

# **The Relationship between Dynamic Curriculum Capabilities and Competitive Advantage of Technical, Vocational and Entrepreneurship Training Institutions in Western Kenya Region**

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## **Abstract**

Dynamic capability has been defined as “the capacity of an organization to purposefully create, extend or modify its resource base”, Helfat *et al.* (2007). This study sought to establish the relationship between dynamic curriculum capabilities and competitive advantage of TVET Institutions in western Kenya Region. Specifically, the study sought to: establish the curriculum capabilities of TVET Institutions in western Kenya, and to determine the relationship between dynamic curriculum capability and competitive advantage of TVET Institutions in western Kenya region. The study adopted a descriptive survey design. The target population included the principals and heads of sections and/or departments of the TVET Institutions in the western Kenya region that are state owned. A census of all the Principals and head of sections/ departments was conducted. Primary data was collected by structured questionnaires. Secondary data was collected from institutional documents, Ministry of Education publications and relevant publications in referred journals. The collected data was edited, coded and entered into SPSS software for analysis. Data was analyzed using descriptive and inferential statistics. In particular, Regression Analysis was used to investigate the relationships between hypothesized variables. Analysis of Variance (ANOVA) was also used to investigate whether independent variables had combined effect on the dependent variable. The findings were presented using figures and tables. The study found out that TVET Institutions in the western

Kenya region has strong curriculum capabilities. The study also, established a positive relationship between Dynamic curriculum Capabilities and Competitive Advantage of the TVET Institutions in western Kenya region. This study is envisaged to aid in the development of policy documents to grow the TVET sector in Kenya.

*Key words: Dynamic Capabilities; Competitive Advantage; TVET Institutions; Curriculum Capabilities; Western Kenya Region*

## **1.0 Introduction**

Dynamic capabilities have been defined as “the capacity to renew competencies so as to achieve congruence with the changing business environment” by “adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competencies” (Teece *et al.*, 1997). More recently, Helfat *et al.* (2007) have defined a dynamic capability as “the capacity of an organization to purposefully create, extend or modify its resource base”.

Helfat and Peteraf (2003) emphasise that to qualify as a dynamic capability, a capability not only needs to change the resource base, but it also needs to be embedded in the firm, and ultimately be repeatable. Dynamic capabilities are argued to comprise of four main processes: reconfiguration, leveraging, learning and integration (Bowman and Ambrosini, 2003 based on Teece *et al.*, 1997). Reconfiguration refers to the transformation and recombination of assets and resources, such as. the consolidation of manufacturing resources that often occurs as a result of an acquisition. Leveraging refers to the replication of a process or system that is operating in one area of a firm into another area, or extending a resource by deploying it into a new domain, for instance applying an existing brand to a new set of products. As a dynamic capability, learning allows tasks to be performed more effectively and efficiently, often as an outcome of experimentation, and permits reflection on failure and success. Finally, integration refers to the ability of the firm to integrate and coordinate its assets and resources, resulting in the emergence of a new resource base.

Competitive advantage is related to the competitive position of an organization within its industry and reflects firms’ ability to achieve a performance greater than the average of that industry (Barney, 1991; Porter, 1985a). In the contemporary global environment, the literature about firm performance and competitive advantage becomes increasingly important owing to the compression of time and distance and with managerial attention focusing more on multiple external and internal factors (Thomas *et al.*, 1999).

The role of Technical, Vocational and Entrepreneurship Training (TVET) on human resource development and the consequent growth and prosperity of society is an established fact. This is because TVET furnishes skills required to improve productivity, raise income levels and improve access to employment opportunities for people (Kerre, 2009). Therefore, TVET is a part of the education system that makes an individual more employable as well as active participant and relevant in the socio-economic system of a country (UNEVOC, 2010). That is why countries are consistently striving to improve their education system in general and their TVET systems in particular (Kerre, 2009).

