



APPLICATION OF VALUE CHAIN ANALYSIS IN THE SUSTAINABLE MANAGEMENT OF TERTIARY DISTANCE EDUCATION PROGRAMMES IN NIGERIA

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ABSTRACT

In a highly competitive environment, Distance Education Institutions are expected to develop business strategies and frameworks for sustainability. One of such viable strategies is the value chain analysis. The purpose of this study is to determine the extent to which distance education institutions in Nigeria apply the process of value chain analysis in the sustainable management of their programmes. Three research questions and two null hypotheses guided the study. The study adopted the descriptive survey research design. Distance Education Value Chain Process Instrument (DEVACPI) which was face validated by experts in distance education, measurement and evaluation and management studies was used for the study. A reliability coefficient of 0.87 was estimated for the instrument using the Cronbach alpha method. The instrument was used to elicit information from 168 management staff proportionately sampled from the two major distance education institutions in Nigeria. Weighted mean and the t-test inferential statistic were used to analyze the research questions and null hypotheses respectively. The results from the study show that distance education institutions apply the activity analysis to a little extent. However, they claim that value analysis and expected changes were applied to a great extent. Furthermore, there was no significant difference in the mean ratings of the management staff in the two distance education institutions on the extent to which they apply the activity analysis and the value analysis in the sustainable management of distance education institutions in Nigeria. The management staff reported that they are not sufficiently knowledgeable in the value chain analysis. The researcher therefore recommended that formal training on value chain analysis be organized for distance education managers in Nigeria by the Ministry of Education.

Keywords: Distance education, Value chain analysis, Sustainable management, Activity analysis, Value analysis, Expected changes and ICT.

Contribution/ Originality

The paper's primary contribution is finding that distance education management staff in Nigeria are not sufficiently grounded in the application of value chain analysis for the sustainable management of distance education programmes. It contributes significantly to the existing literature on the application of value chain analysis in distance education management.

1. INTRODUCTION

Value chain refers to a sequence of activities undertaken by an organization in order to make their products valuable to their customers. [Economic Times \(2014\)](#) defines value chain as the whole series of activities that create and build value at every step. [Strategic Management Insight \(2013\)](#) defines Value Chain Analysis as a process where a firm identifies its primary and support activities that add value to its final product and then analyze these activities to reduce cost or increase differentiation. [Mind Tools \(2014\)](#) also defined Value Chain Analysis as a useful tool for working out how you can create the greatest possible value for your customers. Michael Porter generated the concept of value chain in his book 'Competitive Advantage' published in 1980. The reasoning behind value chain is that a product passes through a chain of activities and during each activity, some values are added to the product. He therefore identified primary activities and support activities in the value chain analysis process. [Economic Times \(2014\)](#) also notes that the value chain concept separates useful activities (which allows the company as a whole to gain competitive advantage) from the wasteful activities (which hinders the company from getting a lead in the market), focusing on the value-creating activities which give the company many advantages. [Decision Support Tools \(2013\)](#) states that value chain is based on the idea of viewing a manufacturing (or service) organization as a system, made up of subsystems each with input, transformation processes and outputs. Value chain reduces cost and increases profit accruing to an organization. It is as important in the service industry as it is in the manufacturing industry. Service industries utilize inputs of time, knowledge, equipment and systems to create services of real value to people being served – the customer ([Mind Tools, 2014](#)). Distance Education Institution is one of such services industries. Distance Education is an instructional strategy which adopts Information and Communication Technologies (ICTs) as a means of bridging the gap in space and time between the instructor and the student during the teaching learning process. It renders educational services to students by utilizing various inputs to produce skilled personnel-output. The value chain analysis is vital in distance education because it reveals its fundamental attractiveness, exposes underlying drivers and provides insight into how distance education institutions can become profitable in future given the changes in customer need ([Dambudzo, 2013](#)). Distance education is a system with various subsystems charge with

