
Effect of Activity-based Instruction and Demonstration Methods on Academic Performance in Basic Science Among Rural and Urban Primary School Pupils in Katsina State, Nigeria

By

***Suleiman Sa'adu Matazu and **Bishir Aliyu**

*Department of Science and Vocational Education,
Faculty of Education and Extension Services,
Usmanu Danfodiyo University, Sokoto-Nigeria

**Isa Kaita College of Education Dutsinma
Katsina State

Email: yahmadtijani@gmail.com

ABSTRACT

This study assesses the impact of activity-based instruction and demonstration method on academic performance in basic science among rural and urban pupils in Katsina state, Nigeria. This study used quasi experimental and control group design involving pre and posttest. In this study, three groups' namely experimental group I, experimental group II and control group were involved. The three groups were pre-tested, treated and post tested. The population of this study covered a total number of twenty-three thousand seven hundred and eighty-four primary six pupils (23784) in five Local Government Education Authorities that formed Kankia Education zone. The sample of this study covered a total number of one hundred and forty primary six pupils from three selected primary schools. The study used Basic Science Performance Assessment Tool (BSPAT) containing 50 multiple test items, validated and with reliability coefficient of 0.82. Data collected were analysed using mean, standard deviation, and Analysis of Covariance at 0.05 level of significance. Result of findings shows that there is significant difference between the academic performance of pupils in experimental and control groups; there is no significant difference between the academic performance of pupils in rural and urban areas as revealed in their mean scores. On the bases of findings of this research, the research recommends that the use of activity-based method and demonstration method in teaching Basic Science should be encouraged by stakeholders in education industry such as the Federal and State Ministries of Education.

INTRODUCTION

The general objective of basic science is to enable pupils observe and explore their environment using their senses (FRN, 2013). Furthermore, some of the reasons behind inclusion of basic Science as component of primary school curriculum in Nigeria were outlined by National Policy on Education, (revised 2004 and 2013) to include but not limited to helping the pupils to explain events in nature; enable the pupils to think and reason in a logical manner; help pupils to

develop the physical skills of science through proper handling of materials and equipment; help pupils to satisfy their natural curiosity through opportunities in carrying out scientific investigation.

The need for effective teaching and learning in our schools as a sure means of achieving the much-needed technological breakthrough cannot be over flogged in order to build a country that widely recognized and accepted globally (Usman 2010). However, the participation in science in order to make

inventions is the main concern of many nations. This motive results in huge Investment in science and technology worldwide. According to Okeke in Ugwuadu and Obi (2009) when science is transformed into technology it makes tremendous impact in the society.

One of the objectives of primary education as presented in the National Policy on Education (FRN, 2013) is to equip pupil to live effectively in the modern age of science and technology. In line with this objective, primary education is made as the foundation upon which the rest of the education system is built. Consequently, primary education forms the foundation upon which science at higher level of secondary and tertiary level is built. The success or failure in primary science will more or less determine the success or failure of science education at higher level (Leghera, 2006). Despite the importance of science for the development of any nation, teaching and learning of science is facing many hitches in schools as shown by many researchers (Isah 2000, Okeke 2007; NTI 2009 and Mani, 2012). Muhammad (2010), reported that the degree of failure experienced at both primary, secondary and tertiary levels of education has to do with so many factors that include parents, teachers, cultural beliefs and inadequate use of appropriate instructional strategies such as lecture method. In science, researchers recommended the use of hands-on strategies like demonstration, project, simulation, and activity-based teaching methods. The concerned of this study is activity-based teaching method and demonstration method.

Activity method is a technique adopted by a teacher to emphasize his or her method of teaching through activity in which the students participate rigorously and bring

about efficient learning experiences (American Association for the Advancement of Science, AAAS, 1993). It is a child-centered approach in which the child is actively involved in participating mentally and physically. Learning by doing is the main focus on this method. According to Arends (2007), learning by doing is imperative in successful learning since it is well proved that the more the senses are stimulated, the more a person learns and the longer he/she retains. Choudhury, (2002) pointed out that in an activity-based teaching, learners willingly with enthusiasm internalize and implement concepts relevant to their needs.

