

IMPACT OF RESEARCH AND TRAINING ON TEACHERS' CAPACITY DEVELOPMENT IN SECONDARY IN NORTH-CENTRAL ZONE

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Abstract

This study was conducted on Impact of Research and Training on teachers' Capacity Development in Secondary in North-Central Geographical Zone. The study has two objectives which are; determine the Impact of Research and Training on Teachers' Instructional Development in Secondary Schools in North-Central Geographical Zone, Nigeria; assess the Impact of Research and Training on Teachers' Development in the use of Digital Technology in Secondary Schools in North-Central Geographical Zone, Nigeria; In line with these objectives, two research questions, two null hypotheses. Related literatures were reviewed along with four (4) empirical studies. Descriptive research design was adopted for the study, a total of 380 respondents were sampled from the total population of 46077. A structured questionnaire was used to collect data from the respondents. The data collected were presented on table and were analyzed using weighted mean of 3.0 to analyse the responses of respondents to the research questions. The two null hypotheses were tested using One Way Analysis of Variance (ANOVA) at 0.05 alpha levels of significance. Descriptive statistic was used to analyze the bio- data of the respondents using frequency and simple percentage. The major findings of the study were; Research and training has significantly improved the quality of teachers' instructional delivery in areas of skills, methodology and use of instructional materials in secondary schools in North-Central Zone Nigeria and Research and training has greatly encouraged teachers to use digital technology in teaching and learning in the classrooms in secondary schools in North-Central Zone Nigeria. It was concluded that if teachers are continually engaged in research and training in secondary schools, the challenges of teachers' incompetence, wrong use of teaching methodology and the problems or difficulties in adopting blended learning will become a thing of the pass. It was also recommended that teachers' research and training programmes should be sustained and made a yearly activity for all teachers in secondary schools in North-Central Geographical Zone, Nigeria. In addition, government should provide all the needed financial support and atmosphere that will encourage the teachers to participate in such programmes.

Keywords: Research, Training, Teachers, Capacity Development, Instructional Development, Digital Technology.

Introduction

Secondary school education is a very important segment of the educational system because of the role it plays in determining the skill of students. The teacher is the key factor in the delivery of education process. It is widely recognized that the teacher plays crucial role in shaping the minds of the children. The availability of well qualified and trained teachers in adequate

numbers is important to attaining quality education. It is one thing to have teachers and entirely another thing to have the right quality of teachers (Oyitso & Olomukoro, 2012)

Training is a means of teaching and learning given to trainees so as to acquire a particular skill and become academically fit. Development is the ability to refine trainee's competencies and learn new skills, adapt to new circumstances and to attain excellence in their organization. Teacher's development is necessary in any institution, since the quality of education is determined mainly by the quality of teachers, the training and continuous development of teachers is therefore essential. In line with the submission, Banka and Adejo (2019) asserted that knowledge of teachers must be constantly up-dated in their subject areas as well as in classroom management. It is important to note that the most creative modern curriculum and the most advanced technology will be in little use if weak, misguided, incompetent, ignorant and unimaginative teachers are allowed to teach, because delinquent behaviour will be on the increase.

Research and training therefore provides a professional learning framework, which is a very useful guide, for teachers about how to find out recent digital technologies, how to design teaching and learning materials and how to experiment the planned pedagogy at their own pace. Teachers should be digitally literate, know how to benefit from a tool in his/her teaching and be well-versed in its features. Any staff who failed to develop through training is most likely to become obsolete. It is important that staff in public and private schools should be provided with in-service training through work and study programmes to enable them acquire more professional qualifications, skills, knowledge and competencies for increased efficiency in performance of their primary functions (Ogba & Okafor in Banka & Adejo, 2015)

Research is a careful study of a subject especially in order to discover new facts or information about it, Fawoel, Egbokhare, Itiola, Odejide and Olayinka in Nwakpa (2015) defined research as a systematic investigation including development, testing and evaluation, designed to develop or to contribute to generalizable knowledge. They further asserted that research is a curiosity-driven activity that has the purpose of discovery and advancement of knowledge. Irrespective of the subject, research basically seeks to understand what is being researched into through observation, experimentation and analysis in order to arrive at a better understanding or a definite conclusion on the subject matter (Adebola in Nwakpa, 2015).

