

INVESTIGATING THE QUALITY OF BASIC SCIENCE/TECHNOLOGY TEACHER LESSON PREPARATION AND TEACHING BEHAVIOURS ON CLASSROOM INTERACTION IN NORTH CENTRAL ZONE PLATEAU STATE, NIGERIA**^{1,*}Dr. Grace Azumi Chollom, ²Simon Garba and ³Dr. Bernadette Ozoji**^{1,3}Department of Science and Technology Education, Faculty of Education, University of Jos, Jos Nigeria²Kaduna State College of Education, Kafanchan, Kaduna State, Nigeria**Received 07th October 2022; Accepted 10th November 2022; Published online 30th December 2022**

Abstract

The study investigated the Quality of Basic science and Technology Teachers' Lesson Preparation and teaching behaviours on classroom interaction in North central zone of Plateau State, Nigeria. A descriptive survey design was employed. The population comprised of all Primary four teachers teaching Basic Science and technology and their pupils in the North central zone of Plateau State. 20 Primary four teachers teaching Basic Science and technology and pupils drawn from five local government schools in the North central zone of Plateau State form the samples of the study. Observation of teacher lesson preparation and classroom teaching was used as instruments for data collection. Sound recorders were used to collect data on all verbal interactions between teachers and pupils. A Cool Edith programme was used to measure the unproductive wait time of teachers' questions and the length of response of pupil. Bloom's category system was used to analyze the type of questions asked by teachers and pupils. Research assistants were used to collect data. Seven research questions guided the study; the result shows that some primary four teachers teaching Basic Science and Technology do not prepare their lessons well before teaching and are deficient in managing pupils thinking in the classrooms. A behaviour modification training programme was recommended for training of Basic Science and Technology teachers to improve their lesson preparation and teaching of Basic Science and Technology to promote pupils' thinking and achievements in primary schools in Nigeria.

Keywords: Quality, Teacher Lesson Preparation, Teaching Behaviour, Classroom Interaction.

INTRODUCTION

All the developed countries of the world traced their roots to greatness today as a result of their success in the quality of their education. Quality teaching brings about quality education. All other professions one can think of are rooted from the teaching profession. Teaching is indeed one of the oldest and noble professions that bring about rapid behavioural change and nation's development because of its facilitating power that brings about learning. Science teaching is a specialized application of knowledge, skills and attributes designed to provide unique service to meet the educational needs of individuals in a society. The importance of science education as a weapon against ignorance, conflict, disease and poverty lies in the heart and core of science teaching. The choice of learning activities where the goals of education are realized in the school is the responsibility of the science teacher. This demands coherent information processing systems anchored on manipulative skills which help to coordinate and transform conceptual ideas, emotions and feelings into life supporting operations even beyond the school setting. Herein, a scientifically literate and enlightened population is a quality assurance for individual and social productivity, responsible leadership and prosperous future to a nation. Professional teachers help learners to acquire the knowledge and skills needed to spark up intellectual curiosity, and support the socio-emotional growth of a nation.

Developed countries of the world today will always trace their roots of success in all sectors to the quality of their teaching profession (Akinduyo, 2014). To produce quality teachers that will carry out the business of teaching in schools involves proper preparation of teachers in teacher training institutions. However, one of the very important elements in teacher preparation is the teaching practice exercise in which lesson planning and teaching preparation play vital roles during pre-service teachers training programme. Pre-service teachers are exposed to rigorous exercises begins by exposing pre-service teacher to conducting research, studying educational theory and examining best practices and participating in micro-teaching exercises to prepare them for teaching practice (Mufidah, 2019). This helps in defining and shaping teachers' use of teaching strategies and their philosophy about teaching. Studying the content of subject matter in depth, while the pedagogical skills help pre-service teachers to grow and improve in their classroom behaviours and the practice of teaching. To highlight the importance of teaching in science education, standards are presented and to attain the vision of science education described in the *Standards*, change is needed in the entire system. This is because science teaching is a complex activity that lays at the heart of the vision of science education *standards*. The teaching standards provide criteria for making judgments about progress of science teachers at all levels. Teachers are central to teaching but they must not be placed in the position of being solely responsible for reforms in education. Teachers will need to work within a collegial, organizational and policy context that is supportive of good science teaching environment. In addition, the learners must accept and share responsibility for their own learning (Mergler and Spooner-Lane, 2012). In order to produce effective and

