A PATH-ANALYTIC STUDY OF SOME CORRELATES PREDICTING PERSISTENCE AND STUDENT'S SUCCESS IN DISTANCE EDUCATION IN NIGERIA

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ABSTRACT

This study examined the influence of some predictors in the enhancement of persistence and students success in distance education in the two most recognised and respected distance learning institutions in Nigeria—the Distance Learning Institute (DLI) of University of Lagos and Distance Learning Centre of University of Ibadan. The need for this study arose because distance education is still, very much, in its embryonic stage in Nigeria due to the minimum deployment of technology which is the hallmark of this form of education. Four research questions were formulated to ascertain the relative contribution of each predictor to persistence and students success. A Multiple Regression Analysis converged on a eight predictor model revealed that the most important predictors for enhancing persistence and students' success are the learning conduciveness of the environment and the provision of student support services with F-ratio 75.39 and 73.03 respectively. Tutors response pattern and learners perception of course materials were found important too with F-ratio 22.01 and 15.54 respectively. While the learners home background cum occupational status and institutions social interaction were found insignificant (F-ratio 0.25 and 7.98 respectively). These findings have implications for the design of academic curriculum for distance learning programme where attention must be paid to the provision of these important predictors.

Keywords: Persistence, Student success, Distance Education, Students Support Services, Institution's Social Interaction Pattern, Tutors Response or Feedback Pattern, Learners Perception of Course Materials, Learners Learning Environment.

INTRODUCTION

The acceptance of distance/open learning as a standard component of education has widened the scope of educational opportunities whereby many people (especially the working adults) can acquire more knowledge and skills in the conventional institutions while at the same time working. Nowadays, there is a vast and rapid growth of distance learning at all levels of education to the extent that it has moved from being a marginal to becoming an integral part of the overall education and training provision (Moore, 2002; UNESCO, 2002). With the growth of distance education has come the problem of exceedingly high attrition rate. This signifies that learning at a distance is not an easy method of teach (Thorpe, 1987). Distance learners faced a lot obstacle in terms of achieving success in their learning (Aderinoye, 1992).

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Carr and Ledwith (2000) found attrition rates to exceed 40 percent in some institutions in United States of America. Some of the major obstacles faced by the distance learners are in the area of developing interest and motivation in the task of learning, grasping the structure of the subject to be learned at a distance, learning both analytic and instructive thinking, problem of evaluating progress in their learning, and readiness for study (Wedemeyer, 1971, 1977; Chacogn, 1985). These obstacles, coupled with the myriad of responsibilities which the distance learners are saddled with, have implications for their effective learning in their academic programme (Akintayo, 1994).

It is now obvious, as observed by Guri-Rosenblint (1983), that students learning at a distance need special support to strengthen their motivation, to help them develop effective study skills, and assist them in tackling numerous personal, social, and academic problems in the learning process. Understanding some of the predictors that can help the distance learners to overcome the obstacles in their learning process which will help enhance their academic success becomes imperative.

In many developing countries, Nigeria inclusive, distance learning is still in its embryonic stage due to the conservative nature of most educational administrators and managers who find it increasingly difficult to accept distance education as an alternative mode of education. Besides, there is minimum deployment of technology to distance education which incidentally is the hallmark of this form of education.

Therefore, more researches need to be carry-out on distance education especially in the area of students' persistence and success. This will help distance education administrators and managers to know the factors predicting students' persistence and success in distance education especially in the third world and other developing countries. This study was, therefore, carried-out to investigate the determinants of persistence and success of distance learners in their learning.

Statement of the Problem The separation, in time and space, of the distance learner from his tutor and the learning group makes him adopts individualistic or self-directed learning pattern. This adopted learning pattern creates a lot of learning difficulties for the distance student in terms of when to study, how to study, what to study, how to be motivated to study etc. These difficulties definitely affect the learning outcome of the learners. There is, therefore, the need for detailed understanding of some important predictors that can help improve the learning outcome of the distance learners.