### **1.1 Statement of the Problem**

The demand for a workforce that is multiskilled and capable of learning new skills more rapidly has changed the traditional purpose of vocational education (Kerre, 2009). The Republic of Kenya (RoK) policy states that the main objective of TVET is “the provision, promotion and co-ordination of lifelong education, training and research for Kenya’s sustainable development” (RoK, 2003). Despite such elaborate and sound policies, implementation has been inadequate and often uncoordinated, leading to unrealized objectives (RoK, 2007). A number of constraints continue to prohibit the effective provision of technical and vocational education training in Kenya. Among these is the development of curriculum for TVET, which is often considered too slow to keep pace with the changes in technology (Kerre, 2009; United Nations Educational, Scientific and Cultural Organization [UNESCO]—International Project on Technical and Vocational Education [UNEVOC], 2010). The status of TVET suggests that there is a need to carry out internal survey on the strategic orientation of these Institutes. This study sought to establish the relationship between Dynamic Curriculum Capabilities and Competitive Advantage of TVET Institutions in western Kenya Region.

### **1.2 Objectives of study**

1. To establish the Curriculum Capabilities of TVET Institutions in the western Kenya region.
2. To determine the relationship between Curriculum Capabilities and competitive advantage of TVET Institutes in the Western Kenya Region.

### **1.3 Research Hypothesis**

The following hypothesis were tested:

$H_0$ : There is no significant relationship between Curriculum Capabilities and competitive advantage of TVET Institutions in Western Kenya Region.

### **1.4 Justification of study**

Dynamic capabilities have lent value to the RBV arguments as they transform what is essentially a static view into one that can encompass competitive advantage in a dynamic context (Barney, 2001). Dynamic capabilities are “the capacity of an organization to purposefully create, extend or modify its resource base” (Helfat *et al.*, 2007) and over the last few years the concept has received much attention in the form of publications (. Eisenhardt and Martin, 2000; Helfat and Peteraf, 2003; Teece *et al.*, 1997; Zollo and Winter, 2002) and conference presentations ( Academy of Management meeting 2004-2006; Strategic Management conference 2004-2006). However, as highlighted in the *British Journal of Management* Special Call for Papers on “The Practice of Dynamic Capabilities: Theory Development and Research” and by Helfat *et al.* (2007) the concept is still in need of theoretical and empirical development. In this study we aim to develop the notion empirically. Specifically we build on the work of Teece *et al.* (1997), Eisenhardt and Martin (2000) and Helfat *et al.* (2007) concerning what constitutes a dynamic capability in a TVET Institution and propose curriculum capability as one.

### **1.5 Scope of study**

The study focused on the relationship between dynamic curriculum capabilities and competitive advantage of TVET Institutions in western Kenya region. In order to measure competitive advantage, the study focused on indicators of relevance to the labour market in terms of skills and knowledge; access to training with respect to admission criteria and funding for the system; and quality in terms of standardization, inclusion of soft skills and quality of delivery. The survey was done in the context of Government owned TVET Institutes established earlier than January 2012 and located in the western Kenya region. This was done between the months of October 2014 and January 2015.

### **1.6 Limitations of study**

Firstly, data of this study were collected from state owned TVET institutions in western Kenya region. Institutional environments might differ across the country. Hence, the ability to generalise the findings of this study depends on the limitations of comparable environmental backgrounds of western Kenya region. A replication of this study within different institutional environments will help to shed light on the question if the research environments of Dynamic ICT Capability and Competitive Advantage of TVET Institutions differ across Kenya.

This study also used responses of senior management covering a variety of job functions/departments, assuming that their judgements regarding Dynamic curriculum Capabilities and CA are objective. However, an over-reporting or under-reporting of certain phenomena may occur as a result of the respondent's job satisfaction or personal and role characteristics.

## **2.0 Literature Review**

The structure of an education system comprises the levels characterizing that system, and the length of time a learner is expected to spend or the content of the curriculum expected to be covered at each level, in fulfilment of clearly articulated objectives (Koech, 1999). Curriculum content dictates duration of a cycle. This cycle can be arranged into annual, term, quarter or semester duration. A structure is basic to success of any education system for the following reasons: It determines entry into various levels of the education system; It determines the time available for curriculum coverage; It determines the curriculum content and delivery modalities; It is through a structure that the system is fitted into the natural cycle of life; and, Structure dictates transferability/mobility of citizens, nationally and internationally.