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skilful science teachers, the National Policy on education in Nigeria emphasized that teacher training institutions are to use exploratory, investigatory and child-centered approaches in the training of pre-service science teachers (Chollom, 2016). Giving them opportunities to practice the act of lesson preparation and teaching during teaching practice exercises. This is in realization that the quality of education of a nation at any level depends largely on the quality of its teachers. The quality of a teacher is characterised by the teacher's knowledge of subject matter, pedagogy and skilful in lesson planning and teaching preparation to effectively manage learners' thinking in the classroom. Teacher lesson preparation and planning is the selection of topics, instructional objectives, teaching methods, instructional materials and determining the evaluation instruments by teachers. Teachers' preparation and planning are critical components of effective teaching and involves much more than making arbitrary decision about what to teach and how to teach it. Lack of it will lead to failure (Hotaman, 2010). Skilful teachers are always in a continuous state of preparation and planning. They are always thinking about the next lesson. The outcome of continuous preparation and planning can tremendously determine the kind of classroom interaction as well as the outcome of learning. Many activities precede the process of designing and implementing a lesson plan. Similarly, the job of systematic lesson planning is not complete until after the teacher has assessed both the learner's attainment of the anticipated outcomes and effectiveness of the lesson in leading learner to these outcomes.

A skilful science teacher occupies an important position in science teaching and learning business. As an engineer in the teaching and learning classroom, the teacher plans for his classroom instructions by carefully selecting the instructional contents or learning experiences, organizes these experiences, states the objectives in measurable terms using appropriate action verbs, selects relevant methods and appropriate learners' activities, outline the instructions which learners will use in carrying out activities and plan the oral questions that will be used to stimulate thinking using productive wait-time to promote information processing by pupils (Stahi, 1995 and Rowe, 1974). Then evaluate the outcome of instruction in relation to stated objectives of the lesson. True planning and preparation occur outside of school hours. Skilful teachers arrives school early, stay late, and spend part of their weekends working to ensure that they have adequately prepared for their lessons. They explore options, tinker with changes, and research fresh ideas in hopes that they can create the optimal learning environment for their learners. Teaching is not something you can do effectively on the fly. It requires a healthy blend of content knowledge, instructional strategies, and classroom management tactics. Preparation and planning play critical role in the development of effective lesson. It also requires some time to practice, experiment and to test materials and strategies, it even depends on luck. It is important to note that even well-planned lessons can quickly fall apart. Some of the best-conceived ideas will end up being massive failures when put into practice. When this happens, teachers have to go back to the drawing board and reorganize their approach and plan of attack. If teachers are not systematically educated on pedagogical issues, they will probably teach in the same way they observed in their own learning. The bottom line is that preparation and planning do matter. It can never be viewed as a waste of time, but rather as an investment that will pay off

in the long run. However, the teaching profession in Nigeria has been seen as a mere activity, occupation and vocation for the academic losers. Some people even refer to teachers as substitutes on the bench of life, people who are left with no option than to proceed and get employed into the teaching profession. Teaching as a profession in Nigeria has gone through critical stages of challenges which have affected the standard of education directly or indirectly. Obanya (2004) observed that large proportion of professional teachers in Nigeria today are people who study education at the university level only after failing to gain admission into courses of their choice. This situation has made the teaching profession to suffer abused by many unenthusiastic professionals in Nigerian institutions of learning. The worst condition is the situation in which untrained teachers are recruited to teach in schools based on godfathers, government aids programmes such as M. power or use of influential person in the society or as a quest by unprofessional school proprietor to get cheap paid staffs that are searching for easy ways to earn living. When employed to teach in school, resort to teach without proper lesson planning. Lesson preparation and planning which are critical components of effective teaching are often being neglected by most of these teachers because of lack of knowledge or interest about their importance. This act may share blame in the fallen standard of education in Nigeria.

Research by Oyetunde, (2015), shows that most teachers in basic and secondary schools do not plan for their lesson before delivery. Experience have also shown that some teachers resort to writing skeletal lesson plans without stating behavioural objectives or stating behavioural objectives that require learners to learn verbal recitation of facts which is the least level of thinking as identified by (Bloom 1964). The teaching of science by these untrained teachers that are recruited to teach in schools resort mostly to reading science content while learners remain passive listener in the lesson and active participants in notes taking. This is evident as research by Achunoye (2015) shows that even experienced science teachers from primary to tertiary institutions use chalk and talk methods in teaching science and lack the capability to manage students' thinking effectively in Basic Science and Technology classrooms. Similarly, research by Akinmade and Chollom (2013) shows that even after the call for a radical approach strategy suggested by Yoloye (1982) (over two decades ago), the prevailing method of teaching Basic Science and Technology in most primary schools is still the un-directional lecture method, with minimal use of 'hands on' and 'minds on' activities. These are attributes of improper lesson planning and teaching preparation by teachers.