If the Nigerian secondary education must survive and more importantly increase its productivity, the teachers must have the competence to provide the necessary workforce, thus the need for training and retraining of teachers to develop their abilities and skills in order for them to function effectively and efficiently. Training is about developing employees as an individual to make them capable and comfortable in their jobs and consequently in their life. In other words it is an organized process for increasing the knowledge and skills of the employee Priyanka (2010). Development is an attempt to improve managerial effectiveness through a planned and deliberate learning process. According to Khan, Khan, and Mohamood (2012), human resource development is an important and very attentive receiving discipline of our present time

Digital technologies are electronic tools, systems, devices and resources that generate, store or process data. Well known examples include social media, online games, multimedia and

mobile phones (Teach with digital technologies, 2019). The main purpose of digital technologies is to form a connection between the individuals rapidly, effortlessly and cost-effectively. The individuals get connected to each other with a huge range of digital services and resources.

Digital fluency among educator is very low because of lack of professional development opportunities, underfunding, inadequate support for leadership, teachers' reluctance to allocate their time and energy, and lack of formal digital literacy agenda. In addition, the numbers of qualified teachers on ground in secondary schools are inadequate to match with the enrolment of students. In support of this fact, Ogba in Banka and Adejo (2015) reports that Parents Teachers Association (PTA) resorted to the employment of part-time teachers on the request of school administrators. This is aimed at closing the gap of inadequacy of teaching personnel in secondary schools in North Central Zone, Nigeria

Impact of Research and Training on Teachers' Instructional Development in Secondary Schools

Research and Training are investment and not a cost. Even long term intangible gains such as attitudinal changes, can be considered as valuable returns. Retraining is considered as a vehicle for effective communication and coordination. This means that teachers already on the job through retraining are set to learn new methods of teaching skills. Today, with the coming of ICT and IT it has become absolutely important for teachers to learn these skills so as to keep up with modern trends (Banka and Adejo 2019)

The variety of results that come from research will expose facts, provide evidence, discover the unknown and ultimately, expand the frontier of knowledge in the different areas of studies (Emunemu, 2009). Through research, relevant strategies and methods of learning and teaching new concepts can be learnt from other nations and adapted to improve instructional effectiveness. A lot of changes have taken place in teaching situations today and many more will still take place as long as educational research is being conducted. Educational research is an academic endeavour which is geared towards finding new ways in which the approaches used in providing educational activities in the school system can be improved (Ayodele-Bamisaiye, 2005).

Training may be used directly to increase the job skills of an individual or a group of individuals by teaching them to perform their task more efficiently and effectively. For training to operate efficiently and effectively as an input/output mediator, it must be focused on the individual and the situation as the need arises. Teachers are trained for more skills acquisition for better service delivery, (Ogunu in Banka & Adejo, 2019). Through training, teachers update their knowledge and make abreast innovations in education. It also equipped teachers to face challenges of teaching-learning process and enhances their professional growth. He added that in order to facilitate upward movement and adequate professional competence, teachers' training is necessary.

Impact of Research and Training on Teachers' Development in the use of Digital Technology in Secondary Schools

Research and training are considered as tools for human resource development. It has immense potential in transfer and utilization of latest technical know-how, leadership

development, organisation of people, formation of self-help-groups, mobilization of people as well as resources, empowerment of resource (Abdullahi, 2010)

According to Sofo and Rylatt in Banka and Adejo (2019) never before in human history has there been such a widespread need to remain up to date and employable, while also helping people to improve their quality of life. The literature regarding educational technologies suggests that digital technologies support learning through increasing learners' motivation, developing their minds, providing real-life-like experiences, creating a space where learners put what they learn into practice, promoting communication and collaboration, enabling research, maintaining learning in out-of-school contexts, promoting individual learning by increasing self-management (Wan, 2015)

Digital technologies are electronic tools, systems, devices and resources that generate, store or process data. Well known examples include social media, online games, multimedia and mobile phones (Teach with digital technologies, 2019). There is an abundance of available digital technologies that can be benefited in and outside the class, for instance, desktop computers, mobile devices (laptops, tablets, mobile phones etc.), digital recording devices (cameras, voice recorders etc.), data logging equipment and associated probes, interactive whiteboards (Smart Boards), Web 2.0 technologies and other online resources (TED-Ed, iTunesU, Skype, Moodle, Dropbox etc.), educational software packages (Inspiration, Adobe Illustrator etc.) just to name a few (Wan, 2015)

These digital technologies are readily available devices that teachers are exposed to during research and training that further enhanced their capacity in areas of their specialization and in teaching and learning in particular. It is important to note that during Covid-19 pandemic when the entire global community was devastated, education sector was not left out. Digital technology became the most used avenue for teaching and learning. However, educational institutions and individual teachers that were not digital or ICT compliant in terms of facilities and other needed skills and knowledge find it very difficult to cope with the challenging period. It is therefore imperative that even after the pandemic teachers need to continue to be engaged in training and re-training in the use of digital technologies in order to cope with the dynamism change in education.