According to Sharma, (2010) the need to use activity-based learning method arise from the information processing theory in psychology which views learners as active investigators of their environment. This theory is grounded in the premise that pupils innately strive to make sense of the world around them. In the process of learning, they experience, memorize and understand. Students need to be provided with data and materials necessary to focus their thinking and interaction in the lesson for the process of analyzing the information. Teachers need to be actively involved in directing and guiding the students' analysis of the information.

Mazur (2008), opined that activity-based learning method requires active problem solving by students in finding patterns in the information through their own investigation and analysis. With continued practice in these processes, students learn not the content of the lesson but also develop many other skills. The researcher added that activity-based learning method enhances creative aspect of experience, gives reality for learning, Uses all

available resources, Provides varied experiences to the pupils to facilitate the acquisition of knowledge, experience, skills and values, builds the pupil's self-confidence and develops understanding through work in his/her group, gets experiences, develop interest, enriches vocabulary and provides stimulus for reading and develops happy relationship between pupils and pupils, teachers and pupils. Activity method is akin to project method, Inquiry method, Problem solving method, field trip method and laboratory technique (Atere, 2006).

On the other hand, demonstration method according to White (2001), involves displaying of things or materials for the pupils' observation. It is also manipulation of equipment and materials in order to strengthen pupils power of observation of certain scientific phenomena. Most of the practical works in the laboratory and even outside the laboratory are done by demonstration. So, Demonstration method is sort of exhibition lesson that shows the parts of an organism or models or correct usage of a science equipment. It may also be a demonstration of an experiment set up. The Teacher usually knows the outcome of the demonstration experiment. It is merely done to show the student the procedure and caution.

According to Tytler (2003), Arends (2007), and Sharma (2010), Demonstration method serves the following advantages: Economy of time is ensured; It is used to introduce lesson and conclude lesson; It protects the health and life of the students; Demonstration method avoid the breaking of fragile apparatus; It can be used to evaluate previous lesson.

However, Olagunju, (2007) and Olaofe (2007) claimed that the Use of

Demonstration method is associated with the following disadvantages; It does not allow pupils to develop manipulative skill since no opportunity of handling equipment is offered; Visibility is usually poor since pupils will not be able to the experiment in detail or the apparatus being demonstrated; little interaction is involved among the pupils; and; It does not allow fair evaluation of individual pupils; sighting alone cannot provide sufficient information that they need.

Academic performance is individual's inherent potentials in terms of intelligence combined with other sociological factors. Decco and Crawford (2001) submitted that academic performance is the process of measuring the pupils' auxiliary and terminal Performances during and at the end of instruction. The scholars added that basically there are three uses that can be made with information obtained from academic Performance to include;

1. determining how well the pupils have achieved the instructional objectives.
2. determining the adequacy of entering behavior.
3. determining the adequacy of our instructional procedures.
4. For the purpose of this study, academic Performance were based on the scores pupils will obtain following the administration of the Performance Test developed by the researcher.

Researchers, (Johnson, 2000 and Abdullahi, 2009) have identified some variables that have effects on pupils' academic performance. In a study conducted on 10 years old who had taken a number of standard tests, Wiseman (1994) found that home circumstances of the child affected his/her

academic Performances more than the school condition did. The scholar also found among primary school pupils that economic level and social class are less important to children's progress than are aspects of parental attitudes (their attitude to education, books and reading).

Haliru (2013) on a study conducted on the Relative effects of Demonstration and Traditional methods in Teaching found out that the Demonstration instructional method enhances the students' performance better than traditional method of instruction. In a similar vein, Musa (2000) investigate the efficacy of laboratory teaching method vis-à-vis the conventional chalk-talk method and found out that the laboratory method being it activity-based method more robust in enhancing and promoting academic Performance in comparison with the conventional lecture method.

Looking at the studies that revealed the effectiveness of activity -based instructional strategies as the teaching situation teaching methods needs to be improved and appropriate teaching strategies improved and appropriate teaching strategies employed as the teaching learning situation may demand, and that teaching methods such as; inquiry, project, lecture demonstration, lecture performance, problem solving, fieldtrips, group learning, excursion, laboratory and guided discussion and use of audio-visual materials have been recommended for teaching of science in schools (Adedoyin, 1990 & Ajewole, 1991). It is against this background that this study was conducted to investigate the impacts of instructional materials on academic performance in basic science among rural and urban pupils in Katsina state, Nigeria.