responsibilities that will add value, at any stage of the production process. The inability of the conventional tertiary institutions in Nigeria to provide access to those who require tertiary education in a cost effective manner has made distance education an imperative. Akintayo (2012) reported a 33% global utilization of resources by conventional tertiary institutions in Nigeria. The under utilization he further notes is in terms of capacity time utilization rate, space utilization rate and global utilization rate. With the above scenario, the demand for tertiary education far outweighs the supply by conventional tertiary institutions in Nigeria. This led to the proliferation of tertiary distance education institutions in Nigeria with its attendant competitive environment. Distance education institutions in a bid to widen access to tertiary education in Nigeria, seems to be faced with inefficiency in management. Murgotroyd and Woudstra (2009) note that as distance education expands rapidly, the lack of a theoretical framework to guide our understanding of its particular management challenges, skills and practices becomes more troubling. Elloumi (2004) further observed that online distance education programmes fail because of poor decision, high cost of technology, competition and the absence of appropriate business strategies. According to Kilmurray (2004) most of the institutions replicate classroom experience online. This has led to the inability of such institutions to create sufficient value that will enable them survive the competitive business environment. Hence the closure of some distance education programmes. Efforts to address these management challenges have been restrictive and specific rather than all encompassing. Duke (1989) viewed distance education management from a speculative perspective while Kaye and Rumble (1989) from a descriptive perspective. The creation of a highly competitive business environment implies that only distance education institutions with viable business strategies can survive to create utility. Hence, the value chain analysis has been suggested as a viable tool that will create a valuable, effective and efficient management process to consumers of distance education programme in Nigeria. There are various approaches to value chain analysis. Mind Tools (2014) identifies a three-step process in the application of Value Chain Analysis. These are: activity analysis, value analysis and evaluation of expected changes. Similar to mind tool's process to value chain analysis is the differentiation approach presented by SMI (2013). Strategic management insight identified the three-step approach for firms to create superior products or services to include; identifying the customers' value-creating activities, evaluating the differentiation strategies for improving customer value and identifying the best sustainable differentiation. Distance education as a service industry can apply any of these three steps in value chain analysis to deliver quality programme management that will add sufficient value to their products to consumers. Based on the potentials of value chain analysis in sustainable management of programmes, this study sets out to determine the extent to which distance education institutions apply value chain analysis in the sustainable management of their programmes, so as to provide valuable service to their consumers.

The mind tools three steps process will be adopted in this research. Based on this, the following research questions guided the study.

1. To what extent is activity analysis applied in the sustainable management of distance education programmes in Nigeria?
2. To what extent is value analysis applied in the sustainable management of distance education programmes in Nigeria?
3. To what extent is evaluation of expected changes applied in the sustainable management of distance education programmes in Nigeria?

1.1. Hypothesis

The following hypotheses were tested at 0.05 level of significance.

HO₁: There is no significant difference in the mean ratings of management staff of the National Open University and National Teachers Institute on the extent to which they apply activity analysis in the sustainable management of distance education programmes in Nigeria.

HO₂: There is no significant difference in the mean ratings of management staff of the National Open University and National Teachers Institute on the extent to which they apply value analysis in the sustainable management of distance education programme in Nigeria.

2. METHODOLOGY

The descriptive survey research design was adopted in ascertaining the extent to which distance education institutions apply the value chain analysis in the sustainable management of their programmes. The population for the study consists of 210 management staff in the 2 major distance education institutions in Nigeria; The National Open University of Nigeria (NOUN) and the National Teachers' Institute (NTI). These institutions were chosen because they have centres throughout the federation; therefore, information gathered from the respondents could be representative of the country. Proportionate random sampling technique was adopted in sampling management staff from the two institutions. 80 percent of the management staff of the two institutions was sampled for the study. This gave a total of 78 management staff for NOUN and 90 for NTI. The choice of 80 percent is to make sure that the opinion of a greater number of the management staff is used for the study. The instrument was a 32 item questionnaire developed by the researcher to elicit the needed information. The items on the instrument were developed based on the components of the value chain analysis that are relevant to the management of distance education programmes. The instrument was titled Distance Education Value Chain Process Instrument (DEVACPI) and was face validated by experts in distance education, measurement and evaluation and management studies. The modified instrument was further trial tested on 10 management staff from Institute for Distance Education Abia (IDEA).

The Cronbach Alpha was used in determining the internal consistency of the instrument and reliability coefficients of .84, .90 and .88 were estimated for the three clusters while an overall reliability coefficient of .87 was estimated for the instrument. Weighted mean was used to analyze the research questions while t-test was used in testing the stated hypotheses at 0.05 level of significance. The true limit of numbers was adopted to determine the level of agreement of the respondents on the extent to which value chain analysis is applied in the sustainable management of distance education programmes in Nigeria. The boundary means and decisions are as follows;

Table-1. Boundary Limits for Result Interpretation

Range	Decision
1.00-1.99	Very Little Extent
2.00-2.99	Little Extent
3.00-3.49	Great Extent
3.50-4.00	Very Great Extent

3. RESULTS

Research Question 1

To what extent is activity analysis applied in sustainable management of distance education programmes in Nigeria?