However, Umar (2000) identified that any agenda aimed at improving the teaching profession, the starting point must be qualitative teacher education. Teacher education is the provision of professional education with specialized training within a specified period, for the preparation of individuals who intends to develop and nurture the young ones into responsible and productive citizens. A study by Abdul-Raheem, and Oluwagbohunmi, (2015) revealed that pre-service teachers are deficient in improvising instructional materials for teaching during teaching practice irrespective of gender. Unfortunately, teacher education in Nigeria is already at its lowest ebb in terms of standard, quality and relevance of training. This practice negates the best practice of using exploratory, investigatory and child-centered approaches in the

training of pre-service science teachers. Hence there is a need for a re-orientation of the pre-service Science Teachers Education from the practice of consistent use of lecture method in the training of pre-service science teachers to the use of other more productive as child centered and process approach science methods that are driven through the use of good quality questions, (Abanihe *et al.*, 2010). If teaching is to be par with other professions, then pre-service teachers must be giving adequate period of Teaching Practice for training programmes, like in other professions such as Lawyers and Medical doctors who spend one year for practical training or internship. The aim is to allow the pre-service teachers practice under the supervision of qualified practicing teachers who will guide them on practical lesson preparation and teaching to become effective and skilful teachers. Experience has shown that lack of quality control during teaching practice also affects educational standard in the society. My encounter as a teaching practice supervisor in Jos, some of the schools where pre-service teachers are assigned on teaching practice, the trained teachers in such schools just hand over their timetable, scheme of work and classes to pre-service practicing teachers and allow them for the whole duration of the teaching practice without overseeing and monitoring what the student teachers are doing nor guiding them on how to carry out good practices of teaching. This can affect the standard of education and the practicing teacher since they are left to do whatever they deem fit. Nurcan, & Mustafa, (2015) observed that although teachers receive training during teacher education, they may still face difficulties in performing their professional responsibilities when employed in the labour market due to some problems in teacher education.

In related issues, Jegede (2002) stated that the result of most products of teacher education in the country (especially those placed in the last decade) are largely apathetic, academically poor, professionally uninspired, unmotivated and ignorant of their professional calling and responsibilities and this has affected the standard of education in Nigeria. Okunloye, (2012). observed that unstable teaching profession due to poor remuneration of teachers and condition of service still persist in teaching, as it is true of the public sector in Nigeriacan as well affect professional standard. According to him teachers in Nigeria belong to associations that are more of trade unions than the more professionally inclined ones. The fact remains that teaching and learning depend on teachers. There can be no meaningful socio-economic and political development in any country without quality education which depends largely on the teacher. It is on teachers' preparation, numbers, quality and devotion that rest the effectiveness of all educational arrangements, development and growth. This is informed by the fact that teaching is an all-purpose profession which stimulates the development of mental, physical and emotional powers of learners which in turn sparks the development of the society and the nation at large.

The problem

Most teachers in basic schools do not plan for their lesson before teaching (Oyetunde, 2015). Experience has shown that some teachers resort to writing skeletal lesson plans without stating behavioural objectives, yet others write their lesson plans stating behavioural objectives that do not encourage learners to think or acquire useful skills. Even experienced

science teachers do not plan for their lesson but resort to the use of chalk and talk methods in teaching science. Such teachers lack the capability to use productive teaching techniques to stimulate thinking in Basic Science and Technology classrooms. The constant use of un-directional lecture method, with minimal use of 'hands on' and 'minds on' activities still pre-dominate the teaching of science in Nigerian basic schools to date, which are attributes of no planning or haphazard lesson planning and teaching preparation by teachers. A study by Abdul-Raheem and Oluwagbohunmi, (2015) revealed that pre-service teachers are deficient in improvising instructional materials for use during teaching practice yet, the use of instructional materials from the heart and core of teaching science. It is against this backdrop that this study is designed to investigate the quality of Primary four teacher lesson preparation in basic science and technology in schools in Northern Senatorial Zone, Plateau State Nigeria.