Objectives of the Study
The major objectives of the study are; to

> ➤ investigate the predictors that help enhance persistence and students success in Distance Education in Nigeria.
> ➤ examine the extent to which the predictors, if taken collectively, would enhance distance learners effective learning as well as the relative contributions of each predictor.
> ➤ Determine the pathways and their coefficients through which the predictors help motivate distance learners to achieve effective learning.
> ➤ Determine if the proportion of the contribution of the predictors was through direct impact and or indirect impact.

REVIEW OF LITERATURE

Persistence and Students Success in Distance Education

As a result of the many problems, responsibilities, and disadvantages facing distance learners in their learning, the issue of which factors help distance learners to persist and succeed in their learning has generated a lot of interest among distance education scholars as distance education moves from a marginal to an integral role in overall educational provision.

Over the past decade, there have been a number of studies examining students success and persistence in distance education. However, success depends on a number of factors. Coggins (1989), cited by Moore and Kearsley (1996), found that educational level is directly related to length of time since the formal course is inversely related to success in completing distance learning courses. Schwittman (1982, 1999) considered motivation as a critical predictor of success. Woodley and Parlett (1982) found that socio-demographic factors such as learners' previous educational level, gender, age, and occupation are associated with persistence. Rekkedal (1982) and Gough (1978) reported that students' success in distance education was associated with such factors as assignments turnaround time, the nature of students-tutor interaction, and course quality. Sweet (1986), using Tinto's (1975) conceptual framework on self-directed learning adapted to distance education, reported that such factors as goal satisfaction, institutional commitment, and tutor contact with the distance learners contributed significantly to their success.

Siguella and Lynch (1986) found that student's satisfaction with the course, frequency of visits to students' drop-in-centres, socio-economic status, and perceptions of course materials were significant in explaining success and persistence of distance learners in distance learning programme. Aderinoye (1992), in his study of the factors that promote retention and failure among distance learners from the National Teachers Institute, Kaduna, Nigeria, found that course materials, facilitator/tutor contact with the learners, environmental variables, and motivation of the learners significantly affected the learners rate of retention and failure in their distance learning programme. Powell, R.; Conway, C. and Lynda, R. (1989) equally classified factors contributing to success in distance education into three general categories on the basis of previous studies. The first set comprises those characteristics students bring to the educational process at the time of entry such as educational preparation, socio-economic and demographic status, and motivational perseverance attitudes. He submitted that these predisposing characteristics are either fixed or slowly changing throughout the duration of student's involvement with a distance education institution and, as such, exert a relatively constant influence on students' chances of success.

The second category consists of changes in life circumstances that disrupt or, in some ways alter the goals, expectations, and commitment with which students begin their distance education studies. Such life changes as: personal illness, relocation, altered employment status, and family problems occur quickly and often unexpectedly. The third category contains factors that can be termed institutional, that is, under the control of the educational provider. These include: quality and difficulty of instructional materials, access to and quality of tutorial support, the administrative and other support service provided.

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Furthermore, Chacon-Dugue (1985) reported that success and persistence of distance learners, in their learning programme were affected by such factors as quality of course materials, variety .of media, and planned student support while education and age were not so related.

In the same vein, Sung (1986), while assessing programme and environmental based students perceptions along with entry motivation and educational preparation, found that availability of time was the best predictor of success; although adequacy of course materials and support services were also important predictors.

He also reported that these factors help in promoting learners motivation and he therefore, considered motivation as a very significant predictor. Similarly, Diaz (2002) used a test of learning styles to determine the correlation between students who scored as independent, self directed individuals and completion of online instruction.

Diaz reported a statistically significant correlation between self-motivated and academic persistence. Parker (2003) found, in her study, that Locus of control or the level of self-motivation is positively correlated with academic persistence of distance learners.

In another study, Liu, Lavelle & Andris (2002) illustrated those students who had a tendency. Toward internality increased their skills as self-motivated students during an online course.The various submissions of these scholars motivated the researcher to carry-out this study to find-out the factors or correlates predicting persistence and students success in distance education in two prominent distance learning institutions in Nigeria.

Research Questions
Four research questions, based on the objectives of the study, were raised for the study. The above objectives were simply transformed into research questions.

METHODOLOGY

Participants
The participants of this study comprised distance learners from 200-400 levels in two distance teaching institutions – the Distance Learning Institute (DLI)University of Lagos and Distance Learning Centre (DLC) University of Ibadan. The total sample size of the study was 1,245 with DLI having 732 and DLC 513.