Table-2. Mean responses of management staff on extent to which activity analysis is conducted in the management areas

Items	NOU	NTI
Admission	2.51(LE)	3.10(GE)
Staff recruitment	2.73(LE)	2.52(LE)
Quality assurance	2.41(LE)	2.61(LE)
Faculty development	2.50(LE)	2.63(LE)
Student evaluation	2.32(LE)	2.51(LE)
Setting objectives for programs	3.14(GE)	3.41(GE)
Media selection	2.92(LE)	3.26(GE)
Instruction	2.48(LE)	2.71(LE)
Programme development	2.86(LE)	3.26(GE)
Course development	2.22(LE)	2.56(LE)
Record keeping	2.00(LE)	2.30(LE)
Students' welfare	3.22(GE)	2.86(LE)
Grand Mean	2.65(LE)	2.81(LE)

On the extent to which the institutions apply activity analysis, the management staff of the two institutions indicated that they apply activity analysis to a little extent in majority of the management areas. These have their means between the range of 2.00 and 2.99. The NOU indicated that they apply activity analysis to a great extent in setting objectives for the programme and provision of students' welfare while NTI indicated that they apply activity

analysis to a great extent during admission, setting of objectives and programme development. These have their means between 3.00 and 3.49. However, grand means of 2.65 for NOU and 2.81 for NTI show that activity analysis is applied to a little extent by the two institutions in the sustainable management of their programmes.

Research Question Two

To what extent is value analysis applied in sustainable management of distance education programmes in Nigeria?

Table-3. Mean responses of management staff on the extent of application of identified values in the sustainable management of Distance Education programme

Items	NOU	NTI
Use of interactive technologies	2.32(LE)	2.01(LE)
Provision of counseling activities	3.41(GE)	3.30(GE)
Use of course team model in course development	3.02(GE)	3.50(GE)
Integration of immediate feedback on assignment	3.28(GE)	3.31(GE)
Timely delivery of course materials	3.54(GE)	3.51(GE)
Update of course materials through reviews	3.26(GE)	3.00(GE)
Online registration of students	2.30(LE)	2.01(LE)
Adopting real time communication method	2.98(LE)	3.21(GE)
Use of interactive course materials	3.22(GE)	3.01(GE)
Use of qualified personnel for instruction	3.61(GE)	3.52(GE)
Warehousing of course materials for safety	3.26(GE)	3.00(GE)
Grand Mean	3.10(GE)	3.04(GE)

Table 3 shows that the respondents consider the identified values in the management of their programmes to a great extent. The management staff in the two institutions responded positively to all the items except use of interactive technologies and online registration of students. However, grand means of 3.10 for NOU and 3.04 for NTI indicate the application of value analysis to a great extent.

Research Question Three

To what extent is evaluation of expected changes applied in the sustainable management of distance education programmes in Nigeria?

Table-4. Mean responses of management staff on evaluation of expected changes in the management of distance education programmes.

Items	NOU	NTI
Timely graduation of students	2.00(LE)	3.41(GE)
Increase in enrolment	3.45(GE)	3.52(GE)
Efficiency of students on the job	3.36(GE)	3.43(GE)
Increase in number of graduates	3.42(GE)	3.61(GE)
Cost effective programme	3.30(GE)	3.42(GE)
Production of skilled graduates	3.01(GE)	3.32(GE)
Provision of quality programme	3.61(GE)	3.41(GE)
Sustainable programme	3.72(GE)	3.68(GE)
Upgrading of manpower	3.28(GE)	3.58(GE)
Grand Mean	3.35(GE)	3.48(GE)

On the extent to which the institutions evaluate their expected changes, the management staff of the two institutions responded positively to almost all the items, with grand means of 3.35 and 3.48 for NOU and NTI respectively. This shows that the institutions apply evaluation of expected changes to a great extent in the sustainable management of their DE programmes.

3.1. Hypotheses

HO: There is no significant difference in the mean ratings of management staff of the National Open University and National Teachers Institute on the extent to which they apply activity analysis for the sustainable management of distance education programme in Nigeria.

Table-5. t-test analysis of difference between management staff of NOUN and NTI on the extent of application of activity analysis

Groups	No	X	SD	Df	T	t.crit	Dec.
NOU	78	2.65	.32	166	1.30	1.96	Accepted
NTI	90	2.81	.54				

From the above table, it is observed that although management staff in NTI has a higher mean score of 2.81 than the 2.65 for management staff of the NOUN, the difference in these mean scores is not statistically different at $P = 0.05$. This is because the calculated t-value of 1.30 is less than the critical t-value of 1.96 at $P = 0.05$. This implies that the null hypothesis is upheld .

HO: There is no significant difference in the mean ratings of management staff the National Open University and National Teachers Institute on the extent to which they apply value analysis for sustainable management of distance education programme.