While identification of needed skills and competencies remains a structured and systematic quest in the context of training, industry associations in the European Union underscored employability and job retention aspects as key considerations in identifying what skills need to be taught and learned in the midst of the changing pace of work. Skills and competencies required by industry are further identified, and are regarded as components of employability, according to an EU industry association (adapted from NCVER, 2001 based on CBI, 1998). The qualities and competencies required are: Values and attitudes compatible to work; Basic literacy and numeracy skills; Key skills (communication, application of number, IT, performance-based self-improvement, team work etc.) sufficient for the needs of the work; Other generic

skills that are becoming increasingly key include customer service skills, modern language, up-to-date and relevant knowledge and understanding, up-to-date job specific skills, and ability to manage one's own career.

While there could be difference in the nature and details of generic skills that needed to be included in the TVET curriculum among the countries in the context of the development stages, policies and priorities, there can be no disagreements about integrating higher order generic skills in the TVET curriculum on priority basis. The integration of essential generic skills into the TVET curriculum will require substantial change, including those that relate to new learning technologies, flexible learning strategies and assessment practices (Kearns, 2001).

There could be many models adopted for incorporating "Generic skills" components into the curriculum, but two specific models have been very much talked about in this field. The first model is known as "Diffusion Model" whereas the second model is known as " Infusion Model".

In the diffusion model the generic thinking issues arising from different disciplines of education are diffused ,that is., taken out from their respective areas and pooled into a common generic discipline or subject known as 'Curriculum on Thinking Skills' Hence Implementation of this model in TVET may lead to Separate courses on Generic Thinking Skills. These courses, being interdisciplinary, necessitate the interactions between a wide range of people trained in different fields of knowledge (discipline) each with its own concepts, methods, body of knowledge and language attacking a common problem from various viewpoints. The interaction may range from simple communication of ideas to mutual integration or organization of the concepts, methodology, procedures, epistemology, terminology and development of generic thinking skills and techniques Kearns, (2001).

In the Infusion model, the concepts of thinking skills are injected into the various conventional disciplines and subjects without introducing new subjects such as thinking education or so. The main issues with this approach are that thinking cuts across the range of subjects and is to be integrated into all of the subjects. Integration of thinking skills in the subject area is generally difficult to design and implement. It means therefore that teachers of different subject areas and from different levels must be in regular dialogue with each other to validate and confirm whether or not the generic skills are still attuned with the times and disciplines.

However, in the opinion of the researcher, the best way to integrate generic skills in the TVET curriculum is by combining both models through hybrid approach. We need to offer both the separate discipline on generic skills as well as the integration of the same in different subject contents depending on the requirement of the TVET curriculum.

In some countries, there has been a switch in TVET curriculum design away from "long courses" with assessment of learners at the end, to programs consisting of sequences of short courses (modules) with assessment at the end of each module (typically "criterion based") and with more flexibility for trainees to sequences tailored for their particular requirements (and pace of progress). The approach is also advocated as a means to enable trainees to more easily "interrupt" and later "return to" training. What has been the experience of such modular

models? Some of the issues are: Is there improved learning? Is “flexibility” made use of? Does it lead to excessive fragmentation? “Assessment overload”? (Lauglo, 2006).

