

UTILIZATION OF INNOVATIVE TEACHING TECHNIQUES AMONGST TECHNICAL EDUCATION LECTURERS IN COLLEGES OF EDUCATION IN NORTH-WEST, NIGERIA: BARRIERS AND ENHANCEMENT MEASURES

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Abstract

The paper identified the barriers and enhancement measures to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria. Two research questions were raised to guide the study and two hypotheses were formulated and tested at .05 level of significant. Survey research design was used for the study. The study was carried out in North-West, Nigeria. The population for the study consisted of 125 technical education lecturers. The instrument for data collection was a structured questionnaire. Cronbach Alpha method was used to determine the reliability of the instrument and yielded .88 and .89 coefficients respectively. The study employed the use of Mean to answer the research questions and Z-test to test the null hypotheses. Findings among others revealed, lack of professional training, supporting resources, skills, knowledge as well as resistance to change were found to be barriers while adequacy of resources, time and support for lecturers were enhancement measures to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria. The study recommended among others that, Colleges of Education administrators should create a delicate balance between the identified barriers and enhancement measures to ensure the use of innovative teaching techniques amongst technical education lecturers in order to promote effective teaching.

Key words: *Technical Education, Lecturers, Innovative Teaching Techniques, Barriers and Enhancement measures.*

Introduction

Technical education is a field of study that prepare individual with knowledge, skills and attitude to function in the world of work. This type of education is designed to prepare individual to acquire practical skill, basic and scientific knowledge and attitude required as craftsmen, technicians, technologists and sub-professional level (Ekpenyong, 2005). Technical education is obtainable at various educational institutions such as Technical Colleges, Polytechnics, Colleges of Education and Universities. Marc *et al.* (2016) revealed that, the goal of technical education at College of

Education level is to provide the required trained manpower particularly at technician level needed for educational and industrial development. The quality of technical education graduates in Nigeria revealed the inability to achieve the stated goal. The inability to achieve the stated goal of technical education can be attributed to several factors among which are environment, management style as well as lecturer (Idris and Rajuddin, 2018).

A lecturer could be seen as a professional person in the classroom situation who is highly knowledgeable in the subject matter. Umunadi

(2009) described a lecturer as a person who has completed the required programme of professional teacher education and has met other requirements of teaching at higher institutions. The primary function of technical education lecturers is to ensure the realization of the goal of technical education. Ogbaunya and Usoro (2009) explained that, lack of effectiveness and efficiency in the use of innovative teaching techniques amongst lecturers truncates the chances of adequately achieving the goal of technical education. Effective and efficient lecturer therefore, requires to address students' varying learning needs in order to achieve the goal of technical education by implementing creative and innovative teaching techniques.

Innovative teaching techniques are methods of teaching that involve new ways of interaction between lecturer and student that guaranteed certain innovation in practical activity in the process of mastering educational material. These techniques include but not limited to cross over teaching, teaching through smart boards, flipping classrooms, collaboration, virtual reality, three dimension (3D) printing technology and cloud computing technologies (Akhmetova, 2016). The use of innovative teaching techniques in educational institutions such as Colleges of Education has the potential not only to improve students' performance, but also to ease lecturers' efforts in teaching. Bordovskaya and Rean (2018) noted that, effective implementation of innovative teaching techniques in classrooms amongst technical education lecturer should not be achieved due to certain barriers.

Barriers to effective use of innovative teaching techniques could be seen as the conditions or

situations within and outside institutional setup that hinders or stops technical education lecturers from embracing the use of any innovative teaching techniques in classrooms. Bromme, *et al.* (2005) noted that, barriers to the utilization of innovative teaching techniques are challenges that must be overcome in order to enhance students' academic performance and stimulates their interest in learning. These challenges are related to administrators' attitudes and lecturers related factors. Ndou (2018) noted that, the lack of professional training, supporting resources, skills, knowledge as well as resistance to change and negative attitudes are the common barriers to the utilization of innovative teaching techniques among lecturers. Nevertheless, these barriers could be overcome with the appropriate enhancement measures for the utilization of innovative teaching techniques.