Instrumentation
Two sets of questionnaire tagged "Predictors for Motivating Distance Learners Questionnaire (PMDLQ)" and "Predictors for Enhancing Distance Learners Learning Pattern (PEDLLP)" were employed to obtain information from the respondents so as to answer the research questions.

The two sets of questionnaire were designed on a four point Likert Scale with the first questionnaire aimed at measuring how the selected predictors influenced the distance learners to achieve effective learning and better academic performance.

For the construction of the questionnaire, eight important predictors were selected and five questions were asked for each predictor. Therefore, the PMDLQ questionnaire contained 40 items.The second questionnaire (PEDLLP) was also constructed on a four point Likert Scale.

It contained ten questions structured in a close-ended format to measure how these predictors affect or influence distance learners learning pattern which reflects in their performance during the examination.

The two sets of questionnaire ware validated through the content and concurrent validity approaches. The reliability of the instruments was ascertained through a pilot study conducted among sixty eight distance learners of Lead City University's distance institution, Ibadan. The correlated results were 0.92 for PMDLQ, and 0.89 for (PEDLLP).

The Multiple Regression Analysis was employed to analyse the data collected for this study. This statistical tool was used to regress all the selected predictors, taken together, so as to determine the extent to which they actually motivate the distance learners to achieve persistence and better academic performance.

Path analysis was equally used to explain, for more understanding, the causal relationship between the variables-both independent and dependent variables. In all 1,245 copies of questionnaire were distributed while 1,168 were correctly filled and subsequently used for analysis

RESULT AND DISCUSSION

The demographic characteristics of the respondents show that in- terms of age, the highest number of respondents falls within the age bracket 30-40 (904 or 78%) while both sexes were adequately involved; male 626 (55.3%) and female 542 (44.7%). Majority of the respondents either work in the teaching profession 423 (36%) or in the public prostates 363 (31%).

In-terms of educational background, majority of the participants had National Certificate of Education (NCE) Certificate (878 or 67%) while (164 or 14%) of the respondents had Diploma Certificate.

Analysis of Research Questions
Research Question One
One significant outcome of the study was that six predictors were frequently mentioned as predicting the learners' outcome of distance learners. They are the learning environment student support services, learners' perception of the course materials, structure of the study centers, response pattern of the tutors, and the technical media employed in the dissemination of the learning content. While two predictors—the learners' home background/occupational status and the institution's social interaction pattern do not have any significant impact in terms of enhancing learners academic performance.

Research Question Two
The relative contribution or each predictor analysed through the multiple regression analysis is displayed below in Table: 1.

Table:1
The Multiple Regression Analysis Table Showing the Relative Contribution
of each Predictor Predicting the Persistence and Success of Distance Learners
with F-Ratio Values.

Predictors	R	R^2	SE	F-ratio	F-Sig	Remark	Result
SSS	0.3	0.10	0.008122	73.03	3.84	S	2
LLE	0.35	0.12	0.00917	75.39	3.84	S	1
LPCM	0.19	0.04	0.028411	15.54	3.84	S	4
SSC	0.15	0.02	0.41163	13.01	3.84	S	5
HB/OS	0.05	0.00	0.389958	.025	3.84	NS	8
TM	0.17	0.03	0.09845	10.88	3.84	S	6
TRP	0.18	0.030	0.444465	22.01	3.84	S	3
ISIP	0.11	0.01	0.020039	7.98	3.84	NS	7

Predictors
LLE = Learners Learning Environment
SSS =Students Support Services
LPCM = Learners Perception of Course Materials
SSC =Structure of the Study Centre
HB/OS = Hume Background/Occupational Status
IS1P = Institution's Social Interaction Pattern
TRP = Tutors Response or Feedback Pattern
TM =Technical Media
S= Significant
NS=Not Significant

From the values of the relative beta weight associated with each predictor, as shown in this table, two predictor—the learners learning environment and the provision of support services to the learners-contributed more significantly to predicting the learning outcome of the learning outcome of the distance learners with F-ratio 75.39 and 73.03 respectively.

