

Effects of Historical Simulations as Narrative and Graphic Advance Organizers on Nigerian Junior Secondary School Students' Learning Outcomes in Basic Science

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Doi:10.5901/mjss.2013.v4n2p743

Abstract

The study determined the effects of historical simulations (Story-telling Instructional Strategy (SIS) and Story-telling combined with Cartoon Instructional Strategy (SCIS)); and compared the effectiveness of SIS, SCIS and Conventional Teacher Expository Method (CTEM) in improving the performance of students in Basic Science concepts. It also compared the attitudes of students toward learning of Basic Science when SIS and SCIS are used as advance organizers in learning; and examined the effects of SIS and SCIS on the retention ability of students. The research design was non-equivalent pre-test, post-test control group quasi-experimental. The population comprised all Junior Secondary School (JSS) II students in Osun State. The sample comprised 126 JSS II Basic Science students in their intact classes from three schools selected by random sampling technique. Three schools were randomly assigned to two experimental groups and one control group. Treatments to experimental groups were based on the use of advance organizers, with SIS group taught using story-telling instructional strategy and SCIS by story-telling combined with cartoon instructional strategy. The control group, CTEM, was taught using the conventional teacher expository method. The instruments used for the study were the Achievement Test on Basic Science (ATBS) and Questionnaire on Attitude of Students toward the use of Advance Organizers (QASAO). Data collected were analyzed using *t*-test, One-way Analysis of Variance (ANOVA) and Post hoc (Tukey) multiple comparison test. The results showed that historical simulations (SIS and SCIS) were significantly effective in improving students' performance in Basic Science with significant difference in the pre and post treatment scores for SIS ($t = 22.85, p < 0.05$) and SCIS ($t = 14.42, p < 0.05$). A significant difference also existed among the three groups (SIS, SCIS and CTEM) in students' posttest performance ($F = 140.59, p < 0.05$) with the performance of students taught using SIS and SCIS statistically better in posttest than the CTEM treatment. There was also no significant difference in the attitudes of students toward Basic Science when SIS and SCIS were used as advance organizers ($t = 1.53, p > 0.05$). In addition, the results showed that SIS and SCIS had significant effect on the retention ability of the students and a significant difference existed in the retention ability of students exposed to use of SIS and SCIS as advance organizers ($t = 3.34, p < 0.05$) with SCIS being the most effective. It was concluded that advance organizer strategies, SIS and SCIS, could be used to effectively enhance students' learning and retention of Basic Science and also promote their interest in the subject.

1. Introduction

Basic Science is a core subject in Nigerian junior secondary school curriculum and made compulsory for all students as part of their general education programme. The relevance of Basic Science in the twenty first century as an ingredient of sustaining national development is very important. However, while the students recognize the importance of this subject,

they lack the interest and the right attitude to learn it. This is evidenced by their discouraging performance in Basic Science in public examinations as can be seen from the State Junior School Certificate results of Osun State for 2006 – 2010 as shown in Table 1. This may be due to several reasons including methods adopted by the teachers and the attitude of students towards the teaching and learning of Basic Science. Presently, teaching of junior secondary school basic science involves using the conventional teacher-expository method, which may not facilitate meaningful learning, and tend to make students see Basic Science as abstract and very difficult. There is a general impression held by the students that learning science is difficult. As a result many students tend to hate science and seem to have developed a negative attitude towards its learning. The phobia for Basic Science and negative attitudes toward learning it on the part of students, seem to have been created, among other factors, by the teaching methods which in most part teacher-centered. In the long run, learners often resort to memorising the concepts, with little or no comprehension.

Table 1 Trends of Performance in Basic Science in the Junior School Certificate Examination in Osun State. 2006 – 2010

| Year | Total Number of students Entered | Total Number Examined | Total Number Absent | Number and Percentage Distinction and Pass and Fail | |
|------|----------------------------------|-----------------------|---------------------|---|------------------|
| | | | | Credit | Pass and Fail |
| 2006 | 47,295 | 41,775 88.33% | 5,520 11.67% | 21,649 51.82% | 20,126 48.17% |
| 2007 | 47,773 | 43,105 90.23% | 4,668 9.77% | 22,193 51.49% | 20,912 48.51% |
| 2008 | 48,425 | 42,403 87.56% | 6,022 12.44% | 22,440 52.92% | 19,963 47.08% |
| 2009 | 48,991 | 45,144 92.15% | 3,847 7.85% | 23,745 52.60% | 21,399 47.40% |
| 2010 | 50,230 | 47,104 93.78% | 3,126 6.22% | 24,700 52.44% | 22,404 47.56% |

Source: Ministry of Education, Osun State of Nigeria.