Objectives of the study

1. Determine the impact of research and training on teachers' instructional development in secondary schools in North-Central Zone, Nigeria
2. Assess the impact of research and training on teachers' development in the use of digital technology in secondary schools in North-Central Zone, Nigeria

Research questions

1. What is the impact of research and training on teachers' instructional development in secondary schools in North-Central Zone, Nigeria?
2. What is impact of research and training on teachers' development in the use of digital technology in secondary schools in North-Central Zone, Nigeria?

Research Hypotheses

1. There is no significant difference in the opinions of respondents on the impact of research and training on teachers' instructional development in secondary schools in North-Central Zone, Nigeria
2. There is no significant difference in the opinions of respondents on the impact of research and training on teachers' development in the use of digital technology in secondary schools in North-Central Zone, Nigeria

Research Methodology

This study was a descriptive survey research. This research therefore, used self structured questionnaire to solicit responses from the respondents. This agreed with the opinion of Mustapha (2000) that survey research is a technique in research where the desired characteristic of a given population is systematically examined.

Population of the Study

The population of the study comprise of all the principals, teachers and supervisors in all the public secondary schools in North Central States. The total population of the study is therefore 46077 which consist of 1811 principals, 36849 teachers and 6766 supervisors.

Sampling and Sampling Technique

The study has a sample size of sample size of 381 respondents, which comprise of 230 teachers, 90 principals, and 60 supervisors. Research advisor table (2006) was use to determine the sample size of the study. Proportionate sampling technique was used by the researcher to determine the distribution of sample size.

Table 3.2: Distribution of the Sample of the Study

S/N	State	Principals	Teachers	Supervisors	Total
1	Kogi	14	35	8	56
2	Benue	13	26	10	49
3	Niger	12	35	8	56
4	Kwara	14	42	12	67
5	plateau	11	38	11	62
6	Nasarawa	13	30	7	50
7	FCT Abuja	13	24	5	41
	Total	90	230	60	380

Instrumentation

The instrument for data collection was questionnaire developed by the researcher. The questionnaire was used to elicit information from principal, teachers and supervisors. The questionnaire has three sections, A, B and C with 20 item statement and was used for this study. The likert scale rating scale of strongly agree (SA), agree (A), undecided (UD), strongly disagree (SD), Disagree (D) were used to obtain raw data from the respondents.

Procedure for Data Analysis

The data collected through the questionnaire was analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics frequency and simple percentage was used to analyze the bio-data of the respondents, while weighted mean of 3.0 was used to analyse

responses of the respondents to the research questions. However, One-Way Analysis of Variance (ANOVA) at 0.05 levels of significant was used to test the two (2) postulated hypotheses of the study in order to determine whether or not to retain the respective null hypotheses.

Data Presentation and Analysis

The responses of the respondents to the item statements on research question one were collated and presented as mean score

Table 1: Mean score of respondents on Impact of Research and Training on Teachers' Instructional Development in Secondary Schools in North-Central Zone, Nigeria.

S/ N	Item Statement	Respondent	S	A	U	D	S	N	MEA
		s	A		D		D		N
1	Teachers have acquired new instructional methods through research and training	Principals	55	3	4	28	1	90	3.9
		Teachers	62	61	8	40	59	230	3.9
		Supervisors	40	13	-	4	3	60	4.3
2	Teacher now make use of appropriate instructional skills due to research and training	Principals	42	13	2	30	3	90	3.6
		Teachers	72	33	12	64	49	230	4.7
		Supervisors	32	16	-	10	2	60	4.1
3	Research and training has made teachers instructional delivery much easier	Principals	16	40	1	18	15	90	3.2
		Teachers	78	21	-	74	60	230	2.9
		Supervisors	28	20	2	7	3	60	4.0
4	All teachers that participate in training experience improvement in instructional delivery	Principals	36	20	-	32	2	90	3.6
		Teachers	10	40	5	63	20	230	3.6
		Supervisors	2	12	3	12	-	60	4.1
			33						
5	Through seminars teachers instructional development has increased drastically	Principals	22	32	3	32	1	90	3.1
		Teachers	65	60	-	29	76	230	2.7
		Supervisors	34	12	2	12	-	60	3.8
6.	Through research, other means of teachers instructional development were discovered	Principals	44	23	-	20	3	90	3.9
		Teachers	85	62	5	51	30	230	4.6
		Supervisors	27	22	-	10	1	60	4.0
7	Research and training enabled teachers to improve appropriate instructional materials	Principals	11	66	-	12	1	90	3.8
		Teachers	12	46	5	53	6	230	3.9
		Supervisors	0	27	-	12	2	60	3.8
			19						
8	Training enable teachers to share ideas on areas of instructional difficulties	Principals	15	48	-	23	4	90	3.5
		Teachers	12	62	5	30	12	230	4.0
		Supervisors	1	24	-	21	-	60	3.5