Others predictors found helpful, but not as highly significantly as the above predictors were response pattern of tutors with F-ratio 22.01, perception of the course materials with F-ratio 15.54, structure of the study centres with F-ratio 13.0 and the technical media used in learning content dissemination with F-ratio 10.88.While institution's social interaction pattern and learners home background/ occupational status were found not significant with F-ratios 7.98 and 0.25 respectively.

Research Question Three
In order to ascertain the correctness of the multiple regression analysis used to regress the predictors which determined the relative contribution of each predictor, path analysis was used to find-out if the obtained coefficients will confirm the results early obtained. The result is shown in table 2.

Table: 2
Significant Paths and Their Coefficients Through which the Predictors
Caused Variation in Predicting Learning Outcome of Distance Learners

S/N	Variables or Predictors	Pathways	Nature of Paths	Path Coefficients	
1	LLE	Pa_1	Direct	-	0.99.
2	SSC	Pa_2	Direct	-	0.056
3	TRP	Pa_3	Direct	-	0.072
4	TM	Pa_4	Direct	-	0.049
5	SSS	Pa_5	Direct	-	0.129
6	LPCM	Pa_6	Direct	-	0.062
7	ISIP	Pa_7	Direct	-	0.036
8	HB/OS	P_16, P_{13}	Indirect	(0.08)(0.072)	0.00576
9	TM	$P_16, 10,5$	Indirect	(0.08)(0.178)(0.129)	0.00184
10	LE	$P_{12} 6, 10$	Indirect	(0.08)(0.072) (0.178)(0.129)	0.0000046
11	SSC	$P_2 4$	Indirect	(0.056)(0.049)	0.0027
12	SSC	$P_{11} 1$	Indirect	(0.10)(0.99)	0.099
13	SSC	$P_{11,} 12$	Indirect	(0.10)(0.0028)	0.00028
14	SSC	$P_{11,} 12, 7$	Indirect	(0.10)(0.0028)(0.036)(0.129)	0.00001
15	SSC	$P_{13,} 7,5$	Indirect	(0.08) (0.36)(0.129)	0.0038
16	TRP	$P_{17,} 4$	Indirect	(-0.211)(0.049)	-0.001
17	TRP	$P_{15,} 16$	Indirect	(-0.30)(0.08)	-0.024
18	TRP	$P_{15,} 16, 3$	Indirect	(-0.30)(0.08)(0.072)	-0.0017
19	SSS	$P_{10,} 5$	Indirect	(-0.178)(0.129)	0.0229
20	LPCM	$P_8, 15$	Indirect	(-0.12)(0.30)	-0.036
21	LPCM	$P_8, 15, 16, 3$	Indirect	(-0.12)(0.08)(0.72)	0.0069
22	LPCM	$P_8, 15, 16, 10, 5$	Indirect	(-0.12)(0.08)(0.178)(0.129)	0.0002
23	SSS	$P_{9,} 3$	Indirect	(0.318)(0.072)	0.0228
24	HB	$P_{14,} 7, 5$	Indirect	(0.129)(0.036)(0.129)	0.0061
25	HB	$P_{9,} 17, 4$	Indirect	(0.318)(0.211)(0.049)	0.0003
26	HB	$P_{6,} 3$	Indirect	(0.072)(0.072)	0.0051

Out of the 26 pathways, seven (7) are direct while nineteen (19) are indirect. Results showed that of the seven predictors – learners learning environment, structure of the study centres, tutors response pattern, institutions social interaction pattern, students support services, learners perception of the course materials and technical media – have direct effect in predicting learning outcomes of distance learners. Learners learning environment has the highest predicting value on distance learners learning home background and occupational status is shown as having indirect effect in predicting outcome (β=0.99) this is followed by students support services (β=0.129), tutors response pattern and learners perception of the course materials both have (β=0.072), structure of the study centers followed with (β − 0.056), technical media has (β−0.49), and lastly institution's social interaction pattern has (β=0.036).

The learner's the learning outcome of distance learners. In other words, the table shows seven direct paths through which the predictors (X1–X8) caused variation.Besides the pathways and the nature of paths, through which the predictors caused variation, there is also the process of interaction among the predictors.

