



TEACHERS' PROFESSIONAL DEVELOPMENT AND STUDENTS' ACADEMIC ACHIEVEMENT IN PUBLIC SENIOR SECONDARY SCHOOLS OF NORTH CENTRAL STATES, NIGERIA

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ABSTRACT

The study focused on the assessment of the Teachers' Professional Development and Students' Academic Achievement in Public Senior Secondary Schools of North Central States, Nigeria. The study was guided by three research questions with the corresponding three objectives and three hypotheses. The research design used for this study was the descriptive survey research design. The population of the study consisted of 45, 922 subjects. The sample size of the study consisted of 4305 respondents. The researcher's self-developed instrument that consisted of 32 items was used for data collection. The instrument was duly validated and it yielded 0.83 as a logical validity index. The instrument was pilot tested on 50 staff and the coefficient of internal consistency of 0.79 was obtained. Descriptive statistics of mean, standard deviation and simple percentage were used to answer the research questions while Pearson's product moment correlation was used for testing the hypotheses. The major findings of the study indicated that there is a low significant relationship between workshops and conferences and students' academic achievement in public senior secondary schools in North Central States, Nigeria, there is a low significant relationship between mentoring and students' academic achievement in public senior secondary schools in North Central States, Nigeria and there is a low significant relationship between induction course and students' academic achievement in public senior secondary schools in North Central States, Nigeria. The study recommended among others that various state ministries of education in the North Central of Nigeria should set aside special funds to organize workshops and sponsor teachers for conferences to help them acquire additional skills and knowledge on the modern teaching techniques and strategies that will help them to teach the students effectively to improve their academic achievement.

Keywords: Teachers, Professional Development, Staff Development, Conferences, Workshops and Students Academic Achievement.

Introduction

The quality of students' academic Achievement in public senior secondary schools in any part of the world including Nigeria, depend on the quality of teaching and learning. To ensure better academic achievement of students through teaching and learning processes, teachers are expected to have a vast knowledge in their subject areas to be able to understand the effective ways of organizing and presenting subject matter (objective statements, providing the right methods, of learning experiences, learning resources, and evaluating teaching and learning activities in consonance with the set objectives.

The success or failure of students in public senior secondary schools depend on the quality of instruction received from teachers who are professionally developed to help students to learn appropriately (Mills, 2019). To ensure better academic achievement of students through teaching and learning processes, the teachers are expected to have an in-depth knowledge of pedagogy in their subject areas to be able to understand the effective ways of organizing and presenting subject matter (objective statements, providing the right methods of teaching and learning, learning experiences, learning resources), and evaluating teaching and learning activities in consonance with the set objectives. Effective teaching-learning process is no doubt the hob of students' academic achievement and leads to quality education in public senior secondary schools (Ayeni, 2019).

Academic achievement refers to the outcome of what a student has learnt from educational activities. International Observatory on Academic Achievement (IOAA, 2009) cited in Finlayson (2019) defined academic achievement as the result acquired by an individual in relation to the objectives of the various areas of knowledge, values, competencies and skills that are socially established based on age, prior learning and capacity of individuals with regard to education, socialization and qualification. For the purpose of determining students' academic achievement, there is the need for a standard methods of measurement. The success of students in any academic area is measured by the actual achievement in academic tests, examinations or continuous assessment. The aim of classifying students based on their academic achievement is to provide the basis for identifying how students fare in school, to develop constant standard of evaluating students, to encourage students with poor results to improve on their achievement in subsequent examinations and evaluate the effectiveness of teachers and the school at large. Academic achievement of students consists of scores obtained from teacher-made test, terminal examination, mid-term test and so on. To determine achievement, a performance test is conducted. The academic achievement of a student in a particular subject includes observable and measurable behaviour of a student at the end of a particular course or programme. Achievement is the observed behaviour or expectation of achieving certain aspects of knowledge in education.