It could be seen from the table that the average percentage of students over the years with distinction and credit who are therefore qualified to offer science subjects in the senior school is 52% while that of students with ordinary pass and fail is 48%. There is no guarantee that all the students with distinction and credit will offer science which further decreases the number of students that will eventually offer science subjects. Teaching methodology that will ensure the performance of students to well above average of the total number of students examined becomes important. In order for the acquisition of new knowledge to take place and to be meaningful, prior knowledge or schema needed to be activated within the structures by means of introductory instructional strategy (Ausubel, 1978; Ivie, 1998; Joyce and Weil, 1986; Kalmes, 2005; Postrech, 2002). Thus, Ausubel (1960) developed the new strategy that he termed advance organizers. By stimulating schema to enable students to link prior knowledge with new concepts, advance organizers provide a kind of mental scaffolding to learn new information (Hassard, 2005). Thus, the new information is easier to understand, learn, retain and recall (Ausubel, 1960).

Story-telling and cartoon usage as advance organizers in junior classes allow for students participation in preparing the ground for linking what is known with one to be learnt as advocated by Ausubel and in line with Adejumo and Ehindero (1980) that discovered a significant difference in the performance of Student Participatory Organizer Group (SPOG) and the Experimental Organizer Group (EOG).

The visual organizer like cartoon increases the students' understanding by providing a skeletal map that increases their ability to link new concepts with prior knowledge; therefore, increasing retention and recall (Dye, 2000; Hassard, 2005; Mosco, 2005). Ausubel's (1968) theory is concerned with how individuals learn large amounts of meaningful materials from verbal or textual presentations in a school setting. Ausubel was of the opinion that learning is based upon the kinds of superordinate, representational and combinatorial processes that occur during the reception of information. Subsumption is the primary process in learning in which new material is related to relevant ideas in the existing cognitive structure on a substantive, non-verbatim basis.

According to Adesina (2006), one of the effective methods of teaching is the play way or dramatic method. This is because it does not only break fatigue; it also encourages remembrance and cordial social relationship among students.

Story-telling, in the enhancement of retention, is therefore entrenched. However, competence is very important when designing anchored instruction. This refers to the ability to diagnose problems and situations, prescribe solutions and administer such prescriptions effectively.

Advance organizers are a concept developed and systematically studied by David Ausubel in 1960. He was very influenced by the teachings of Jean Piaget (Geier, 1999). Ausubel had worked consistently to prove that advance organizers facilitate learning and much of his research had influenced others since 1960s. However, throughout the history of using advance organizers, it is still undecided whether or not advance organizers fully promote learning or if other processes are more beneficial, but much of the research promote the ability of advance organizers to be useful in improving levels of understanding and recall (Mayer, 2003). Mayer further explained that advance organizers allow the learners to organize the material into a familiar structure that is, constructing meaning of their own. However, graphic advance organizer is unique in the sense that even when prior knowledge is already present in the student and they seem having no disabilities in learning, it can still be useful to solve organizational difficulties (Fisher, Schumarker, and Deshler, 1995).

A large number of researchers agree that advance organizers with a visual format appear to be of particular value to the learning process of students with disabilities (Mosco, 2005; Story, 1998; Walther-Thomas & Brownell, 2000). Graphic organizers have been applied across a range of curriculum subject areas with reading as the most well studied application. The teaching methodology can be an influence on the attitude of students (Yara, 2009). According to Keeves (1992) if attitudes towards science are highly favoured, it may be an indication for strong support for learning. There is also consistency across countries and age levels in the average level of attitude towards science by students. The researchers however concluded, according to Yara (2009), that there is marked decline in the attitude towards science between ten-year old and fourteen-year old levels. Greenfield (1995), Parker, Revinue and Fraser (1996), in their findings revealed that in countries where there was an emergent thirst for industrial and technological development, there were very favorable attitudes towards science. Chung (2008) compared listening comprehension rates for video texts using a variety of techniques: advance organizers; captions; a combination of both; and none of the foregoing. The results showed that more effective comprehension occurred among 170 students when advance organizer was combined with captions. The theoretical framework for the study is based on cognitivism and constructivism.

