. (2-tailed)	.000
	N	44

***. Correlation is significant at the 0.05 level (2-tailed).*

When each of the indicators of curriculum orientation was regressed with University performance, stakeholders' engagement (S) was found the most significant predictor of University performance (Y) with p value =0.003< 0.05 followed by curriculum review (R) with p value =0.041, still less than 0.05. The last was Professional bodies' engagement (P) with p value 0.049< 0.05. From Table 1.9, the regression model relating each curriculum orientation and University performance can be expressed as Y=0.49 +0.3S +0.22R+ 0.13P. The model implies that a unit percentage increase in stakeholders' engagement (S) would cause 0.3% increase in University performance (Y), a unit percentage increase in curriculum review (R) would cause 0.22% increase in University performance (Y) and a unit percentage increase in Professional bodies' engagement (P) would cause 0.13% increase in University performance (Y). ANOVA values show that F (4, 39) = 73.531 and p value (0.000) < 0.05, tolerance values>0 and most VIF values < 10, thus the regression model is a valid relationship between curriculum orientation and University performance.

Table 4.26: Regression Summary and ANOVA on Linkage Strategies-Performance

	Standardised Coefficients		Sig.	R	R Square	F	df	Sig.	Collinearity Statistics	
Regression	B	Beta		.940[a]	.883	73.531	4	.000[a]	Tolerance	VIF
Constant	.493		.000			Residual	39			
Frequency of Curriculum Review	.041	. 220	.041						0.078	10.12
Stakeholders' engagement	.121	.300	.003						0.144	6.92
Professional bodies' engagement	.125	.130	.049						0.181	5.51

Regression model is significant at the 0.05 level (2-tailed).

Consequently, all the four formulated hypotheses were accepted as follows:

Hypothesis 1: *There is a significant positive correlation between curriculum review and University performance.*

Hypothesis 2: *There is a significant positive correlation between stakeholders' engagement in curriculum development and University performance.*

Hypothesis 3: *There is a significant positive correlation between professional bodies' engagement in curriculum development and University performance.*

Hypothesis 4: *There is a significant joint effect of curriculum orientation on University performance.*

Discussion

Correlation analysis indicates that there exists high positive correlations between curriculum orientation and University performance. This demonstrates that strategic choices with strong industry linkage components yield superior organizational performance while strategic choices with weak industry linkage orientation lead to poor organizational performance. The study highlights the most significant components of curriculum orientation that impacts on University performance. Frequency of curriculum review, stakeholders 'engagement and professional bodies' engagement have been established as significant predictors of University performance. The University authorities must therefore strategically link these indicators to the industry needs by involving stakeholders and professional bodies in decision making process in order to realise superior performance. Organisational policies should take into consideration, the needs and demands of the

industry that it serves rather than focus on performance in isolation. Curriculum development and review policies, industrial attachment policies and all other linkage strategies and procedures must provide space for contributions from stakeholders. There is need for University authorities to develop policies that promote collaborative curricula development in Universities. The outcome would be curriculum that is relevant to industry needs in Kenya and other African countries. Results of this study show that curriculum review is not consistent in most Universities. This implies that there is inadequate government effort in coordinating the development of academic programmes offered in these institutions to make them respond to the country's development challenges. Universities need to adopt robust policy framework to monitor industry signals and determine appropriate value weightings on some academic programmes so as meet the economic sector shortages. It is clear from the findings that some Universities do not regularly review their curricula after every complete cycle. This has a definite impact on the quality of graduates as reflected in the performance of such universities. Robust policies and implementation strategies that address curriculum development and review focus are necessary to improve the quality of graduates from such curricula. Chatterton and Goddard (2001) Studied 35 universities in Britain to investigate the use of the resource based view and knowledge based view to improve the understanding of the process for the initiation and function of University and industry collaboration. Findings confirmed the persistent lack of an integrative framework for the management of collaborations and proposed a model for University and industry collaboration. These findings agree on the fact that curriculum orientation is paramount in determining University performance. Generally, private universities recorded stronger scores in most variables compared to public Universities as analysed in descriptive statistics. The coefficients of variation values are favourably lower among private Universities, thus indicating more consistency and stability in variable scores. It is clear from the findings that Universities can only remain relevant if they respond promptly to the changing technology and emerging industry demands, by formulating industry based curriculum development and review policies in order to counter competition challenges and strive to attain and maintain a competitive edge over the rivals in all areas of operation and more so offer quality education that is relevant to the needs of the industry.

Implication of the Study

The study findings have theoretical, practical and policy implications for future researchers, University authorities and all stakeholders. Resource-based view (RBV) as the main theory anchoring the study provides a favourable model for analysing the appropriate strategies that can provide effective curriculum orientation to industry needs. Although private Universities seem to have performed better than public ones, there is need to foster more collaborative approaches in curriculum development and review across all Universities in order to exploit the synergistic benefits. For practice, the study highlights the most significant components of curriculum orientation that impacts on University performance. Although Stakeholders' engagement came out as the strongest determinant of University performance, professional bodies and regular curriculum review are equally important in ensuring that the content meets the general expectations. The University authorities must therefore strategically link these indicators to the industry by involving stakeholders in strategy formulation and implementation process, in order to come up with effective industry based curriculum development and review policy. The Universities' decision makers should therefore reinforce stakeholders' engagement as a critical component of curriculum orientation. All-round curricula must be established in all disciplines to raise the quality of higher education, in particular, and of social life, in general. Universities must seek to acquire resources to support academic staff travel for participation in professional conferences and training programmes. It is important that there be serious consideration of investment in curriculum development and review that will enhance the capacity of universities in the region in order to further national development. Organisational policies should take into consideration, the needs and demands of the industry that it serves rather than focus on performance in isolation. Curriculum development and review policies should be built around improving the fit between higher education and the world of work and making institutions more cost-effective. University curricula are often disconnected from industry needs. There is therefore, need to review the legal framework, protocol and conventions that set up these institutions to allow for more collaboration with the universities and industry players. There is need to establish a national policy on university-industry collaboration on curriculum development and promotion of innovative knowledge transfer mechanisms. This would involve development of policies for creating spin-off companies to utilize university patents and licenses and establishment of IPR management offices in each university and support the establishment of joint university-industry incubation centers. Future studies should be

undertaken in Kenya and the East African region using relevant data from a variety of media sources and for longer periods of time. Particularly, it is recommended that regular surveys should be conducted by stakeholders including relevant government departments and universities to specifically seek opinions of prospective employers on what academic programmes and specific skills they consider critical for various jobs. Regular surveys need to be undertaken to obtain perceptions of University students on various jobs and industry. Such studies shall produce information that would inform curriculum development process among Universities so as to make higher education in Kenya more relevant to the country's current and future development needs.

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