Statement of the Problem

Katsina state like any other state of the federation, two types of schools exist based on location. This can either be rural or urban. In whatever the case, pupils are exposed to science. Most of primary science classes that are expected to be bubbling with activities are made boring to the pupils due to application of inappropriate teaching strategies and inadequate use of instructional materials by most of the teachers, thus, resulting to negative attitude from the pupils towards learning science (Abdullahi, 2009). This is the condition in most of the primary schools in Katsina state. A report of the State Primary Education Board (SUBEB, 2016 in Isa 2016), indicated that poor academic performance was recorded over the years by the state primary education board. In 2005 examination in basic science and technology, 33.3% overall performance of pupils was recorded and in 2006 and 2007 40.6% and 41.9% respectively. The trend continues to deteriorate in 2010, 2011, 2012, 2013 and 2014 with 33.2%, 39%, 40% and 30% respectively. This poor academic performance was attributed to so many factors including; inappropriate teaching strategy; parental influence i.e no encouragement towards learning science; lack of use of instructional materials by the science teachers and poor creative thought and habit on the side of the pupils, (SUBEB, 2017). Abdullahi (2009) was of the view that for pupils in the primary schools to learn science and have their reflective thinking boosted, they should be given the opportunity to experience science by "doing" using variety of learning resources and methods. Unfortunately, shortage of instructional materials for teaching science in our schools coupled with the poor attitudes of teachers to use appropriate teaching strategy

resulted in the teachers' use of lecture method in teaching science. Thus, this study investigates the impact of activity-based instruction and demonstration method on the academic performance of rural and urban pupils in Basic Science in Katsina state.

Research Questions

This study sought to provide answers to the following research questions;

1. What is the difference between the mean academic performance scores of pupils taught basic science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method?
2. What is the difference between the mean academic performance scores of rural and urban pupils taught basic science concepts using activity-based method and Demonstration method?

Null Hypotheses

Based on the research questions, the following null hypotheses were formulated and were tested at 0.05 level of significance:

H₀₁: There is no significant difference between the mean academic performance scores of pupils taught basic science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method.

H₀₂: There is no significant difference between the mean academic performance scores of rural and urban pupils taught basic science concepts using activity-based method and Demonstration method.

METHODOLOGY

This study used quasi experimental and control group design involving pre and

post-test. In this study, three groups namely experimental group I (EG₁), experimental group II (EG₂) and control group were involved (CG). The three groups were pre-tested (O₁) to ensure selection of respondents with similar academic performance. A treatment and teaching period were observed for six weeks period. Specifically, experimental group I were exposed to Activity-based instruction (X₁); experimental group II were exposed to demonstration method (X₂) while control group were taught using lecture method (X₀) which is the most predominant method often used by the teachers. Immediately after treatment and teaching period, the researcher tested students for the second time (Post-test, O₂) to determine the pupils academic performance in the concepts taught using the same instrument in pre-test.

The population of this study covered a total number of twenty-three thousand seven hundred and eighty-four primary six pupils (23784) in five Local Government Education Authorities that formed Kankia Education zone namely, Musawa, Kankia, Matazu, Kusada and Ingawa as at 2015/2016 academic session as stated by Katsina State Universal Basic Education Board (SUBEB,2016).

The sample of this study covered a total number of one hundred and forty primary six pupils from three selected primary schools in Kankia Education Zone. The justification for selecting 140 pupils is that the study is experimental research and Central limit theorem stated that were a researcher is conducting experimental research a minimum of 30 sample is viable and adequate enough to form a study sample. Similarly, scholars such as Kerlinger (1971), Tuckman (1975) and Sambo (2008) supported the view that large sample size of at least 30

subjects is adequate enough to conduct experimental research.

This study used Basic Science Performance Assessment Tool (BSPAT) containing 50 multiple test items with four alternatives (A-D) Adapted in Isa (2015). The

original item contained only forty items and with five alternatives. As a result of content and faced validity, it was later modified to contained four alternatives and used in both pre and posttest to measure the performance of pupils in Basic Science concepts.