Cognitivism is a learning theory that studies how our minds work, how we think, how we remember, and ultimately how we learn. The cognitivists include Piaget, Gagne, Bruner and Ausubel. Ausubel's major principle is that the most important determinant of learning is what the learners already know.

2. Purpose of Study

This study was to find out the effects of historical simulations such as Story-telling Instructional Strategy (SIS) and Story-telling combined with Cartoon Instructional Strategy (SCIS) which are narrative and graphic organizers on the performance of students in Basic Science concepts as well as the attitudes of students toward the use of different types of advance organizers. Therefore the objectives of this study were to:

- (a) determine the effects of historical simulations such as Storytelling Instructional Strategy (SIS) and Storytelling combined with Cartoon Instructional Strategy (SCIS) on performance of students in Basic Science;
- (b) compare the effectiveness of SIS, SCIS and Conventional Teacher Expository Method (CTEM) in improving the performance of students in Basic Science concepts;
- (c) compare the attitudes of students toward learning of Basic Science when SIS and SCIS are used as advance organizers in learning; and
- (d) examine the effects of historical simulations (SIS and SCIS) on the retention ability of students in Basic Science.

3. Research Hypotheses

From the objectives mentioned above, the following research hypotheses were generated.

- (1) There is no significant difference in the performance of students before and after using Storytelling Instructional Strategy (SIS) and Storytelling combined with Cartoon Instructional Strategy (SCIS) as advance organizers in learning Basic Science.
- (2) There is no significant difference in the performance of students when SIS, SCIS and Conventional Teacher Expository Method (CTEM) are used in learning Basic Science concepts.

- (3) There is no significant difference in the attitudes of students toward learning of Basic Science when SIS and SCIS are used as advance organizers in learning.
- (4) There is no significant difference in the retention ability of students exposed to SIS and SCIS forms of advance organizers.

4. Methodology

The design of the study was non-equivalent pre-test post-test control group quasi-experimental.

| | | | |
|----------------|----------------|----------------|----------------|
| O ₁ | X ₁ | O ₂ | O ₃ |
| O ₄ | X ₂ | O ₅ | O ₆ |
| O ₇ | X ₃ | O ₈ | O ₉ |

O₁, O₄ and O₇ represent pretest in the three groups, X₁, X₂ and X₃ represent treatment 1 (Story-telling Instructional Strategy), treatment 2 (Story-telling and Cartoon Instructional Strategy), treatment 3 (Conventional Teacher Expository Method). Also, O₂, O₅ and O₈ represent the posttest for the three groups, and O₃, O₆ and O₉ represent retention test (retest).

Variables

The variables examined in this study are:

I. Independent Variables: These were the learning strategies used. They included:

- i Story-telling Instructional Strategy (SIS)
- ii Story-telling combined with Cartoon Instructional Strategy (SCIS)
- iii. Conventional Teacher Expository Method (CTEM)

II. Dependent Variables: These included the scores of Achievement Test in Basic Science (ATBS), and Scores from responses to the Questionnaire on Attitude of Students towards the use of Advance Organizers (QASAO).

The population of study for this research was all Basic Science students in Junior Secondary School Two (JSS II) in Osun State. The study sample consisted of 126 Basic Science students in their intact JSS II classes in three public Junior Secondary Schools from three local government areas in Osun State. The local government areas and the schools were randomly selected with the schools randomly assigned to three experimental and one control groups. The participants have almost completed JSS II, so they would not have ever been taught the concepts in JSSIII. The average age of the participants was thirteen years.

The instructional packages consisted of concepts from topics in the 9-year basic education curriculum on basic science themes, cartoons and relevant stories (comic, scientific, historical or traditional) on these concepts.

The research instruments used in this study are:

(i) A thirty-item multiple-choice questions tagged "Achievement Test on Basic Science (ATBS). These contained five options A-E, with only one correct option and administered as pre-test, post-test and retention-test. The test items were drawn extracted from past state examinations question and national junior examination question by the National Examination Council (NECO). The questions were distributed to cover the concepts involved using Test Blue Print.