Pa 1 (0.99)

(0.072) Pa 6

Learners Perception   (0.036) Pa 7

(0.0028)
Pa 12

ISIP

SSC

Motivation of Learners
for Effective Learning

(0.092) Pa 3   Tutors

(0.072) Pa 3

Response

SSS

LB   HB

TM

(0.318) Pa 9

Pa (0.056)
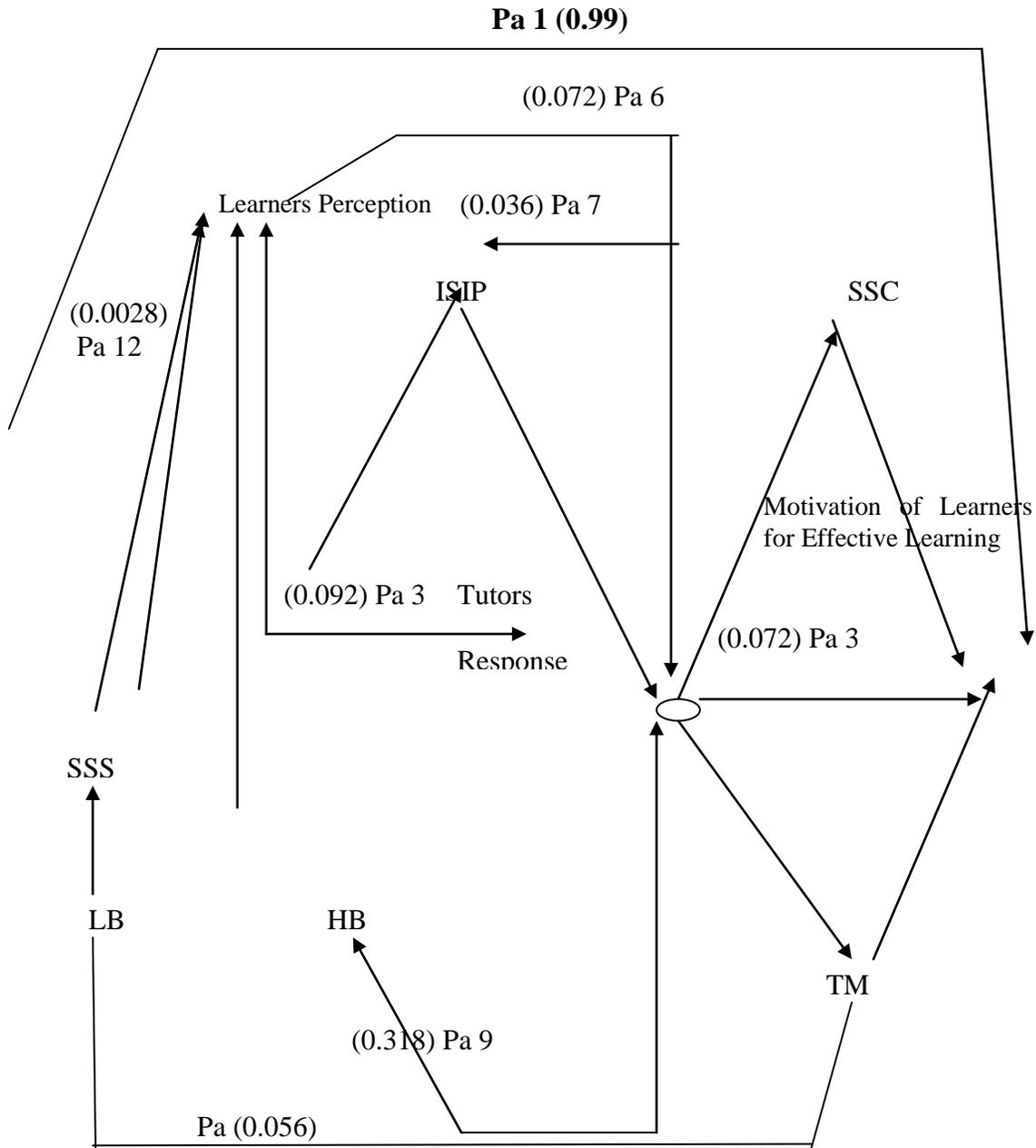
Figure: 1

Parsinomous Path Model Showing the Interaction of the Predictors with One Another

That is, no one predictor exists in isolation. All the predictors, except those that have no direct link to predicting distance learners learning outcome, interact in one way or the other to exert much influence on the distance learners. A detailed graphic illustration of the interaction pattern of the predictors is shown in figure: 1.