### 3.0 Methodology

A survey was carried out to identify the relationships that exist between dynamic curriculum capabilities and competitive advantage of TVET Institutions in western region of Kenya. The target population consisted of the Principals and Heads of sections and/or departments of the TVET Institutions in the Western Region of Kenya, totaling 14 Institutes. The study population was 140, an average of 10 respondents per Institution. The population targeted is responsible for the development, implementation and evaluation of various policies and strategies within these Institutions. A census of all the principals and head of sections and/or departments from the fourteen TVET Institutes was adopted. Primary and secondary data was collected. Structured questionnaires were used to collect primary data and were administered by face-to-face and telephone interviews. Secondary data came from Institutional Publications, Ministry of Education Publications, and referred journals. Data collected was analyzed by descriptive and inferential statistics. Descriptive statistics was used to summarize the survey data and provide immediate summary statistics for the various objectives. These included measures of central tendency and measures of relationships. In particular, Regression Analysis was used to investigate the relationship(s) that had been hypothesized amongst the variables of study. Analysis of variance (ANOVA) was also used to investigate whether independent variables had combined effect on the dependent variable. Content analysis was also conducted on the data that are of qualitative nature. Results were presented on frequency tables, charts and graphs.

### 4.0 Findings

**Table 4. 1: Curriculum Capabilities**

Statement	SD	D	N	A	SA
Our Institution uses syllabus that is rated highly within the TVET sector and job market	1.0%	10.9%	10.9%	57.4%	19.8%
Our Institution uses syllabus that has been developed in collaboration with the stakeholders	2.0%	4.0%	15.8%	58.4%	19.8%
Our Institution has adopted a learner centered methodology of syllabus coverage	1.0%	2.0%	13.9%	64.4%	18.8%
Our Institution has highly incorporated practical experiencing in students training	1.0%	8.9%	7.9%	67.3%	14.9%
Our Institution has fully integrated ICT in its training delivery	4.0%	16.8%	20.8%	49.5%	8.9%
Our Institution has a broad and progressive content syllabus	1.0%	9.9%	13.9%	63.4%	11.9%
Our Institution has partnered with the Industry to continually review the existing syllabi	5.9%	18.8%	31.7%	34.7%	8.9%
Our Institution uses Modularized syllabus that allows flexible entry and exit modalities	2.0%	5.0%	15.8%	60.4%	16.8%

SD= strongly disagree; D= disagree; N= neither agree nor disagree; A= agree; SA= strongly agree

The results in table 4.1 indicates that cumulatively 77.2% of respondents agreed that their institution use syllabus that is rated highly within the TVET sector and job market (11.9% disagreed), 78.2% agreed that their institution uses syllabus that has been developed in collaboration with the stakeholders, 83.2% agreed that their institution has adopted a learner centered methodology of syllabus coverage, 82.2% of respondents agreed that their institution has highly incorporated practical experiencing in students training, 58.4% agreed that their institution has fully integrated ICT in its training delivery (20.8% being neutral), 75.3% of respondents agreed that thei institution has a broad and progressive content syllabus, 43.6% of respondents agreed that their institution has partnered with the industry to continually review the existing syllabi (31.7% stood neutral), 78.2% of respondents agreed that their institution uses modularized syllabus that allows flexible entry and exit modalities. These finding are supported by the ROK (2012) taskforce report on education that established that a successful TVET framework should therefore provide the platform for harmonization and rationalization of TIVET curricula, examinations, testing and certification. There is need to review and develop the curriculum that addresses the emerging needs of our society in order to enable the learners to acquire and develop the desired knowledge, skills, values and attitudes for life in the emerging knowledge society.

**Table 4.2: Curriculum capability and competitive advantage**

Statement	SD	D	N	A	SA
Our Institution’s Curriculum has included soft skills in its content	1.0%	7.9%	14.9%	61.4%	14.9%
Our Institution’s Curriculum passes out graduates who meets industry needs in terms of skills and knowledge	1.0%	7.9%	24.8%	58.4%	7.9%
Our Institution’s Curriculum leads to standardized skills and knowledge of graduates applicable globally	1.0%	9.9%	33.7%	47.5%	6.9%
Our Institution’s Curriculum allows for ease of entry for new admissions	1.0%	5.0%	12.9%	66.3%	14.9%

SD= strongly disagree; D= disagree; N= neither agree nor disagree; A= agree; SA= strongly agree