(ii) A ten-item Likert-type questionnaire tagged "Questionnaire on Attitudes of Students toward the use of Advance Organizers" (QASAO) was design to find out the attitudes of students toward the use of the three different forms of advance organizer in learning Basic Science. The participants were required to respond to each of the QASAO on a five-point Likert-type scale ranging from strongly agree to strongly disagree, and score -2 to +2 , thereby putting maximum marks at 20.

The participants in the experimental and control groups were given a test on the first day of the study in each school. The experimental group students were taught Basic Science concepts using science related oral Story-telling Instructional Strategy (SIS) only, as a narrative organizer, Story-telling and Cartoon Instructional Strategy (SCIS) as narrative/graphic organizer. The experimental group I students were taught using oral story-telling only as treatment while the experimental group II students were instructed using the treatment of cartoons on storylines. However the treatment on experimental group III involved using Conventional Teacher Expository Method (CTEM). In using SIS, stories of invention, science history and improvised narratives adequately sourced were narrated with occasional questions posed

to students to involve them in the story lines, which were in most parts problem-based. Successful attempts to solve story problems was capitalized on and immediately linked to Basic Science concepts. Likewise, in SCIS, the students were instructed using story-telling aided with cartoons while the teacher linked such stories and visuals to the concepts. The control group students were instructed using CTEM as a conventional method where teachers provided information to the students making references to textbooks and examples therein with no organizer used. The experimental and control groups were examined after eight weeks of teaching in what is called post-test using the same test items as used in pre-test.

The marked tests and the achievement scores of students in all groups were recorded. The experimental and control group students were retested after two weeks of post-test administration using the test items as in pre-test and post-test. The achievement scores here also served as dependent variable. The QASAO was also administered on all the students in the experimental groups after the treatments in order to find out about their attitudes towards the advance organizers used in this study and Basic Science. The scores from responses of the questionnaires also served as the dependent variables.

Data were analysed using t-test and One-Way Analysis of Variance (ANOVA).

5. Results

Testing the Hypotheses

Hypothesis One: *There is no significant difference in the performance of students before and after using Story-telling Instructional Strategy (SIS) and Story-telling combined with Cartoon Instructional Strategy (SCIS) as advance organizers in learning Basic Science.*

In testing this hypothesis, the pre-test scores and the corresponding post-test scores of students in the two experimental groups were subjected to the t-test to determine possible differences in their achievement before and after the treatments. The results of the analyses are presented in Tables 4 and 5. However, in order to determine possible differences in the background knowledge of the student on the selected concepts in Basic Science, the Achievement Test on Basic Science (ATBS) was first administered as pre-test. The data obtained was subjected to One-Way Analysis of Variance (ANOVA) and F value was calculated. The result is presented in Tables 2, 3 4 and 5 below:

Table 2. Comparison of Means of Three Groups on the Pre-test Scores

| Experimental and Control Groups | N | \bar{X} (Subset for alpha =0.05) |
|---------------------------------|----|------------------------------------|
| | | 1 |
| SIS | 50 | 7.40 |
| SCIS | 36 | 7.67 |
| | | |
| CTEM | 40 | 7.10 |

Table 3. Analysis of Variance of Scores of the Three Groups on the Pre-test Scores.

| Sources of Variation | Sum Squares | df | Mean Square | F | P |
|----------------------|-------------|-----|-------------|-------|-------|
| Between Groups | 6.114 | 2 | 3.057 | 0.429 | 0.652 |
| Within Groups | 875.600 | 123 | 7.119 | | |
| Total | 881.714 | 125 | | | |

$p > 0.05$

From the Table, the result of the pre-test is not significant at $p > 0.05$. This indicated that there was no significant difference in the background knowledge of the three groups as shown by their achievement scores. This is an indication that the entire students had similar background knowledge in the pre-test and that the performance of the students was not significantly different.

Table 4. t-test Analysis of Pre-test and Post-test Scores of Story-telling Instructional Strategy (SIS) Experimental Group I

| SIS Experimental Group 1 | N | \bar{X} | s.d | t | P |
|--------------------------|----|-----------|------|-------|------|
| Pre-test | 50 | 7.40 | 2.18 | 22.85 | 0.00 |
| Post-test | 50 | 19.44 | 3.02 | | |

$p < 0.05$, $df = 98$

From the table, the significant value of $0.00 < 0.05$ is an indication that a significant difference existed in the performance before and after using SIS as advance organizer in learning Basic Science concepts. The post-test mean score ($\bar{X} = 19.44$) was better than pre-test mean score ($\bar{X} = 7.40$)