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9	Through research , new instructional materials are developed for teachers use	Principals	40	10	5	22	14	90	3.4
		Teachers	11	3	-	112	-	230	3.5
		Supervisors	5	3	-	18	17	60	2.9
			22						
10	Training makes teacher to be more committed to teaching and learning in the schools.	Principals	28	30	-	22	10	90	3.4
		Teachers	10	70	-	60	-	230	3.9
		Supervisors	0	18	-	15	-	60	3.9
			27						

Aggregate Mean=3 .7

Research question one was to find out the Impact of Research and Training on Teachers' Instructional Development in Secondary Schools in North-Central Zone, Nigeria. Among the items explored were, whether teachers have acquired new instructional methods through research and training, whether teacher now make use of appropriate instructional skills due to research and training, whether all teachers that participated in training experienced improvement in instructional delivery, whether through seminars teachers instructional development have increased drastically and whether through research, other means of teachers instructional development were discovered. The aggregate mean rating of respondents responses to the item statement stood at 3.7 which can be approximated to 4.0 which stand for strongly agreed.

The responses of the respondents to the item statements on research question two were collated and presented as mean score

Table 2: Mean score of respondents on Impact of Research and Training on Teachers' Development on the use of Digital Technology in Secondary Schools in North-Central Zone, Nigeria

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S/ N	Item statement	Respondent	S A	A	U D	D	S D	N	MEA N
11	Research and training has exposed teachers to digital technology	Principals	20	27	-	20	23	90	3.0
		Teachers	20	120	-	40	50	23	3.0
		Supervisors	20	10	-	25	5	0	3.2
								60	
12	Teachers teaching skills have improved through training on the use of digital technology	Principals	25	20	-	15	30	90	2.9
		Teachers	10	20	-	60	50	23	3.2
		Supervisors	0	14	-	16	20	0	2.6
			10					60	
13	Through research and training, teachers have	Principals	20	31	5	21	13	90	3.2
		Teachers	10	17	5	70	38	23	3.3
		Supervisors	0	11	-	24	15	0	2.6

	identified various digital technology for classroom use		10					60	
14	All the teachers in the school have been trained in the use of digital technology for teaching and learning	Principals	20	8	2	27	33	90	2.5
		Teachers	80	105	-	35	-	23	3.7
		Supervisors	10	26	-	17	7	0	3.2
								60	
15	The principal encourages teachers to participate in training on digital technology	Principals	38	12	1	29	10	90	3.4
		Teachers	13	4	6	44	52	23	3.6
		Supervisors	1	15	-	22	7	0	3.1
			16					60	
16	Research and training has made teachers to be familiar with the use of laptop in teaching and learning	Principals	38	12	-	30	10	90	3.4
		Teachers	81	104	6	44	2	23	4.0
		Supervisors	25	15	-	12	8	0	3.6
								60	
17	Through research in digital technology, teachers have developed other alternative methods of instructional development	Principals	10	60	-	15	5	90	3.6
		Teachers	80	27	-	23	-	23	2.4
		Supervisors	20	15	-	15	10	0	3.3
								60	
18	Through seminars, teachers have been thought the best ways to use digital technology	Principals	32	10	-	40	8	90	3.2
		Teachers	73	96	8	45	8	23	3.7
		Supervisors	20	9	-	24	7	0	3.1
								60	
19	Workshops help teachers to acquire new Idea on the use of digital technology in the school.	Principals	35	23	-	22	10	90	3.5
		Teachers	8	13	2	16	43	23	2.0
		Supervisors	26	11	6	2	-	0	3.7
						17		60	
20	Teacher commitment to teaching has improved due to training on the use of digital technology in the school	Principals	19	36	-	33	7	90	3.4
		Teachers	10	31	-	54	18	23	3.4
		Supervisors	9	14	-	21	-	0	3.7
			25					60	
Aggregate mean= 3.6									