Employers of teachers are expected to frequently either monthly or annually organize development programmes with the major goal of enabling teachers to improve teaching methods and enhance their profession through effective teaching. Frequent development of teachers requires the school management to schedule training programmes for teachers in a manner that would be repeated within a specific period of time. The schedule for development is expected to be communicated to all teachers. Depending on the arrangement of each school, the development programmes could come up at the beginning, end of every term or session or during public holidays. Staff training is done in a systematic manner through the identification of needs for development and the designing of training activities to suit the benefitting staff (Egwuyerga, 2019).

Staff development is a planned and systematic modification of behaviour through learning events, activities and programmes which result in the participants acquiring new knowledge, skills, competencies and abilities to carry out their work effectively. Teachers need regular development programmes both on the job and off-the job in order to understand new changes taking place within the academic world. This is because the efficiency of any institution depends on how well its members are developed and through staff development, more skills would be acquired and teachers themselves would become great resources to the secondary school system. Staff development activities in the secondary educational system are meant to improve achievement on the present teaching jobs, train new skills for new job or new position in the future and general growth for both teachers and schools so as to be able to meet the current and future educational objectives (Gadi, 2015).

A Conference is an organized and formal meeting whether conducted face-to-face or via the internet, where individuals assemble (or meet virtually) to exchange information and views on a defined subject, problem on a particular area of knowledge. As part of staff development technique, conference involves presentations by more than one person to a wide audience. It is more cost effective as a group of teachers are developed on a particular topic related to teaching and learning at the same time. When conference is organized for teachers, they could acquire additional competencies and ideas needed to help them perform their jobs diligently.

A seminar is the primary mode of learning in a coordinated studies programme where participants are expected to listen to one another and every speaker is obliged to speak openly to the whole group, not just to the leader. The group must learn to be sensitive to the needs of all the participants. Every participant must listen to other speakers and learn from them. A certain topic related to teaching and learning could be brought up for discussion during seminar session with the aim of improving the teaching skills of teachers. Acquiring new knowledge on teaching skills could improve the job effectiveness of teachers.

A workshop is an interactive, participatory group exercise where a group of individual learns a particular topic through an interactive forum. It could be used in a range of circumstances, including the evaluation of a project, event or activity. It is an interactive way to understand different peoples' opinions and experiences on a given issue. Whatever the focus, it is a useful method for creating some sort of visual and participatory activity to structure a given discussion. Depending on how the session is structured, a workshop for teachers provide opportunities for participants to reach a consensus or decision on certain issues related to teaching and learning such as classroom management, teaching methods, learning disabilities and lesson plans. Active participation in workshops would help teachers to learn new teaching strategies that are relevance for implementing newly introduced educational policies by government.

Quality mentoring is a good avenue for new and in experienced teachers stay in the teaching profession. Mentoring is collaborating relationship or partnership between two people. It is a method of helping inexperienced teachers to develop progress in their profession. It is a personal developmental relationship in which a more experienced teacher helps to guide a less experienced teacher. It is not formal, usually an informal arrangement that has proven to be effective in molding individuals. Staff mentorship among experienced and inexperienced teachers in the North Central States secondary schools seem not be engaged in mentoring activities as there is no express policy guiding the operation mentoring as a staff development programme. Staff development is a method of increasing the knowledge and skills of teachers in order to enable teachers teach more effectively. Mentors train their mentees to become effective teachers. It is a very important aspect of education process that deals with the art of acquiring skills in the teaching profession necessary for impartation of knowledge. They are essential practices that enhance subject mastery, teaching methodology and classroom management (Hammond, 2019).

Teachers are the backbone of any educational system. The success and failure of any educational system depends to a large extent on the efficiency and effectiveness of the teachers in delivering teaching and learning process. Therefore, teachers' job effectiveness is an essential tool that may facilitate the actualization of educational goals and objectives in secondary level of education. It is important that teachers newly employed or experienced should be given an opportunity to develop themselves in order to meet up with the challenges of imparting an evolving audience. Staff development should not be limited to the younger teachers alone. A good staff development should be available to all teachers, it may help teachers develop good teaching skills such as the use of varieties of teaching styles and techniques, making learning relevant and stimulating, proper management of classrooms, and regular preparation of lesson plans (Jacob & Lefgren, 2018).