Aims and objectives

The purpose of the study is to investigate the Quality of Teacher Lesson Preparation/teaching Behaviours and Classroom Interaction in Basic Science and Technology in North central Zone, Plateau State, Nigeria. Specifically, the study is designed to:

1. Find out how Primary four Basic Science and Technology teachers prepare their lesson for teaching interaction in North Central Zone, Plateau State.
2. Investigate Primary four teachers teaching strategies in Basic Science and Technology in North Central Zone, Plateau State.
3. Examine the action verbs used by primary four Basic Science and Technology teachers' in stating their lesson objective in North Central Zone, Plateau State.
4. Establish Primary four teachers' use of instructional materials in teaching Basic Science and Technology classroom interaction pattern in North Central Zone, Plateau State.
5. Determine the pre-dominant method used of Basic Science and Technology teachers in North Central Zone, Plateau State.
6. Find out how primary four Basic Science and Technology teachers manage the student thinking during classroom interaction.

Research questions

The following questions guided the study.

1. How do by Primary four teachers prepare and teach Basic Science and Technology in the North Central zone, Plateau State?
2. What kind of action verbs do Primary four Basic Science and Technology teachers used in stating lesson's objectives during lesson preparation in North Central Zone, Plateau State?
3. What are the teaching strategies used in teaching by Primary four Basic Science and technology teachers in the North Central Zone, Plateau State?
4. What are the types of instructional materials constructed and used by Primary four teachers teaching Basic Science and technology in the North Central Zone, Plateau State?

5. What are the types of questions used in lesson's evaluation by Primary four Basic Science and technology teachers in the North Central Zone, Plateau State?
6. What are the average questions wait-times of Primary four Basic Science and technology teachers in the North Central zone, Plateau State?
7. What are the types of questions asked by pupils to show their contribution to class interactions in the North Central zone, Plateau State?

METHODOLOGY

The study employed a descriptive survey design. The population comprised of all Primary four teachers teaching Basic Science and technology Jos North, Jos South, B/Ladi, Ryiom and Bassa local government schools which form the North Central zone of Plateau State were used for the study. Four government approved public primary schools were randomly sampled from each local government for the study. Research assistants were four pre-service science teachers in each local government area in North central zone who were out for pre-teaching practice observation helped in data collection, they were trained on how to observe lesson plans of teachers and record classroom interaction without teachers' knowledge. The research assistants observed and analysed ten written lesson plans of each Basic Science and Technology teachers. Observations of lesson preparation were based on the type of structured lesson plans, construction and use of instructional improvised materials, relevance of the topic to the scheme of work, statement of lesson's objectives, method of teaching each lesson pupils' activities and evaluation procedures. Observation of verbal interaction was done by recording of classroom interactions between teachers and students, which were later transcribed into written form. The transcribed teachers' and pupils' oral question types were categorized using Bloom's category system. Oral recorded interactions were subjected to Cool Edith programme in the computer and used in measuring wait-time of teachers' questions in seconds and milliseconds. The transcribed oral questions and categorized into Bloom's category system were validated by two expert science teachers. Frequency count and percentages were used to analyse data that answered research questions and results were presented in Tables.

RESULTS

Research Question One

How do by Primary four teachers prepare their lessons and teach Basic Science and Technology in the North Central zone, Plateau State? This research questions were answered by presenting the frequency of type of lesson plans developed and used in teaching by Basic Science and Technology teachers in the North Central zone, Plateau State? A total of 10 lesson plan was observed from each teacher. The options for rating are: (1) full structure lesson plan developed for teaching, (2) Skeletal lesson plan developed and used for teaching, (3) no structured lesson plan used for teaching in the classroom.

The result in Table one shows that 48.5% of teachers' lesson notes were either written skeletally or not written at all, while 51.5% had the full structure lesson well prepare for teaching.

Table 1. Type of Lesson preparation and planning for teaching of Basic Science and Technology teachers in the North Central zone, Plateau State

Type of lesson plan	Used		Not used		Total	
	F	%	F	%	F	%
Full lesson plan	104	51.5	96	48	200	100
Skeletal lesson plan	63	31.5	137	67.5	200	100
No lesson plan	33	17.0	167	82.5	200	100

Research Question Two

What kind of action verbs do Primary four Basic Science and Technology teachers used in stating lesson's objectives during lesson preparation in North Central Zone, Plateau State? This research question was answered by calculating the percentage frequency of action verbs based on Bloom's three domains that were used in stating behavioural objectives to be achieved at the end of the lesson. A total of 316 action verbs were analyzed from lesson plans of 20 teachers for 10 lesson plans each.