Table 1: Table of Specifications for BSPAT Construction

SN	CONTENT	WEIGHT (%)	K (36)	C (16)	A (14)	S (12)	A (12)	E (10)	T (%)
1	Meaning of circulatory system	(10)	1	1	1	1	1	0	5
2	Types of circulatory system	(14)	2	1	1	1	1	1	7
3	Human heart	(16)	3	1	1	1	1	1	8
4	Composition of blood	(20)	4	2	1	1	1	1	10
5	Phase of circulation	(14)	3	1	1	1	1	0	7
6	Types of blood vessels	(12)	2	1	1	1	0	1	6
7	Functions of blood	(14)	3	1	1	0	1	1	7
		(100)	18	8	7	6	6	5	50

Source: (Field Survey by this researcher, 2016)

The BSPAT instrument was validated by experts and the reliability index of 0.82 was obtained using test-retest method.

RESULTS AND DISCUSSION

Research Question 1: What is the difference between the mean academic performance scores of pupils taught basic

science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method?

To answer the above research question, mean and standard deviation of post-test Performance of experimental group 1,2 and control group were presented below

Table 2: Mean and standard deviation of post test score of experimental groups and control group.

Variable	N	Mean	SD	S.E.
Activitiy-based Method	43	37.23	6.20	0.94
Demonstration method	52	37.76	5.22	.72481
Lecture Method	45	24.24	2.69	0.40

The table above shows that experimental group 1 has a mean score of 37.23 and Standard Deviation of 6.20 while

control group has a mean of 24.24 and standard deviation of 2.69. Similarly, experimental group II has a mean score of

37.76 and Standard Deviation of 5.22 while control group has a mean of 24.24 and standard deviation of 2.69. This shows that experimental group II has a highest mean score, followed by experimental group I and finally control group.

Research Question Two: What is the difference between the mean academic performance scores of rural and urban pupils taught basic science concepts using activity-based method and Demonstration method?

Table 3: Mean and standard deviation of post test scores of rural and urban pupils in experimental group I and experimental group II

Variable	N	Mean	Standard Deviations	Mean Differences
Rural Activity	21	35.47	5.51	-3.43
Urban Activity	22	38.90	6.49	
Rural Demonstration	29	37.86	5.25	0.21
Urban Demonstration	23	37.65	5.30	

The table above shows that rural pupils exposed to activity-based scored a mean of 35.47; Demonstration method 38.9; there is slight difference of 3.43 in favour of Urban activity. Similarly, rural pupils exposed to demonstration method scored a mean of 37.86; Demonstration method 37.65; there is slight difference of 0.21 in favour of Urban demonstration. Therefore, rural and urban pupils exposed to activity and demonstration

method differs in their mean score but the difference is slight.

Null Hypothesis One: There is no significant difference between the mean academic performance scores of pupils taught basic science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method.

Table 4: ANCOVA of pre and post-test Performance score of experimental groups and control group.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5441.084 ^a	3	1813.695	75.072	.000	.623
Intercept	90740.855	1	90740.855	3.756E3	.000	.965
Pretest	41.874	1	41.874	1.733	.190	.013
Group	5228.569	2	2614.285	108.210	.000	.614
Error	3285.659	136	24.159			
Total	163572.000	140				
Corrected Total	8726.743	139				

a. R Squared = .623 (Adjusted R Squared = .615)

Table 4 presented the ANCOVA of significant difference in the performance scores of pupils taught basic science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method. The f-value of 108.210 and p-value of 0.00 revealed significant difference among three methods with r squared value of 0.623 and adjusted r squared of 0.615. Therefore, hypothesis number three

which stated that there is no significant difference between the mean academic performance scores of pupils taught basic science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method is rejected. To determine the direction of disparity, the result was further subjected to post hoc test and presented in Table 4.9.