The purpose of every teacher in a classroom is to help students to learn, solve problems, and cope with their emotional needs and tension. Effective teachers are those who know

what they are expected to do at the right time. Effective teachers enjoy teaching, they are passionate about teaching and always happy with teaching job at all times. Effective teachers promote quality education through creative ideas, quality research and analysis, problem solving and critical thinking (Muheeb, 2014). The role of teachers is crucial to efficient and effective learning, a teacher is expected to provide essential inputs like adequate planning of lesson notes, effective delivery of lesson, proper monitoring and evaluation of students performance, providing regular feed-back on students' performance, improvisation of instructional materials, adequate keeping of records and appropriate discipline of students to produce and enhance expected learning achievement in secondary schools.

Teacher professional development is conceived as "the sum total of formal and informal learning pursued and experienced by the teacher in a compelling learning environment under conditions of complexity and dynamic change" (Fullan, 2019). A common underpinning assertion of the above definitions is continuing learning process, by which serving teachers acquire the knowledge, skills and values to sustain the desired spark of intellectual vitality, which will improve the quality of teaching and students' academic performance (Fullan, 2019). Teachers are known to be responsible for the translation and implementation of educational plan, programs and policies. These depend on professional practice. Teachers who are deficient in professional practice are not likely to help the students meet the challenges of learning. Hence, this study was designed to assess relationship between teachers' professional development and students' academic achievement in public senior secondary schools of North Central States, Nigeria

Statement of the Problem

The researcher observed that the various states' Ministries of Education in North Central keep employing both professional and non-professional teachers yearly. However, some of these teachers appear not to have received meaningful training to update their skills and knowledge to enable them undertake their teaching responsibilities diligently. It seems the employers of secondary school teachers in North Central States do not sponsor teachers for in-service programmes and other short term staff development programmes such as conferences, seminars and workshops for teachers to improve, update their knowledge on current teaching methods. The consequent of teachers' ineffectiveness due to inadequate development opportunities for teachers is poor students' results. For instance, less than 50% of candidates passed the 2021 WAEC in the various states in North Central States with Mathematics and English Language.

It is a worrisome situation to note that public secondary schools within the study area do not have adequate and formally structured induction programmes in place with a view to supporting new teachers' rapid adjustment, integration, compatibility and achievement. Often, a new teacher is only given orientation by way of introducing the teacher to old teachers and students at the assemble ground or taking him/her round

the various classrooms for introduction to the students. Mere introduction of a new teacher to colleagues and students is not enough to equip the teacher with all the necessary information and knowledge needed for optimum achievement as well as quick adjustment, integration and compatibility to his/her work environment etc. Hence, new teachers are often left alone to struggle in the job and learn to cope with the job. This kind of non-supportive atmosphere and tendency is very likely to result in anxiety, frustration, depression, stress, under achievement and eventually voluntary retirement, resignation, attrition and brain drain in the teaching profession with the consequence of poor academic achievement among students. This study was structured to assess teachers' professional development and students' academic achievement in public senior secondary schools of North Central States, Nigeria.

Research Questions

The study was guided by the following research questions.

1. What is the relationship between workshops, conferences and students' academic achievement in senior secondary schools in North Central States, Nigeria?
2. What is the relationship between mentoring and students' academic achievement in senior secondary schools in North Central States, Nigeria?
3. What is the relationship between in-service training programme and students' academic achievement in senior secondary school in North Central States, Nigeria?