Table 2. Type of Action Verbs use in stating Lesson Behavioural Objectives in Basic Science and Technology

Types of action verbs used in stating behavioural objectives	Used		Not used		Total	
	F	%	F	%	F	%
List, state, enumerate & define	191	60	125	40	319	100
Explain, identify,	73	23	243	77	319	100
Describe,	39	12	277		319	100
Annalysis	5	1.5	314	98.5	319	100
Synthesis	0	0	0	0	319	100
Evaluation	11	3.5	308	96.5	319	100

Result in Table two shows that 83% of the action verbs used in stating behavioural objectives by the primary school teachers during lesson notes preparation were knowledge and comprehension which mainly test pupils' lowest level of thinking. The teachers are deficient in using higher order action verbs promote scientific and reflective thinking in students.

Research Question Three

What are the teaching strategies used in teaching by Primary four Basic Science and technology teachers in the North Central Zone, Plateau State? Frequency and percentages of action verbs used in stating behavioural objectives were calculated to determine the use of child-centred.

Table 3. Frequency and Percentage of Teaching Strategies employed by Primary Four Teachers in teaching Basic Science and Technology

Strategy	Used		Not used		Total	
	F	%	F	%	F	%
Child-centered	0	0	200	100	200	100
Processe approach	0	0	200	100	200	100
Demonstration	27	13.5	173	83.5	200	100
Discussion	13	6.5	187	93.5	200	100
Lecture	158	80	42	20	200	100

The findings in Table three shows that 80 % of the teaching strategies used by primary four Basic Science and Technology teachers is the lecture method which do not give pupils opportunity to manipulate learning materials in the classroom.

Research Question Four

What are the types of instructional materials used by Primary four teachers teaching Basic Science and Technology in the North Central zone, Plateau State? This research question was answered by determining the frequency and percentage of used of each type of instructional material used.

Table 4. Types of Instructional materials used by Basic Science and Technology teachers in Teaching

Type of instructional materials	Used		Not used		F	%
	F	%	F	%		
Use of standard materials	0	0	200	100	200	100
Construct improvised materials	7	4	193	96	200	100
Use of pictures from Textbooks	34	17	166	83	200	100
Use of drawings on the board	69	35	131	65	200	100
Use of Charts to illustrate	9	4.5	191	95.5	200	100
Use of demonstration	81	40	119	60	200	100

The result in Table four shows that Primary four teachers teaching Basic Science and Technology use mostly pictures as teaching aids during classroom interactions. They sometimes demonstrate or draw on the board to aid explanation.

Research Question Five

What is the type of oral questions asked by Primary four teachers teaching Basic Science and Technology in schools in the North Central zone, Plateau State?

In answering this research question, teachers' classroom questions interactions were recorded and categorised using Bloom category system to determine the order of abstraction of the questions.

Table 5. Types of Questions used by Primary four teachers teaching Basic Science and Technology in the classrooms

Types and number of questions asked during lesson	Used		Not used		Total	
	F	%	F	%	F	%
Knowledge	2677	83	554	17	3231	100
Comprehension	316	9.8	2915	90.2	3231	100
Application	88	2.7	3143	97.3	3231	100
Annalysis	65	2	3166	98	3231	100
Synthesis	15	0.5	3216	99.5	3231	100
Evaluation	70	2.2	3161	97.8	3231	100

The result in Table five shows that Primary four teachers teaching Basic Science and Technology are deficient in using questions during classroom interactions. The result shows that 92.8% of the questions they asked were lower-order questions (knowledge and comprehension) which are categorized by Bloom 1964 as lower-order questions that do not promote thinking during classroom interactions.

Research Question Six

What is the average questions wait-times of Primary four teachers teaching Basic Science and technology in schools in the North Central zone, Plateau State? In answering this research question, classroom interactions were recorded and a cool Edith programme was used on the playback of the recorded interactions to measure the time it took a Basic Science and Technology teachers to wait after asking a question before selecting a pupil to answer the question asked

by the teacher in milliseconds. Teacher's wait –time I is measured from exactly from the time when a teacher asked a question in the class to the time he/she appoints a pupil to responding to the question, while wait-time II is the length of time a teacher allows after a student stop responding to the questions. A wait time of less than one second is not appropriate for teachers to allow pupils to respond to either low-order and high order questions and also for the teacher to wait after pupils have stop responding to the question.

Table 6. Wait-time used of Basic Science and Technology Teachers in the classroom.