Table 5 t-test Analysis of Pre-test and Post-test Scores of Story-telling and Cartoon Instructional Strategy (SCIS) Experimental Group II.

| SCIS Experimental Group II | N | \bar{X} | s.d | t | P |
|----------------------------|----|-----------|------|-------|------|
| Pre-test | 36 | 7.67 | 2.90 | 14.42 | 0.00 |
| Post-test | 36 | 19.36 | 3.91 | | |

$p < 0.05$, $df = 70$

From the table, the significant value, p of $0.00 < 0.05$ is an indication that a significant difference existed in the performance before and after using SCIS as an advance organizer. The post-test mean score ($\bar{X} = 19.36$) was better than pre-test mean scores ($\bar{X} = 7.67$).

From tables 4 and 5, the difference between the results of pre-tests and Post-tests for the experimental groups SIS and SCIS at $P < 0.05$ is significant therefore the null hypothesis is hereby not accepted.

Hypothesis Two: *There is no significant difference in the performance of students when SIS, SCIS and Conventional Teacher Expository Method (CTEM) are used in learning Basic Science concepts.*

To test this hypothesis, the post-test scores of students in the three groups; SIS, SCIS and CTEM were subjected to the Analysis of Variance (ANOVA.) The results are presented in Tables 6, 7 and 8 below.

Table 6. Comparison of Mean Scores of SIS, SCIS and CTEM on the Post-test

| Groups | N | \bar{X} (subject for $\alpha = 0.05$) | |
|--------|----|--|-------|
| | | 1 | 2 |
| CTEM | 40 | 9.18 | |
| SCIS | 36 | | 19.36 |
| SIS | 50 | | 19.44 |

Table 7. Analysis of Variance of Scores of SIS, SCIS and CTEM on the Post-test.

| Sources of Variation | Sum of Squares | Df | Mean Square | F | P |
|----------------------|----------------|-----|-------------|--------|------|
| Between Groups | 2858.43 | 2 | 1429.21 | | |
| Within Groups | 1250.40 | 123 | 10.17 | 140.89 | 0.00 |
| Total | 4108.83 | 125 | | | |

p < 0.05

At probability level of 0.05 and degree of freedom 2,123, the calculated F value; $F_c = 140.89$, $df (2,123)$, $P < 0.05$. This indicates that a significant difference existed among the three groups in the achievement test. The Tukey's post-hoc test was also carried out on the group means for the significant comparison of the mean value of the three groups. The result is presented in Table 8.

Table 8. Tukey's Post-Hoc Analysis of Post-test Scores of SIS, SCIS, RIS and CTEM Groups Tukey's Multiple Comparisons

| (I) | (J) | Mean Difference (I - J) | Std. Error | P | 95% Confidence Interval | |
|------|------|-------------------------|------------|-------|-------------------------|-------------|
| | | | | | Lower Bound | Upper Bound |
| SIS | SCIS | 0.07889 | 0.69692 | 0.993 | -1.5745 | 1.7323 |
| | CTEM | 10.26500* | 0.67636 | 0.000 | 8.6604 | 11.8696 |
| SCIS | SIS | -0.07889 | 0.69692 | 0.993 | -1.7323 | 1.5745 |
| | CTEM | 10.18611* | 0.73248 | 0.000 | 8.4484 | 11.9239 |
| CTEM | SIS | -10.26500* | 0.67636 | 0.000 | -11.8696 | -8.6604 |
| | SCIS | -10.18611* | 0.73248 | 0.000 | -11.9239 | -8.4464 |

The mean difference is significant at the 0.05 level. I & J are the advance organizer groups

From the table, the observed difference of 10.26500 and 10.18611 were significant at 0.05 levels ($P < 0.05$). This shows that there was a significant difference in the achievement of the SIS and CTEM and SCIS and CTEM groups. This indicates that the mean performance of students taught using SIS and SCIS were statistically better in post-test than the CTEM group.

Hypothesis Three: *There is no significant difference in the attitudes of students toward learning Basic Science when SIS and SCIS are used as advance organizers.*

To test this hypothesis, the scores from QASAO administered on the students in the two experimental groups were compared using t-test. The results are presented in Tables 9 below.