Research question two was to find out the Impact of Research and Training on Teachers' Development in the use of Digital Technology in Secondary Schools in North-Central Zone, Nigeria. Among the items explored were; whether rresearch and training exposed teachers to digital technology, whether teachers teaching skills have improved on the use of digital technology through training, whether through research and training, teachers have identified various digital technology for classroom use, whether all the teachers in the school have been trained on the use of digital technology for teaching and learning, whether the principals encourage teachers to participate in training on digital technology and whether research and training have made teachers to become familiar with the use of laptop in teaching and learning. This was inferred from the aggregate mean rating of respondents to the item statements which stood at 3.6 which is approximated 4.0 an indication for strongly agreed.

Test of Hypotheses

HO₁: There is no significant difference in the opinions of respondents on the impact of research and training on teachers' instructional development in secondary schools in North-Central Zone, Nigeria

Table 3: Summary of Analysis of Variance (ANOVA) on the opinion of respondents on the impact of research and training on teachers' instructional development in secondary schools in North-Central Zone, Nigeria

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	7.242	2	4.102	23.655	0.066
Within Groups	36.174	378	0.121		
Total	43.416	380			

From table 3, the F-value is 23.655 and the P-value is 0.066 at 0.05 levels of significance. Since the p-value was greater than the level of significance set for study (0.05) the hypothesis was therefore retained. Thus, there was no significance difference in the opinions respondents on the impact of research and training on teachers' instructional development in secondary schools in North-Central Zone, Nigeria

HO₂: There is no significant difference in the opinions of respondents on the impact of research and training on teachers' development in the use of digital technology in secondary schools in North-Central Zone, Nigeria

Table 4: Summary of Analysis of Variance (ANOVA) on the opinions of respondents on the impact of research and training on teachers' development in the use of digital technology in secondary schools in North-Central Zone, Nigeria

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.290	2	0.636	3.874	0.051
Within Groups	71.664	378	0.226		
Total	73.956	380			

From table 4, the F-value is 3.874 and the P-value is 0.051 at 0.05level of significance. Since the p-value was greater than the level of significance set for study (0.05), the hypothesis was therefore retained. Thus, there was no significance difference in the opinions of Respondents on impact of research and training on teachers' development in the use of digital technology in secondary schools in North-Central zone, Nigeria

Findings

1. Research and training have significantly improved the quality of teachers' instructional delivery in areas of skills, methodology and use of instructional materials in secondary schools in North-Central Zone Nigeria. This was supported by the aggregate mean of 3.7 obtained on table 1
2. Research and training has greatly encouraged teachers to use digital technology in teaching and learning in the classrooms in secondary schools in North-Central Zone Nigeria. This was supported by the aggregate mean of 3.6 obtained on table 2.

Discussion of the Findings

This study was able to establish that; Researcher and training has significantly improved the quality of teachers' instructional delivery in areas of skills, methodology and use of instructional materials in secondary schools in North-Central Zone Nigeria. This was supported by the aggregate mean of 3.7 obtained on table 1. In addition, the study showed that through research in digital technology, teachers have developed other alternative methods of instructional development and that through seminars, teachers have been thought the best ways to use digital technology. This assertion is in agreement with Ogba and Okafor in Banka and Adejor (2015) that training o enable teachers to acquire more professional qualifications, skills, knowledge and competencies for increased efficiency in performance of their primary functions.

This study was able to find out that; Research and training has greatly encouraged teachers to use digital technology in teaching and learning in the classrooms in secondary schools in North-Central Zone Nigeria. This was supported by the aggregate mean of 3.6 obtained on table 2. In addition, the study shows that through research in digital technology, teachers have developed other alternative methods of instructional development and Teacher commitment to teaching has improved due to training on the use of digital technology in the school. This assertion was in conformity with Banka and Adejor (2019) that the knowledge of teachers must be constantly up-dated in their subject areas as well as in classroom management through research and training

Conclusion

The concluded that if teachers are continually engaged in research and training in secondary schools, the challenges of teachers incompetence, wrong use of teaching methodology and the problems or difficulties in adopting blended learning will become a thing of the pass. Research and training is therefore key to sustaining teachers development in the discharge of there primary assignment

Recommendations

It was recommended that teachers' research and training programmes should be sustained and made a yearly activity for all teachers in secondary schools in North-Central Zone, Nigeria. In addition, government should provide all the needed financial support and atmosphere that will encourage the teachers to participate in such programmes.

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