Objective of the Study

The purpose of this study was to assess the relationship between teachers' professional development and students' academic achievement in senior secondary schools in North Central States, Nigeria. The specific objective of the study include:

1. To examine the relationship between workshops, conferences and students' academic achieve in senior secondary schools in North Central States, Nigeria.
2. To ascertain the relationship between mentoring and students' academic achievement in senior secondary schools in North Central States, Nigeria.
3. To determine the relationship between in-service training programme and students' academic achievement in senior secondary schools in North Central States, Nigeria.

Statement of Hypotheses

This research was guided by the following hypotheses.

- Ho₁:** There is no significant relationship between workshops, conferences and students' academic achievement in senior secondary schools in North Central States, Nigeria.

Ho₂: Significant relationship does not exist between mentoring and students' academic achievement in senior secondary schools in North Central States, Nigeria.

Ho₃: There is no significant relationship between in-service training programme and students' academic achievement in senior secondary schools in North Central States, Nigeria.

Methodology


The study focused on the assessment of the Teachers' Professional Development and Students' Academic Achievement in Public Senior Secondary Schools of North Central States, Nigeria. The study was guided by three research questions with the corresponding three objectives and three hypotheses. The research design used for this study was the descriptive survey research design. The population of the study consisted of 45, 922 subjects. The sample size of the study consisted of 4305 respondents. The researcher's self-developed instrument that consisted of 32 items was used for data collection. The instrument was duly validated and it yielded 0.83 as a logical validity index. The instrument was pilot tested on 50 staff and the coefficient of internal consistency of 0.79 was obtained. Descriptive statistics of mean, standard deviation and simple percentage were used to answer the research questions while Pearson's product moment correlation was used for testing the hypotheses.

Data Presentation and Analysis

Data Presentation and Analysis

Research Question 1: What is the relationship between workshops, conferences and students' academic achievement in senior secondary schools in North Central states, Nigeria?

Table 1: Mean and Standard Deviation Analysis Showing Workshops, Conferences and Students' Academic Achievement in Public Senior Secondary Schools

S/N	ITEMS	SA	A	D	SD		Std. 6	Decision
1.	Teachers are regularly trained through conferences on how to prepare good lesson plans which enables them to teach the students perfectly to obtain better results.	410	600	1710	1530	2.35	0.75	Disagree
2.	Students obtain good results because teachers do not manage their classrooms effectively due to their inability to attend workshops on regular basis.	520	630	1600	1500	2.20	0.60	Disagree
3.	Government organizes regular seminars for teachers to improve their formative evaluation skills	320	810	1620	1500	2.46	0.70	Disagree

	of students that would help students to study harder and obtain better results.							
4.	Workshops are organized for teachers to enable them improve their teaching techniques of mastery their various subjects to teach the students to be successful academically.	880	420	1600	1350	2.10	0.80	Disagree
5.	Students' academic achievement is encouraging because teachers are sponsored to attend conferences to help them acquire the appropriate knowledge needed for proper choice and utilization of instructional materials.	300	820	1600	1530	2.37	0.68	Disagree
6.	Students' academic achievement is poor because teachers are not effective in the implementation of newly introduced educational policies by government due to limited opportunity for them to attend workshops.	640	450	1760	1400	2.40	0.77	Disagree
7.	Seminars are organized for teachers to help them network with their counterparts in other schools on how to implement the schemes of work of their respective subjects properly to improve the academic performance of students.	500	630	1620	1500	2.08	0.72	Disagree
8.	Students taught by newly employed teachers obtain poor results because they struggle to teach their subjects effectively because only the experienced teachers are recommended to attend conferences.	480	550	1700	1520	2.40	0.77	Disagree
9.	Teachers are regularly trained through conferences on how to prepare good lesson plans which	300	820	1600	1530	2.39	0.68	Disagree

	enables them to teach the students perfectly.							
10.	Teachers do not manage their classrooms effectively due to their inability to attend workshops on regular basis.	640	450	1760	1400	2.20	0.77	Disagree
Cluster Mean						2.30	0.72	Disagree