Enhancement measures for the utilization of innovative teaching techniques could be seen as the conditions or situations within and outside institutional setup that facilitate the use of innovative teaching techniques amongst technical education lecturers. Norman (2015) defined enhancement measures for the utilization of innovative teaching techniques as factors that promote, enhance and ensure the use of innovative teaching techniques among lecturers. Fink (2016) revealed that, enhancement measures for the utilization of innovative teaching techniques include adequacy of resources, time and support for lecturers as well as institutional philosophy. Others include lecturers' competency, adequate knowledge, positive attitudes and institutional and department leadership style. In order to promote the use of innovative teaching techniques amongst technical

education lecturers in Colleges of Education in North-West, Nigeria, there is need to identify these barriers and enhancement measures.

Statement of the Problem

The goal of technical education at College of Education level is to provide the required trained manpower particularly at technician level needed for educational and industrial development. It is sad to note that, the quality of technical education graduates in Nigeria, specifically in North-West revealed the inability to achieve the stated goal. Idris and Rajuddin (2018) attributed the inability to several factors among which is the technical education lecturer. Lack of effective utilization of innovative teaching techniques amongst lecturers lower the possibilities of realizing the goal of technical education and consequently increase unemployment, social vices and shortage of skilled human resources. In order to ensure the realization of the goal of technical education, there is urgent need to ascertain the barriers and enhancement measures for the utilization of innovative teaching techniques. Hence, this study sought to identify the barriers and enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria in order to promote the use of innovative teaching techniques capable of enhancing students' performances.

Objectives of the Study

The aim of the study was to identify the barriers and enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in colleges of education in North-West, Nigeria. Specifically, the objectives of the study sought to identify:

1. Barriers to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria
2. Enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria.

Research Question

The following research questions were raised to guide the study:

1. What are the barriers to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria?
2. What are the enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria?

Hypotheses

The following null hypotheses were formulated and tested at .05 level of significance:

- H₀₁:** There is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on barriers to the utilization of innovative teaching techniques
- H₀₂:** There is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on enhancement measures for the utilization of innovative teaching techniques

Methodology

Survey research design was used for this study. Mulki et al. (2016) defined descriptive survey research design as design aimed at casting light on current issues or problem through a process of data collection. The study was carried out in North-West, Nigeria. The population for the study consisted of 125 technical education lecturers, 40 from the two Federal College of Education, Bichi and Federal College of Education (Technical), Gusau and 85 from Kaduna State College of Education, Gidan-Waya, Sa'adatu Rimi College of Education, Kano, Isah Kaita College of Education, Katsina and Shehu Shagari College of Education, Sokoto. Due to the manageable size of the population, Total Population Sampling technique was used to select all the respondents. The instrument for data collection was a structured questionnaire developed by the researcher and designed on five-points Likert's scale of Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SD) with numerical values of 5, 4, 3, 2, and 1, respectively was used to collect data for the study. The instrument contained three sections, A, B and C. Section A sought

information on the respondents, section B comprises of barriers to the utilization of innovative teaching techniques and section C comprises of enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers. The instrument was content validated by three Industrial and Technology Education experts from Federal University of Technology, Minna. Cronbach Alpha method was used to determine the reliability of the instrument and yielded .88 and .89 coefficients. Data were collected for the study through hand delivery by six research assistants from the six Colleges of Education involved in the study. The study employed the use of Mean to answer the research questions and Z-test to test the null hypotheses. Z-test was used because it is considered most appropriate for testing the mean difference between two groups that are above 30 in number. Decision on research questions was based on real limit of numbers and decision on the hypotheses was based on comparing Z-value with P-value at 0.05 level of significance. All statistics were carried out using Statistical Package for Social Sciences version 22.

Results

Research Question One

What are the barriers to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria?