Table 5: Shaffer's' Post-hoc test of Significant Differences among Groups

Pairwise Comparisons

Dependent Variable: posttest

(I) group	(J) group	Mean Difference (I-J)	S E	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
Activity-based	demonstration method	-.661	1.013	1.000	-3.115	1.793
	lecture method	12.799 [*]	1.044	.000	10.267	15.330
Demonstration method	activity-based	.661	1.013	1.000	-1.793	3.115
	lecture method	13.460 [*]	1.012	.000	11.006	15.914
Lecture method	activity-based	-12.799 [*]	1.044	.000	-15.330	-10.267
	demonstration method	-13.460 [*]	1.012	.000	-15.914	-11.006

Based on estimated marginal means; a. Adjustment for multiple comparisons: Bonferroni; *. The mean difference is significant at the .05 level.

Table 5 presented the post-hoc test of significant difference among activity-based; demonstration and lecture method. Analysis indicated that significant difference exists in the performance of students exposed to activity and lecture method ($P=0.1$); Demonstration and lecture method ($P=0.1$);

but not significant between activity and Demonstration methods ($P=0.00$).

Null Hypothesis Two: There is no significant difference between the mean academic performance scores of rural and urban pupils taught basic science concepts using activity-based method and Demonstration method.

Table 5: ANCOVA of pre and post test score of pupils Performance in rural and urban schools in experimental group I and II

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	137.288 ^a	4	34.322	1.072	.375	.045
Intercept	10306.495	1	10306.495	321.810	.000	.781
PRE-TEST EXP	3.326	1	3.326	.104	.748	.001
GROUPING LOCATION	127.368	3	42.456	1.326	.271	.042
Error	2882.396	90	32.027			
Total	136801.000	95				
Corrected Total	3019.684	94				

a. R Squared = .045 (Adjusted R Squared = .003)

Table 5 presented the ANCOVA of significant difference in the performance scores of boys and girls in rural and urban location taught basic science concepts using activity-based method and Demonstration method. The f-value of 42.456 and p-value of 1.326 revealed significant gender difference between pre and posttest using the two methods with r squared value of 0.45 and adjusted r squared of 0.003. Therefore, hypothesis number five which stated that there is no significant difference between the mean academic performance scores of pupils in rural and urban areas taught basic science concepts using activity-based method and Demonstration method is retained.

SUMMARY OF THE FINDINGS

From the result obtained in chapter four, it was revealed that:

1. Mean score of Pupils taught basic science concepts using Demonstration method is higher than those taught using activity-based instruction and finally lecture method.

2. Rural and urban pupils exposed to activity and demonstration method differs in their mean score but the difference is slight.
3. Hypothesis number one which stated that there is no significant difference between the mean academic performance scores of pupils taught basic science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method is rejected.
4. Hypothesis number two which stated that there is no significant difference between the mean academic performance scores of pupils in rural and urban areas taught basic science concepts using activity-based method and Demonstration method is retained.

DISCUSSIONS

The findings number one which stated that there is no significant difference between the mean academic performance

scores of pupils taught basic science concepts using activity-based method, Demonstration method and those taught the same concepts using lecture method is rejected. Analysis indicated that significant difference exists in the performance of students exposed to activity and lecture method ($P=0.1$); Demonstration and lecture method ($P=0.1$); but not significant between activity and Demonstration methods ($P=0.00$). The finding support that of Awotunde and Chukwunyere, (2002), Lawal (2010), Mamman, (2013), Awotunde and Chukunyere, (2002), Isah, (2000), Muhammed, (2010) and Shaibu, (2013).

Hypothesis number two was analysed using ANCOVA shows that the f-value of 42.456 and p-value of 1.326 revealed significant gender difference between pre and posttest using the two methods with r squared value of 0.45 and adjusted r squared of 0.003 and hence hypothesis which stated that there is no significant difference between the mean academic performance scores of pupils in rural and urban areas taught basic science concepts using activity-based method and Demonstration method is retained. This finding support that of Ali (1999), Norlander, Erixon and Archer (2000), Kaufman, Baer and Gentile, (2004), that direct comparisons of the performance of rural and urban students on a wide array of creativity traits measures have resulted in every conceivable outcome in which no discernible gender differences have been found.

CONCLUSIONS

This study concludes that Pupils taught basic science concepts using Demonstration method performed better than those taught using activity-based instruction and lecture method; Rural and

urban pupils exposed to activity and demonstration method differs in their mean score but the difference is slight. Therefore, the use of activity-based method and demonstration method in teaching is effective in improving pupils' performance in basic science concept irrespective of location.