Scale Mean 2.50

Table 1 shows that item 1 has the mean score of 2.35 and standard deviation of 0.75, item 2 has the mean score of 2.20 and standard deviation of 0.60, item 3 has the mean score of 2.46 and standard deviation of 0.70, item 4 has the mean score of 2.10 and standard deviation of 0.80, item 5 has the mean score of 2.37 and standard deviation of 0.68, item 6 has the mean score of 2.40 and standard deviation of 0.68, item 7 has the mean score of 2.48 and standard deviation of 0.72, item 8 has the mean score of 2.40 and standard deviation of 0.77, item 9 has the mean score of 2.39 and standard deviation of 0.68 while item 10 has the mean score of 2.20 and standard deviation of 0.77. The details of the analysis indicated that the cluster mean of 2.30 is below the scale mean of 2.50, as a result, there is low significant relationship between workshops and conferences and students' academic achievement in public senior secondary schools in North Central States, Nigeria.

Research Question 2: What is the relationship between mentoring and students' academic achievement in senior secondary schools in North Central states, Nigeria?

Table 2: Mean and Standard Deviation Analysis Showing Mentoring and Students' Academic Achievement in Public Senior Secondary Schools

S/N	ITEMS	SA	A	D	SD	Std. σ	Decision	
11.	Newly employed teachers are attached to the experienced ones to guide them on proper use of instructional materials during teaching and learning to enhance the academic achievement of students.	430	540	1720	1550	2.36	0.70	Disagree
12.	Students taught by inexperienced teachers obtain poor results because there is no provision for them to be coached by the experienced ones.	550	660	1510	1530	2.27	0.60	Disagree
13.	Proper orientation is given to new teachers by older ones on ethics of teaching profession to help them develop good strategies that will lead to effective teaching and high academic achievement.	310	720	1670	1550	2.45	0.70	Disagree
14.	Common mistakes that render teachers ineffective and induce poor academic	520	540	1720	1470	2.16	0.80	Disagree

	achievement occur because new teachers are not properly directed and guided by the experienced ones.							
15.	New teachers do not accept corrections from their mentors to enable them teach the students effectively to improve their academic achievement.	340	700	1640	1570	2.37	0.64	Disagree
16.	Experienced teachers do not maintain the friendly relationship required to encourage their mentees to become effective teachers to teach the students to obtain good results.	540	480	1790	1440	2.45	0.75	Disagree
17.	There is high rate of poor academic achievement among students because mentorship is not practiced in the school.	300	540	1650	1530	2.06	0.76	Disagree
18.	Students obtain good results because new teachers easily overcome teaching stress and plan their lessons diligently as they are well-tutored by the senior staff.	420	550	1700	1520	2.47	0.77	Disagree
Cluster Mean						2.32	0.71	Disagree

Scale Mean 2.50

Table 2 shows that item 11 has the mean score of 2.36 and standard deviation of 0.70, item 12 has the mean score of 2.27 and standard deviation of 0.60, item 13 has the mean score of 2.45 and standard deviation of 0.70, item 14 has the mean score of 2.16 and standard deviation of 0.80, item 15 has the mean score of 2.37 and standard deviation of 0.64, item 16 has the mean score of 2.45 and standard deviation of 0.65, item 17 has the mean score of 2.46 and standard deviation of 0.76, while item 18 has the mean score of 2.37 and standard deviation of 0.77. The details of the analysis indicated that the cluster mean of 2.35 is below the scale mean of 2.50, as such, there is low significant relationship between induction course and students' academic achievement in public senior secondary schools in North Central States, Nigeria.

Research Question 3: What is the relationship between in-service training programme and students' academic achievement in senior secondary schools in North Central states Nigeria?