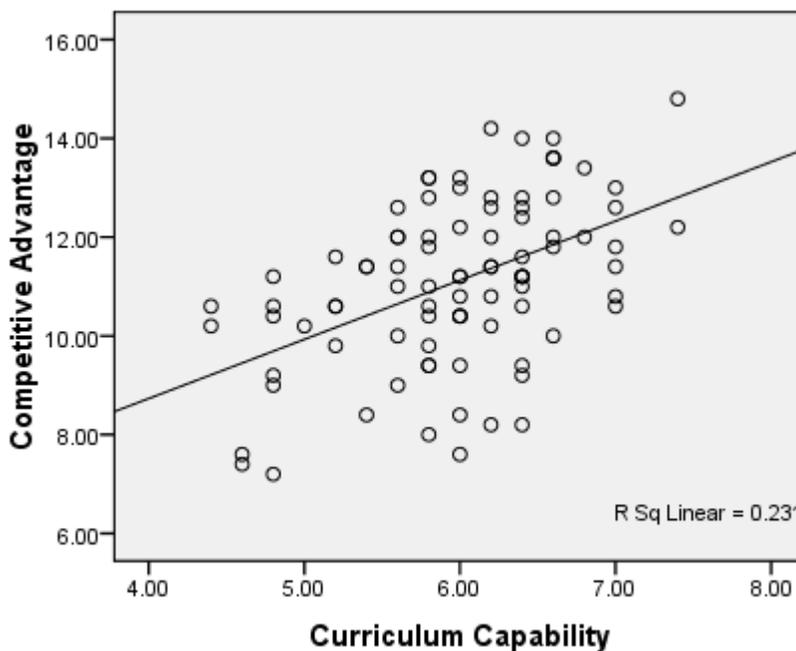
The results in table 4.2 indicates that 76.3% of respondents agreed that their institutions’ curriculum has included soft skills in its content, 66.3% agreed that their institutions’ curriculum passes out graduates who meet industry needs in terms of skills and knowledge, 54.4% of respondents agreed that their institutions’ curriculum leads to standardized skills and knowledge of graduates applicable globally (33.7% were neutral), 81.2% of respondents agreed that their institutions’ curriculum allows for ease of entry for new admissions. These results corroborated the work of Lauglo (2006), that in some countries, there has been a switch in TVET curriculum design away from “long courses” with assessment of learners at the end, to programs consisting of sequences of short courses (modules) with assessment at the end of

each module (typically “criterion based”) and with more flexibility for trainees to sequences tailored for their particular requirements (and pace of progress). The approach is also advocated as a means to enable trainees to more easily “interrupt” and later “return to” training. Kearns (2001) offers a model for clustering the generic skills for the TVET system which include the cognitive cluster; interpersonal cluster; enterprise, innovation and creativity cluster; and work readiness and work habits cluster.

**Regression Analysis**

**Objective: To Determine the Relationship between Curriculum Capability and Competitive Advantage of TVET Institutions in the Western Kenya Region**

Figure 4.1 shows the distribution of the scatter plot Curriculum Capability on Competitive Advantage. The line of best fit along the scatter plot in figure 4.1 passes through the origin. There is no skewness to either side indicating there is a constant variance. Thus, the line suggested that there was a linear relationship between Curriculum Capability and Competitive Advantage in the form:  $Y = \beta_0 + \beta_1 X_1 + \epsilon$ .



**Figure 4. 1: Regression analysis scatter plot for CC and CA**

**Table 4. 3: Goodness of fit model summary –CC and CA**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1 (Without Moderator)	.481 <sup>a</sup>	.231	.223	1.48193
2 (With Moderator)	.610 <sup>a</sup>	.372	.365	1.34008

**a. Predictors: (Constant), CC**

**b. Predictors: (Constant), x4z**

The goodness of fit model presented in table 4.3 involves Curriculum Capability ( $X_1$ ) as the only independent variable. The coefficient of determination (R square) of 0.231 indicated that the model explained only 23.1% of the variation or change in the dependent variable, with the remainder of 76.9% being explained by other factors other than Curriculum Capability. Adjustment of the R square did not change the results substantially, having reduced the explanatory behaviour of the predictor to 22.3%.