Table 9 t-test Analysis of QASAO Scores of Story-telling Instructional Strategy (SIS) and Story-telling combined with Cartoon Instructional Strategy (SCIS) Experiment Groups

| | N | \bar{X} | S.d | T | P |
|------|----|-----------|------|------|------|
| SIS | 50 | 14.76 | 6.01 | 1.53 | 0.13 |
| SCIS | 36 | 16.53 | 4.11 | | |

$p > 0.05$, $df = 84$

From the Table, the significant value, p of $0.13 > 0.05$ is an indication that no significant difference existed in the attitude of students using SIS and SCIS as advance organizers. The QASAO mean score of SIS ($\bar{X}= 14.76$) and that of SCIS ($\bar{X}=16.53$) were not significantly different. Therefore, the null hypothesis is hereby accepted.

Hypothesis Four: *There is no significant difference in the retention ability of students exposed to SIS and SCIS forms of advance organizer.*

To test this hypothesis, the gain scores obtained from the difference between the post-test and the retention test scores were compared using t-test. The result is presented in Table 10 below.

Table 10 t-test Analysis of Gain Scores of Story-telling Instructional Strategy (SIS) and Story-telling combined with Cartoon Instructional Strategy (SCIS) Experimental Groups

| | N | \bar{X} | s.d | t | P |
|------|----|-----------|------|------|-------|
| SIS | 50 | 2.84 | 1.92 | 3.34 | 0.001 |
| SCIS | 36 | 4.61 | 2.99 | | |

$p < 0.05$, $df = 84$

From the Table, the significant value, p of $0.001 < 0.05$ is an indication that significant difference existed in the Gain Scores of students using SIS and SCIS as advance organizers. The Gain mean score of SIS ($\bar{X}= 2.84$) and that of SCIS ($\bar{X}=4.61$) were significantly different; with SCIS better in retention than SIS. Therefore, the null hypothesis is hereby rejected.

6. Discussion

The findings of this study revealed that the two modes of advance organizer; SIS, SCIS were effective in enhancing students' comprehension and achievement in Basic Science. This may be due to the distinctive characteristics of the advance organizer, being grounded in a sound cognitive learning theory, Ausubel's Assimilation Theory (Ausubel, 1968, Ausubel & Hanesian, 1978) which posits that new knowledge can be learned most effectively by relating it to previously existing knowledge. It was also discovered that majority of the students, under different treatments of advance organizer, showed positive attitude to the strategies and that no significant difference existed in the attitudes of students in the two experimental groups SIS and SCIS. The findings on the students' retention for experimental groups I and II showed that there was no significant difference in the gain scores SIS and SCIS experimental groups. The research study of Luiten, Ames & Ackerson (1980) had found a facilitative effect of advance organizer on both learning and retention. Bamidele, (2010) had discovered similar importance of using concept mapping as advance organizer with enhanced recall and retention among chemistry students. The work of Oloyede (2011) showed that advance organizers enhanced the achievement and retention of the learning materials in chemistry by the students. The pictorial organizer, like cartoon in this work, was particularly found to be more effective in facilitating students' achievement and retention in chemistry than the written organizer. This study is also in congruence with the results of research findings of (Kang, 1996; Mayer, 2003;

Shihusa and Keraro, 2009) which showed advance organizer as enhancing students' performance and facilitating meaningful learning. Mayer and Bromage 1980; Mayer, 2002; Demide, 2010 also found that advance organizers facilitated meaningful learning and retention of chemistry concepts.

7. Conclusion and Recommendations

The findings of this study concluded that advance organizer strategies, SIS and SCIS, could be used to effectively enhance students' learning and retention of Basic Science and also promote their interest in the subject. It is hereby recommended that advance organizers should be used by the Junior Secondary Schools (JSS) teachers to provide for a good link between the new concept and the previous knowledge acquired by the students and that advance organizers should be incorporated into the Basic Science curriculum to enhance teachers' innovations and creativity. The federal government of Nigeria has recently expanded the nationwide retraining workshops for teachers under the Millennium Development Goals (MDGs) project to junior secondary schools last year, 2011. This should be sustained and the programme enriched. "One of the major weaknesses of the teaching profession in Nigeria is that once teachers complete their initial training, they hardly have the opportunity to continue to grow on the job professionally. But knowledge is dynamic and so also are pedagogical ideas. Only by exposure to interactive conference and workshops of this type can teachers enjoy professional renewal" (NTI 2010).

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