Table 3: Mean and Standard Deviation Analysis Showing In-Service Training Programme and Students' Academic Achievement in Public Senior Secondary Schools

S/N	ITEMS	SA	A	D	SD	Std. $\bar{\sigma}$	Decision	
25.	Teachers are sponsored for further studies to enable them acquire additional skills and knowledge needed to undertake their	470	580	1690	1510	2.30	0.75	Disagree

	teaching job properly to improve the academic achievement of students.							
26.	Teachers with lower academic qualifications are given the opportunity to acquire additional degrees to help them to manage their classrooms properly during teaching and learning to induce high academic achievement among students.	500	610	1580	1560	2.25	0.60	Disagree
27.	Teachers are competent in teaching their respective subjects because they are regularly sent for further studies to enable them improve on their techniques of instructional delivery required for high academic achievement.	300	810	1600	1540	2.40	0.70	Disagree
28.	Students obtain good results because teachers are equipped with the knowledge needed for the use of different teaching methods due to inadequate opportunity for further studies.	860	400	1660	1330	2.15	0.80	Disagree
29.	Students obtain high academic achievement because in-service training opportunities are not granted to teachers to enable them implement the school curriculum successfully.	310	800	1640	1500	2.35	0.68	Disagree
30.	Students' academic achievement is high because teachers are diligent in preparing comprehensive lesson plans as they have access to in-service programmes after employment.	610	420	1730	1490	2.45	0.77	Disagree
31.	Students are properly monitored to obtain better results to be successful in their academic pursuits due to inadequate knowledge acquired through in-service educational programmes.	560	610	1600	1480	2.05	0.72	Disagree
32.	Students are benefiting through obtaining high academic achievement because teachers are managing large class size successfully through the additional knowledge they acquire during further studies.	530	500	1730	1490	2.44	0.77	Disagree
Cluster Mean						2.20	0.71	Disagree

Scale Mean 2.50

Table 3 shows that item 25 has the mean score of 2.30 and standard deviation of 0.75, item 26 has the mean score of 2.25 and standard deviation of 0.60, item 27 has the mean score of 2.40 and standard deviation of 0.70, item 28 has the mean score of 2.15 and standard deviation of 0.80, item 29 has the mean score of 2.35 and standard deviation of 0.68, item 30 has the mean score of 2.05 and standard deviation of 0.68, item 31 has the mean score of 2.44 and standard deviation of 0.72 while item 32 has the mean score of 2.44 and standard deviation of 0.77. The details of the analysis indicated that the cluster mean of 2.20 is below the scale mean of 2.50, as a result, low significant relationship exists between in-service training and students' academic achievement in public senior secondary schools in North Central States, Nigeria.

Testing of Hypotheses

All the hypotheses were tested using Pearson's product moment correlation at 0.05 level of significance. The details of the analyses are presented on table 4.6 - 4.9 below:

Hypothesis One: There is no significant relationship between workshops and conferences and students' academic achievement in senior secondary schools in North Central States, Nigeria.

Table 4: Correlation Coefficient Analysis Showing the Relationship between Workshops and Conferences and Students' Academic Achievement in Public Senior Secondary Schools

S/N	Variable	N	Df	r-cal	r-tab	Level of Sig.	Decision
1.	Workshops and Conferences						
2.	Students' Academic Achievement	4520	4248	0.480	0.078	0.05	0.05
	Rejected						

Results in table 4 showed the significant relationship between workshops and conferences and students' academic achievement in public senior secondary schools in North Central States, Nigeria. The analysis of the results showed that the r-calculated value is 0.480 while the r-table value is 0.078 at the significant level of 0.05 and 4248 as the degree of freedom. Since the calculated value of 0.480 is greater than the table value of 0.078, the null hypothesis was therefore rejected implying that there is a low significant relationship between workshops and conferences and students' academic achievement in public senior secondary schools in North Central States, Nigeria.

Hypothesis Two: Significant relationship does not exist between mentoring and students' academic achievement in senior secondary schools in North Central States, Nigeria.