Table 1: Mean responses of respondents on barriers to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria

		N1=40, N2=85					
S/N	Items	\bar{X}_1	SD	\bar{X}_2	SD	\bar{X}_t	Decision2
1	Lack of professional training among lecturers on the use of innovative teaching techniques	4.00	0.56	3.53	0.39	3.68	Agreed
2	Lack of supporting resources on the use of innovative teaching techniques	4.12	0.61	3.93	0.47	3.99	Agreed
3	Lack of skills in implementing innovative teaching techniques	4.16	0.44	4.11	0.66	4.13	Agreed

4	Poor knowledge of innovative teaching techniques	3.75	0.54	3.90	0.51	3.85	Agreed
5	Resistance to change	4.14	0.56	3.91	0.39	3.98	Agreed
6	Negative attitudes by lecturers towards using innovative teaching techniques	3.78	0.43	3.80	0.55	3.79	Agreed
Total		3.99	0.52	3.86	0.50	3.90	Agreed

Key: \bar{X}_1 = Mean score of lecturers from Federal Colleges of Education, \bar{X}_2 = Mean score of lecturers from State Colleges of Education, N1= Numbers of lecturers from Federal Colleges of Education, N2= Numbers of lecturers from State Colleges of Education, \bar{X}_t =Average mean of lecturers from Federal and State Colleges of Education.

Table 1 revealed that, all the 6 items had average mean values between 3.68 to 4.13. This indicate

that, the respondents are of the opinion that the 6 items are barriers to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria. Nevertheless, the standard deviation values of 0.52 and 0.50 were recorded for the two groups of respondents. This indicated that, the variation between the mean responses of the respondents was not substantial to make any difference.

Research Question Two

What are the enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria?

Table 2: Mean responses of respondents on enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria

		N1=40, N2=85					
S/N	Items	\bar{X}_1	SD	\bar{X}_2	SD	\bar{X}_t	Decision2
7	Adequacy of general resources required to implement the use of innovative teaching techniques	4.01	0.56	4.12	0.64	4.08	Agreed
8	Enough time to develop understanding of the innovative teaching techniques	4.04	0.61	3.90	0.67	3.94	Agreed
9	Institutional philosophy towards the use of innovative teaching techniques	3.89	0.66	3.78	0.44	3.96	Agreed
10	Adequate support for lecturers both within the institution and within departments	3.62	0.71	4.00	0.59	3.88	Agreed
11	Lecturers' interest to use innovative teaching techniques	4.14	0.44	3.70	0.62	3.84	Agreed
12	Adequate Knowledge of lecturers on innovative teaching techniques	3.96	0.55	4.04	0.69	4.01	Agreed
13	Positive attitudes of lecturers towards the use innovative teaching techniques	4.02	0.63	4.07	0.68	4.05	Agreed
14	Institutional and department leadership style that facilitates the use innovative teaching techniques	3.88	0.58	3.99	0.53	3.95	Agreed
Total		3.94	0.59	3.95	0.61	3.96	Agreed

Table 2 revealed that, all the 8 items had average mean values between 3.84 to 4.08. This indicate that

the respondents are of the opinion that, the 8 items are enhancement measures for the utilization of

innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria. Nevertheless, the standard deviation values of 0.59 and 0.61 were recorded for the two group of respondents. This indicated that, the

variation between the mean responses of the respondents was not substantial to make any difference.

Hypothesis One

There is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on barriers to the utilization of innovative teaching techniques.

Table 3: Z-test analysis for the test of significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on barriers to the utilization of innovative teaching techniques

Respondents	N	\bar{X}	SD	df	z-value	p-value	Remark
Federal Colleges of Education Lecturers	40	3.99	0.52	123	0.056	0.956	Not Significant
State Colleges of Education Lecturers	85	3.86	0.50				

Table 3 revealed that the p-value > 0.5, which implies that, there is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on barriers to the utilization of innovative teaching techniques. Hence, hypothesis one was retained.

Hypothesis Two

There is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on enhancement measures for the utilization of innovative teaching techniques.

Table 4: Z-test analysis for the test of significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on enhancement measures for the utilization of innovative teaching techniques

Respondents	N	\bar{X}	SD	df	z-value	p-value	Remark
Federal Colleges of Education Lecturers	40	3.94	0.59	123	0.059	0.968	Not Significant
State Colleges of Education Lecturers	85	3.95	0.61				

Table 4 revealed p-value > 0.5. This implies that, there is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on enhancement measures for the utilization of innovative teaching techniques. Hence, hypothesis two was retained.