RECOMMENDATIONS

On the bases of findings of this research, the researcher recommends that:

1. Federal and State Ministries of Education should adequately trained primary school teachers on using activity-based method and demonstration methods in teaching basic science through periodic seminar, conference, workshop and in-service training.
2. There is a need for professional bodies like STAN to liaise with Katsina state Universal Basic Education Board and State Ministries of Education in monitoring teaching and training of teachers on using innovative strategies.
3. Since the use of activity-based method and Demonstration Method is efficacious in enhancing performance of pupils in rural and urban areas, curriculum planners like Nigerian Educational Research and Development Council should incorporate activities that involves the two methods in curriculum of primary school sciences.

REFERENCES

- Abdullahi A. (1982). *Science Teaching in Nigeria*. Ilorin, Atoto Press Limited.
- Abdullahi, M. (2009). *Basic Concept in Education*, Kano, PMATS Commercial

- Press
- Ahamed M (2002). *Lesson Plan A Hand Book for an Auxiliary and Teachers Training'*, Kano Co-Operative Solutions.
- Ahmadu Bello University Zaria, (2010). *Teaching Manual for Newly Recruited Ahmadu Bello University Zaria Lectures Institutes of Education Publication.*
- Ajarinde, A. (2010). Teachers' Knowledge and Performance. In Adedura A.A. and Tunde OB (2007). Perceptions of Teachers Knowledge, Attitude and Teaching Skills as Predictor of Academic Performance in Nigerian Secondary Schools. *Educational Research and Review*, 7 Pp 165-171.
- Bello,S.R (2012). Effect of Demonstration and Discussion Methods on Academic Performance in Biology Students' among Senior Secondary School of Zaria Education Zone. Department of Science Education Postgraduate Seminar Series Ahmadu Bello University,Zaria. Dolinger, S.J; dollinger, S.M. & Centeno, L. (2005). Identifying and Creativity Traits Identity: *An International Journal of Theory and Research*, 5 (4). 315-339
- Federal Republic of Nigeria (2014). *National Policy on Education*. Lagos Federal Government Press Ltd.
- Federal Republic of Nigeria (2009). *New Primary School Curriculum Modules, Primary Six*. Abuja, Federal Government Press Ltd.
- Garba, M.H. (2012). Effect of Activity- based Method on Academic Performance Pretention of Senior Secondary School Student in Ecology in Sabongari Education at Zone Kaduna state, Nigeria. *Postgraduate Seminar Series Department of Science Education Ahmadu Bello University Zaria, Nigeria*, 1 (1) 25-30
- Haliru, M. (2013). The Relative Effect of Demonstration and Traditional Methods in Teaching Separation Techniques to Senior Secondary Students' in Some Selected School in Zaria Metropolis, *Sardauna; Journal of Multi-Disciplinary Studies*, 4 (1), 174-1
- Johnson S.I. (2008). An Introduction to Teacher Education, Dutsin-ma: Eddy Press and Co p444-5
- Katsina State Universal Basic Education Board (2016). *Longman Primary Science* Lagos; Printing Press
- Muhammad, D. (2000). Personality Traits and Academic Performance of Potentially Creative Students in some Selected Secondary Schools in Kaduna. An M.Ed thesis Department of Educational Psychology A.B.U Zaria, Nigeria
- National Teacher's Institute (2009). Manual for the Re-training of Teachers on Improvisation and Use of Instructional Materials and Methodology of Teaching the Four Core Subject in Katsina state Kaduna; NTI Publishers
- Sambo, A. A (2008). *Research Method in Education*: Ibadan: Sterling-Hooder Publisher (Nig) Ltd.
- Sawa, M. (2004). Relationship of Study Attitude and Academic Performance of Students at Secondary Level. Retrieved on 20/1/12 From <http://www.pri>.
- Shuaibu, A. A. M. (2013). Resources for Science Laboratory and Science Teaching in School; *Multicultural Africa Conference on Racehorse Mobilization, Management for Access and Quality Education in Africa Conference Preceding*. 25-30.

State Universal Basic Education Board
Katsina (2016). Katsina State Primary
Schools Census. SUBEB.