Table 5: Correlation Coefficient Analysis Showing the Relationship between Mentoring and Students' Academic Achievement in Public Senior Secondary Schools

S/N	Variable	N	Df	r-cal	r-tab	Level of Sig.	Decision
1.	Mentoring						
2.	Students' Academic Achievement	4520	4248	0.475	0.078	0.05	0.05
	Rejected						

Result in table 5 showed the significant relationship between mentoring and students' academic achievement in public senior secondary schools in North Central States, Nigeria. The analysis of the results showed that the r-calculated value is 0.475 while the r-table value is 0.078 at the significant level of 0.05 and 4248 as the degree of freedom. Since the calculated value of 0.475 is greater than the table value of 0.078, the null hypothesis was therefore rejected implying that there is a low significant relationship between mentoring and students' academic achievement in public senior secondary schools in North Central States, Nigeria.

Hypothesis Three: There is no significant relationship between in-service training programme and students' academic achievement in senior secondary schools in North Central States, Nigeria.

Table 6: Correlation Coefficient Analysis Showing the Relationship between In-Service Training Programme and Students' Academic Achievement in Public Senior Secondary Schools

S/N	Variable	N	Df	r-cal	r-tab	Level of Sig.	Decision
1.	In-Service Training Programme						
2.	Students' Academic Achievement	4520	4248	0.513	0.078	0.05	0.05
	Rejected						

Results in table 6 showed the significant relationship between in-service training programme and students' academic achievement in public senior secondary schools in North Central States, Nigeria. The analysis of the results showed that the r-calculated value is 0.513 while the r-table value is 0.078 at the significant level of 0.05 and 4248 as the degree of freedom. Since the calculated value of 0.513 is greater than the table value of 0.078, the null hypothesis was therefore rejected implying that there is a low significant relationship between in-service training programme and students' academic achievement in public senior secondary schools in North Central States, Nigeria.

Discussion of Findings

The findings of hypothesis one on table 4:6 indicated that there is a low significant relationship between workshops and conferences and students' academic achievement in public senior secondary schools in North Central States, Nigeria. The findings of the study agreed with Oluwole (2017) who submitted that teachers' attendance to conference and workshop has significant influence on students' academic achievement in secondary school in Benue and Nasarawa State. A workshop is an interactive, participatory group exercise where a group of individual learns a particular topic through an interactive forum. It is an interactive way to understand different peoples' opinions and experiences on a given issue. Workshop is a useful method for creating some sort of visual and participatory activity to structure a given discussion. Workshop for teachers provide opportunities for participants to reach a consensus or decision on certain issues related to teaching and learning such as classroom management, teaching methods, learning disabilities and lesson plans. Active participation in workshops would help teachers to learn new teaching strategies that are relevance for implementing newly introduced educational policies by government. A Conference is conducted on

face-to-face or through the internet, where individuals assemble (or meet virtually) to exchange information and views on a defined subject, problem on a particular area of knowledge. Conference involves presentations by more than one person to a wide audience. It is more cost effective as a group of teachers are developed on a particular topic related to teaching and learning at the same time. The aim of a conference is to help teachers acquire additional competencies and ideas needed to help them perform their jobs effectively. A certain topic related to teaching and learning could be brought up for discussion during seminar session with the aim of improving the teaching skills of teachers. Acquiring new knowledge on teaching skills help to enhance high academic achievement among students.

The findings of the study also revealed that there is a low significant relationship between mentoring and students' academic achievement in public senior secondary schools in North Central States, Nigeria. The findings of the study agreed with Kareem (2019) who found out that teacher mentoring had a significant impact on students' academic achievement in Gombe State. Induction is another form of developing teachers in the secondary school system. Induction of teachers is support programme especially for the newly employed teachers to enable them fit into the teaching profession. Good (2019) is a critical phase in a continuum of professional development of new teachers. Induction programme includes-orientation to the profession and/or the organization, personal and professional support as well as opportunities to develop the knowledge, skills, attitudes essential for effective teaching. Induction is imperative in helping to produce teachers that remain in the profession. Induction is the collection of programmes involving orientation, support and guidance for beginning teachers. Induction is a programme for beginning teachers is an initial and essential step in the continuum of professional development to help early career teachers overcome the obstacles and challenges of the early years of teaching and to reduce the risk of attrition, improve teaching and learning in the classroom. It improves teachers' retention in the early years of a career. Induction also improves teachers' knowledge and job performance as well as the academic achievement of students.