The analysis of this model shows that path 1 has a direct link with the student support services and the learners learning environment and motivation of learners for achieving effective learning outcome. This, in turn, affects path 6 (learners' perception of the learning material). Tutors response (path 3) and structure of the study centre (path 7) also have a direct link to learners' perception. This also had an impact or a link with the technical media (path 4) employed in disseminating the learning content.

The model also shows that the institution's social interaction pattern and learners' home background do not have a direct link to the motivation of the learners for effective learning. Though, the model reveals the fact that these two predictors might have an influence on the learners since they converge at a certain point, but the fact that they have no direct link to the learners' motivation shows that the influence is insignificant. Except these two predictors, all other paths portraying the predictors are interwoven and interact or have one link of the other to each every predictor.

In order to know whether the proportion, in percentages, of the contribution of each predictor was through direct and/or indirect effects, a path analysis was carried-out to determine this. The result is shown in Table III.

Table: 3
Path analysis of proportion percentage of predictor
through direct and indirect effects

Independent Variables	Total Effects	Direct Effect (D.E.)	% of D. E. Relative to T.D.E.	Indirect Effect (I. E.)	% of D. E. Relative to T. D. E.
LLE	0.900046	0.990	53.46	0.0000046	0.0003
TRP	0.453	0.072	3.858	-0.0267	-1.44
LPCM	0.431	0.072	3.888	-0.0289	-1.56
IBIP	0.036	0.036	2.646	-	0.0
HB/OS	0.0076	-	0.0	0.0076	0.41
TM	0.1519	0.49	6.965	0.0229	1.24
SSC	0.016179	0.056	3.024	0.10579	5.71
SSS	0.2033	0.129	19.924	0.0343	1.85
Total Absolute % of T.D. & T.I.E.	1,652	1,737	93.787	0.115	6,21.3

Absolute values were used in finding the sum of total effect and direct effect of the predictors.
T.E. =Original Correlation Coefficient
D.E. =Path Coefficient
I.E.=Total Effect – Direct Effect

The result revealed that the predictors contributed about 94% through direct and about 6% through indirect effect. This result, therefore, confirms the result obtained 111 research question one that there is a high composite influence of the predictors in predicting the learning outcome of distance learners. Besides, this result confirms the earlier findings contained in the previous tables displayed in this section.

From the different tables presented above, it shows that learners learning environment and student support services are the strongest predictors for predicting persistence and success of distance learners in distance learning programme. In the same vein, other important predictors are the tutors responses pattern, learners perception of the course materials, the structure the study of the study centers, and the technical media used in disseminating the self-instructed learning content. From these results, it behaves that every distance teaching institution should provide adequate learning environment for the distance learners during their residential stay on the campus. Secondly, there should be the provision or quality support services in terms of counseling services, frequent tutorial assistance from the tutors, constant and adequate dissemination of information on the learner's academic progress and other related information, and knowledge on study skills. Tutors must also be tutored not to pass negative and unfavorable comments on the learners assignment Also self-instructed materials must be written in a simple language, the details must be carefully provided but not overloaded, the layout must be progressive, systematic and sequential in nature, it must be built upon the previous experiences of the learners.

CONCLUSION

This study has been able to establish some of the most important predictors for predicting the persistence and students success in distance education in Nigeria. These findings have implications for the successful conduct of distance learning programme in Nigeria. This programme should lay more emphasis on how to ensure positive learning outcome of distance learners rather than the benefits accruable to the distance institutions.There is no denying the fact that distance education practice in Nigeria is still in its infancy stage when compared with the standard and status of similar institutions in the developed world. The only thing that can ensure its sustainability is the quality of the products from the programme. Only then will distance education institutions, be said to be standing, in same footing, with the conventional institutions in the production of manpower need of Nigeria.

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