Wait-time of teachers' question	No of Questions Asked	Sum of Time of responses in seconds/milliseconds	Average wait-time in seconds/milliseconds
	F	F	F
Wait- time One	3231	2508.561	0.978
Wait- time Two	3231	2073.361	0.808

Result in Table six shows that the average wait-time one and two of Primary four teachers teaching Basic Science and Technology is 0.978 and 0.808 milliseconds which are is less than one second for low-order questions as suggested by Stahi and Rowe. They are considered inadequate to give learners equal opportunity think and respond to questions and to express themselves critically in respond to questions in the classroom.

Research Question Seven

What are the types of questions asked by Basic Science and Technology students in the Central Senatorial zone, Plateau State? This research question was answered analyzing the frequency of type of questions used by the pupils based on Bloom's category system into different levels of thinking

Table 8. Questions asked by primary four pupils during Basic Science and Technology Classroom Interaction based on Bloom category system

Types of questions pupils asked during lesson	Asked		Not asked		Total	
	F	%	F	%	F	%
Knowledge	135	81	77	19	208	100
Comprehension	0	0	208	100	208	100
Application	52	13	156	87	208	100
Annalysis	0	0	208	0	208	100
Synthesis	0	0	208	0	208	100
Evaluation	25	0	183	0	208	100

Result on Table 7 shows that primary four pupils hardly initiate questions in the class. They asked a total of 208 questions which were mostly 'what' questions with few 'how', and 'why' questions.

DISCUSSION

The result in Table one shows that some teachers do not prepare for the lesson before teaching. The result shows that 48.5% of teachers' lesson notes were either written skeletally or not written at all. This result supports the views of Oyetunde, (2015), shows that most teachers in basic and secondary schools do not plan for their lesson before delivery. Results in Table two and five showed that 83% of the action verbs used in stating behavioural objectives by primary teachers during lesson notes preparation are knowledge and

comprehension which mainly to promote recall of facts. This result is in line with research by Akinmade and Chollom, (2013b) who pointed out that basic science and technology teachers in Jos South local government are deficient in using good quality questions to promote scientific and reflective thinking in students. Similarly, research result in Table three shows that 80 % of the teaching strategies used by primary four Basic Science and Technology teachers is the lecture method which does not give pupils opportunity to participate actively in the lesson. This research findings support the outcome of research by Achunoye, (2015) and Chollom, (2013c) who pointed out that even experienced science teachers from primary to tertiary institutions use chalk and talk(undirected lecture) methods in teaching science and lack the capability to manage students' thinking effectively. This practice negates the overall purpose of teaching science using child-centred methods to promote pupils' active participation and development of scientific and reflective thinking in science. The result in Table four shows that Primary four teachers teach Basic Science and Technology mostly using pictures as teaching aids during classroom interactions. This research result supports the research by Abdul-Raheem, and Oluwagbohunmi, (2015) who revealed that pre-service teachers are deficient in improvising instructional materials for teaching during teaching practice irrespective of gender. This is at variance with the emphasis of the Nigerian national policy on education that basic science and technology teachers be train to use materials within child's environment and construct improvise instructional materials to give learners opportunity to manipulate during learning interactions to acquire skills and promote thinking in science. Result of research in Table six shows that the average wait-time one and two of Primary four teachers teaching Basic Science and Technology is 0.978 and 0.808 milliseconds which is inadequate is less than one second for low-order questions as suggested by Stahi and Rowe. to give learners opportunity to express themselves critically in respond to questions. This research result supports the result of research by Chollom, (2013c) that basic science and technology teachers engaged in unproductive wait-time management that do not give pupils enough time to express themselves in response to teachers' questions in the classroom. They asked a total of 208 questions which were mostly 'what' questions with few 'how', and 'why' questions.

Conclusion and Recommendations

Results in Tables 1-7 showed that Basic Science and Technology teachers in North central zone are deficient in lesson preparation and planning skills and attitudes, which may be the cause of teachers inability to use of appropriate instructional materials during teaching, poor teaching strategies and unproductive management classroom interactions. Yet, Basic Science and Technology teachers are trained in their teacher training institutions on how to prepare for their lesson with measurable objectives for effective classroom teaching interaction. The findings of this research suggest that the teachings of Basic Science and Technology in Nigerian primary schools are not done to promote child-centred interaction. The study recommends that Basic Science and Technology teachers are teachers should be exposed to behaviour modification training programmes improve on the lesson preparation behaviours

and use child-centred teaching strategies that promote thinking and achievements in Basic science and technology in Nigerian primary schools.

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