The findings of the study indicated that there is a low significant relationship between in-service training and students' academic achievement in public senior secondary schools in North Central States, Nigeria. The findings of the study concord with Leke (2015) who maintained that teachers in-service training had significant impact on students' academic achievement in secondary schools in Konshisha Local Government Area of Benue State. In-service training programme is a means of developing teachers in secondary schools. It is a staff development programme where teachers who are already in active service in teaching profession are given the opportunity to acquire additional academic qualifications to help them update their teaching skills and knowledge needed to discharge their duties more effectively. In-service training takes a longer time than other forms of staff development. In-service training has a great impact on teachers in Kano State senior secondary schools in that it promotes a very flexible environment and allows teachers to adapt with the working situation and it is also one form of motivation for employees or employers and it will continue to increase creativity in teachers. It also enables teachers to acquire new understanding and skills to develop their effectiveness in the classroom. Unfortunately, teachers in Kano State secondary schools seem to be denied the opportunity for professional development, as such, many teachers have not

had access to different staff development programmes. Some teachers who secured admission for further studies do not receiving any financial support from the government as they are paying from their personal income. Development of teachers provide them with knowledge, skills and ability that are relevant to the professional life of teaching profession. Teacher development molds the personality of a teacher such that their attitudes are reshaped, their habits are reformed and their personality is reconstituted. However, the findings of this study showed that teachers do not have adequate access to in-service training as teachers are denied the opportunity for in-service training for so long and the few of them who are opportune to go for in-service training did so in a long time. Some of the teachers did not receive any financial support from their employers. It is quite unfortunate as teachers without in-service training opportunities cannot acquire knowledge on current issues in the teaching profession to enable them teach the students effectively to improve their academic achievement. The poor academic achievement currently being experienced among students in the secondary schools in North Central States of Nigeria.

Conclusion

The study conclusion of the study based on the findings are as follows:

1. Teachers are not regularly trained through workshops, conferences and seminars on to enable them acquire the requisite knowledge needed to teach the students diligently to obtain high academic achievement in secondary schools in North Central States of Nigeria.
2. Less experienced teachers are not assigned or attached to the highly experienced ones to guide them on proper choice of teaching techniques to facilitate effective teaching needed to improve the academic achievement of students.
3. Teachers with lower academic qualifications are not given the opportunity to acquire additional degrees through in-service training to help them acquire the appropriate skills and knowledge needed to perform their teaching job effectively so that the academic achievement of the students would be improved.

Recommendations

The following recommendations have been made based on the findings of this study:

1. The study recommended that the various state ministries of education in the North Central states of Nigeria should set aside special funds to organize workshops and sponsor teachers for conferences to help them acquire additional skills and knowledge on the modern teaching techniques and strategies that will help them to teach the students effectively to improve their academic achievement.
2. All principals in secondary schools in the North Central States of Nigeria should be mandated to assign newly employed teachers to the experienced ones for proper mentoring by guiding them on how to prepare and deliver their lessons. The aim of such exercise is to ensure that newly employed teachers learn from their experienced counterparts and acquire the appropriate teaching skills needed for effective teaching to facilitate high academic achievement among students.

3. The various state governments in the North Central zone of Nigeria should sponsor teachers to obtain higher academic qualifications through in-service training such as sandwich, part-time master's programmes among others to enable them update their knowledge and acquire teaching skills needed for effective teaching that will enable students to acquire high academic achievement in secondary schools.

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