Findings

1. Lack of professional training, supporting resources, skills, knowledge as well as resistance to change and negative attitudes were found to be Barriers to the utilization of

2. Adequacy of resources, time and support for lecturers as well as institutional philosophy. Others include lecturers’ interest, adequate innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria.

knowledge, positive attitudes and institutional and department leadership style were found to be enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria.

3. There is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on barriers to the utilization of innovative teaching techniques.
4. There is no significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on enhancement measures for the utilization of innovative teaching techniques.

Discussion of Findings

Findings on barriers to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria revealed lack of professional training, supporting resources, skills, knowledge as well as resistance to change and negative attitudes. These findings concur with the postulations of Ndou (2018) that revealed, poor attitudes of the administrators towards innovation and comfort of lecturers with the status quo as common barriers to the utilization of innovative teaching techniques. The finding is supported by the postulation of Oresanya *et al.* (2019) that revealed resistance to change, lack of skills and knowledge as the major barriers to innovation in teaching vocational education in Nigeria. This implied that, the identified barriers possessed the potential to hinder the use of innovative teaching techniques

amongst technical education lecturers in Colleges of Education in North-West, Nigeria.

Nevertheless, test for significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on barriers to the utilization of innovative teaching techniques revealed not significant difference. This indicated that, both technical education lecturers from Federal and State Colleges of Education shared similar opinion on barriers to the utilization of innovative teaching techniques. This finding is similar to the findings of Mafora and Phorabatho (2013) that revealed no statistical significant difference between the responses of secondary school principals and manager on barriers to curriculum change implementation process. This implied that, both technical education lecturers from Federal and State Colleges of Education shared similar opinion on barriers to the utilization of innovative teaching techniques.

Findings on enhancement measures for the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria revealed adequacy of resources, time and support for lecturers as well as institutional philosophy. Others include lecturers' interest, adequate knowledge, positive attitudes and institutional and department leadership style. These findings are in agreement with the findings of Fink (2016) that revealed, adequacy of resources, knowledge and skills as well as professional support as enhancement measures for the utilization of innovative teaching techniques amongst lecturers. Furthermore, the finding is in harmony with the finding of Ndawi and Maravanyika (2011) that revealed interest, adequate

knowledge and positive attitudes as enhancement measures for effective curriculum implementation. This implied that, the identified enhancement measures can facilitate the use of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria.

Nevertheless, test for significant difference between the mean responses of technical education lecturers from Federal and State Colleges of Education on enhancement measures for the utilization of innovative teaching techniques revealed not significant different. This indicated that, both technical education lecturers from Federal and State Colleges of Education shared similar opinion on enhancement measures for the utilization of innovative teaching techniques. This finding corresponds with the findings of Rosser *et al.* (2003) that revealed no significant difference between the responses of academic deans and directors on enhancement measures of curriculum innovations. This implies that, both technical education lecturers from Federal and State Colleges of Education holds similar opinion on enhancement measures for the utilization of innovative teaching techniques.

Conclusions

Based on the findings from the study, it is concluded that insight into the phenomena on barriers and enhancement measures to the utilization of innovative teaching techniques amongst technical education lecturers in Colleges of Education in North-West, Nigeria is provided. The study revealed that, both the barriers and enhancement measures identified are largely related to the Colleges of Education administrators' attitudes and lecturers' factors.

The mean responses of technical education lecturers from Federal and State Colleges of Education on the barriers and enhancement measures to the utilization of innovative teaching techniques revealed not significant different. The findings of this study are particularly important for the development of effective strategies for technical education lecturers to use innovative teaching techniques capable of fostering a healthy transfer of knowledge, and thus enhance students' performance in technical education.

Recommendations

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

1. The Colleges of Education administrators should create a delicate balance between the identified barriers and enhancement measures to ensure the use of innovative teaching techniques amongst technical education lecturers in order to promote effective teaching.
2. The technical education lecturers should not hesitate to implement the use of innovative teaching techniques in order to enhance students' academic performance as soon as a balance between the identified barriers and enhancement measures is created.

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