Table-6. t-test analysis of difference between management staff of NOUN and NTI on the extent of application of value analysis

Groups	No	X	SD	Df	T	t.crit	Dec.
NOU	78	3.10	.48	166	1.64	1.96	Accepted
NTI	90	3.04	.51				

The findings from hypothesis two shows that although management staff of the NOU has a higher mean score of 3.10 than the 3.04 of management staff of NTI, the difference in these mean scores is not statistically significant at 0.05 level of significance. This is because the calculated t-value of 1.64 is less than the critical t-value of 1.96 at .05 level of significance. This implies that the null hypothesis is upheld .

4. DISCUSSION

The finding on the extent to which the DE institutions apply the activity analysis for sustainable management of their programmes shows that the respondents agree to the fact that

they apply activity analysis to a little extent. This shows that the management staff are not grounded in the application of activity analysis which is the first step in value chain analysis. However, on admission, setting of objectives and programmes development they indicated a high extent of application of activity analysis. This is not surprising because these areas, it is believed, require wide consultation to be able to achieve success in the management of programmes. Hence management staff conduct needs assessment and hold series of meetings during the dispensation of these management duties. This is in line with [Dambudzo \(2013\)](#) who found out that needs analysis is carried out while developing distance education programmes because it enables institutions to customize their programmes and courses to enhance relevance. Activity analysis is properly not applied in the other identified areas because they are likely to be seen by management staff as more specific and narrow in scope and could be handled internally without wide consultation., The management staff in their further comments state that they lack knowledge in the application of Value chain analysis in these areas, as such, managers apply activity analysis to a little extent.

The analysis of difference between the mean ratings of management staff in NOU and NTI on the extent to which activity analysis is applied in the sustainable management of distance education programmes in Nigeria shows a no significance difference in their mean rating. This means that the two groups of respondents share the same opinion on the extent to which activity analysis is applied in the management of Nigeria DE programmes On the extent to which they offer the identified values for the sustainable management of their programmes, the finding shows that the respondents agreed that they offer the identified values to a great extent. This is expected because every distance education management staff is aware that the identified values are very vital in the sustainable management of their programme, hence, they attach great importance to these values. [Woudstra and Adria \(2003\)](#) observed that the manner in which qualified personnel acted or behaved determines the effectiveness of an institution and also its competitive advantage in the education market place. The inability of these institutions to use online interactive technologies could be understood and is not unconnected with cost of interactive technologies, and failed internet services for contiguous communication which is still being experienced in developing countries. However, values from Porters primary activities as applied to distance education are offered by Nigerian distance education programmes. These according to [Dambudzo \(2013\)](#) include Preparation for course development (Inbound logistics), Course team development writing process (Operations), Packaging and warehousing of course (Outbound logistics), communication and Marketing (Delivery) and Assessment and testing (Service).

The analysis of difference between the mean ratings of management staff in NOU and NTI on the extent to which some identified values are applied in management aspects of distance education programmes in Nigeria show a no significant difference in their mean rating. This

means that the two groups of respondents share the same opinion on the extent to which value analysis is applied in the management of Nigeria DE programmes.

The finding on the extent to which distance education management staff evaluate the expected outcome of their programmes shows that they analyze their outcomes to a great extent. This is not surprising because anticipated outcome of a programme to a great extent directs the management path of a programme. Hence, managers place huge emphasis on streamlining their expected outcomes so as to tap utmost utility from their scarce managerial inputs. [National Teachers Institute \(2011\)](#) reported an increase in the number of teachers trained and enrolment between 2006 and 2010. [Akintayo \(2012\)](#) also reported that NTI has fulfilled its mandate of training and re-training of teachers and its improvement in maintaining quality and standard in Nigeria education industry.

A qualitative analysis of the follow up comments made by the management staff of the institutions shows that they lack sufficient knowledge in the application of the value chain analysis despite the positive response on some items on the instrument. Those items were rated positive because as administrators they are aware that the items are necessary in effective administration of distance educational programmes.

5. RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made

1. Distance education institutions in Nigeria and should regularly organize training for their management staff on the application of value chain analysis in the management of distance education programmes.
2. Ministry of education should help these institutions to sponsor these trainings and also make such trainings mandatory.
3. Government of Nigeria should sponsor exchange programmes both within and outside Nigeria for management staff to understudy the application of value chain analysis in such visited institutions.
4. Distance education institutions in Nigeria should provide interactive technologies that will facilitate real time communication and provide a variety of online activities like online registration of students and online instruction.
5. Government should put in place policies and tax rebates that will enhance the acquisition of interactive technologies by distance education institutions.

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