**Table 4.4: Coefficients-CC and CA**

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1 (Without Moderator)	(Constant)	3.942	1.400			2.815	.006
	CC	1.198	.233	.481		5.148	.000
2 (With Moderator)	(Constant)	5.881	.742			7.924	.000
	x4z	.073	.010	.610		7.142	.000

**a. Dependent Variable: CA**

Table 4.4 presents the regression results of Curriculum Capability on Competitive Advantage of TVET Institutions in Western Kenya Region. With a constant (p-value = 0.000) of 3.942, the study concluded that even without Curriculum Capability, the TVET Institutions seemed to display some form of Competitive Advantage. The gradient coefficient of 1.198 indicated the extent to which a unit change in CC causes a change in CA. In this case, a unit change in CC leads to 1.198 units of positive change in CA of the TVET Institutions. This means that CC was significant (p-value = 0.000) in positively influencing the CA of TVET Institutions in western

Kenya region. Therefore, the Curriculum Capability and Competitive Advantage model can now be presented as follows:  $Y = 3.942 + 1.198X_1 + \epsilon$ .

**ANOVA Analysis- Curriculum Capability and Competitive Advantage of TVET Institutions in Western Kenya Region**

The Analysis of Variance (ANOVA) of the relationship between Curriculum Capability and Competitive Advantage of TVET Institutions in Western Kenya Region is presented in table 4.5. The results with a p-value of 0.000 being less than 0.05, indicates that the model is statistically significant in explaining the relationship between CC and CA of TVET Institutions in western Kenya region. In this regard, we reject the null hypothesis that there is no significant relationship between Curriculum Capability and Competitive Advantage of TVET Institutions in Western Kenya Region. Therefore, we conclude that there is significant positive relationship between CC and CA of TVET Institutions in Western Kenya Region.

**Table 4.5: ANOVA analysis –CC and CA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1 (Without Moderator)	Regression	58.199	1	58.199	26.501	.000 <sup>a</sup>
	Residual	193.259	88	2.196		
	Total	251.458	89			
2 (With Moderator)	Regression	91.611	1	91.611	51.014	.000 <sup>a</sup>
	Residual	154.440	86	1.796		
	Total	246.051	87			

- a. Predictors: (Constant), CC
- b. Predictors: (Constant), x4z
- c. Dependent Variable: CA

**5.0 Discussions**

The integration of essential generic skills into the TVET curriculum will require substantial change, including those that relate to new learning technologies, flexible learning strategies and assessment practices, (Majumdar, 2001). From the study findings, majority of respondents 72% indicated that their institutions have developed curriculum capabilities with respect to the constructs of: syllabus development, content, mode of delivery, flexibility and entities involved in its development and review.

Furthermore, the analysis of variance carried out was clear that there is a significant relationship between the predictor variable curriculum capability and competitive advantage with p-value= 0.000 < 0.05. Moreover the findings of the regression model showed that

curriculum capability was significantly related to competitive advantage of TVET institutions in the western Kenya region ( $Y = 3.942 + 1.198X_1$ ).

## **6.0 Conclusions**

The results of this study indicate that Curriculum capability can improve market-based performance of TVET Institutions. The developed model explains 23.1% of the variance in competitive advantage of the surveyed institutions. This adds to the body of knowledge on the positive relationship between Curriculum Capability and competitive advantage.

The knowledge-workers of the twenty-first century require the ability to jump between fields of technical specialization and capture the key issues quickly. A base-level of familiarity with scientific concepts and processes reduces the time taken to master new areas where emerging tasks and work processes occur. Generic skills are not just restricted to their usefulness in the workplace but are equally required across the spectrum of living experience in today's world. Emerging work place demands a set of new generic skills for maintaining employability. In addition to job-specific technical competencies, there is a requirement of a set of generic skills, which are generic to a cluster of occupations in order to perform competently as knowledge worker. Generic skills are required by all workers. However, the extent by which these skills need to be possessed varies from one occupational grouping to another. The varying levels of generic skills use needs to be determined by management of TVET Institutions, to further guide in developing educational content rich in job-specific and generic skills formation.

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