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THE USE OF COMMUNITY RESOURCES FOR SENIOR SECONDARY SCHOOL SCIENCE INSTRUCTION

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ABSTRACT
Community resources such as zoos, museums and springs are used worldwide as integral part of the school curriculum. The purpose of this study was to investigate the pattern of teacher use of community resource in the teaching of science. For the study, fifteen secondary schools were randomly selected from twelve local government areas of Kwarad State. A total of three hundred and twenty-four science teachers were drawn from the selected schools, and to these, questionnaires were administered.

Results show that only 46% of the science teachers who participated in the study indicated that they used community resource as an aid to their teaching. This percentage is less than half of the respondents involved in the study.

These results suggest that most of our science teachers do not use community resource as an aid to science instruction.

Introduction and Background
World-wide, community resources such as zoos, museums, springs, ponds and out-of-classroom nature centres are common. In developed countries, visit to such community resources is an integral part of the school curriculum. Infact, children from developed countries anxiously look forward to these trips. However, in developing countries, the educational value of fieldtrips is yet to be fully appreciated. Various research studies have been carried out on the significance of community resources to learning and instruction (Ribad, 1971; Martin and Balling, 1981; Falk and Balling, 1982). Also, a review of science related field trip studies was conducted by Koran and Baker, 1979. The review showed that some cognitive learning occurs on fieldtrips and that fieldtrips are perceived as worthwhile by both students and educators. Interest and attitude of science teachers have also been found to influence the amount of fieldwork done (Lagoke and Jegede, 1986). Fido and Gayford (1982); observed that teachers in co-educational institutions tended to undertake more field work than did teachers from single sexed schools. A considerable amount of effort has been invested on investigating the impact of fieldtrips on students performance in developed countries (Berlyne, 1966; Falk, Martin, and Balling 1978; Balling and Falk, 1979). However, studies on importance of community resources locally are very few.

In Nigeria in recent years, there has been an increasing awareness of the importance of and advantages of science. Indeed, one of the objectives of secondary education is stated thus:

"Inculcating in the child the spirit of enquiring and creativity through the exploration of nature and local environment" p. 10 (National Policy on Education, 1977)

It is clear that there is an intention on the part of successive Governments to provide the vehicle through which 'scientific thinking' can be developed. Therefore, it is important that the type of education Nigerian youths receive has to be meaningful if it must provide a suitable preparation for the attainment of the above stated national goal.

In spite of attempts of successive Governments to popularise science, science education at the secondary school level continues to be confronted with many problems. Science subjects are unpopular with most students, hence few enrol for science subjects in the General Certificate of Education and the West African School Certificate examinations. It is saddening however, to note the repeated history of poor performance in the sciences as revealed by many studies.
Also, Aghenta (1981) and Akpan (1986) reported on the decline in the popularity of science-based students seeking admission into the universities. It would seem that something is wrong with our method of teaching and learning science. Therefore, something positive has to be done to rescue the situation. It is not enough to hear and read about science, students must observe and experiment if their learnings are to be permanent. There is no doubt that secondary education plays a crucial role in providing suitable preparation for further education.

Thus, science at the secondary school level is an important determinant of the quantity and quality of the intake into the tertiary level of education. Furthermore, there appears to be a direct relationship between output of secondary school leavers and input into higher institutions.

Umendium (1979), emphasised the importance of improving instructional strategies in Nigerian Secondary Schools. If teachers are able to make for better instruction, the performance of students in science would improve considerably. Also, many more students would enrol for science based courses at the tertiary level of education.

Besides, with the shift of emphasis from mere acquisition of knowledge to other objectives which stress the 'process approach' as with the 6-3-3-4 educational programme, there is the need for science teachers now more than ever before to explore and exploit all available resources for improving science instruction.

In this study, variables such as sex, academic qualification, type of school and years of teaching experience was examined to see if they had any effect on decision of science teachers to visit community resources.

**Purpose of the Study**

Studies have revealed that children learn from fieldtrips and visits to community resources. Therefore, there is a need to carry out a study into patterns of teacher use of fieldtrips and visits to such resources.

The purpose of the present study was to investigate whether science teachers visit community resources as instructional aids in the teaching of science. Specifically, this study was designed to answer the following questions:

1. Do male science teachers visit zoos, museums, springs, ponds and botanical gardens more than female science teachers?
2. Do science teachers with higher academic qualifications make more visits to zoos, museums, springs, ponds and botanical gardens than less qualified science teachers?
3. Do science teachers in Government Secondary Schools visit zoos, museums, springs, ponds and botanical gardens more than teachers in community or voluntary agency schools?
4. Do science teachers with more years of teaching experience visit zoos, museums, springs, ponds and botanical gardens more often than those with less than 2 years teaching experience?

**Method of Investigation**

**Subjects**

A total of three hundred and twenty-four science teachers (324) drawn from fifteen (15) secondary schools in twelve local government areas of Kwara State constituted the subjects. The secondary schools were selected by stratified random sampling procedure because the number of schools in each local government area differed.

**Instruments**

The research instrument was a questionnaire purposely designed for the study, the questionnaire consisted of two sections.
Section A
This section was designed such that respondents would place an "X" in the appropriate box adjacent to the variables for which the response is required. Four characteristics of the respondents considered were sex, academic qualification, type of school and years of teaching experience.

Section B
This section consisted of a two point scale. A number of statements with respect to the use of community resources fieldtrips and excursions to ponds, zoos, museums, springs and botanical gardens were given. Respondents were expected to indicate by inserting a tick (X) in the appropriate column or option as applicable, 'visited' and 'not visited'.

Content Validity
The questionnaire was given to three experts in science education for scrutiny and advice. The content was certified as adequate but the researchers were advised that the initial four columns or options most visited; visited; rarely and never visited be collapsed into two as follows: The first two be merged to form the column for 'visited' and the last two to form the column for 'not visited'.

Analysis of Data
Percentage of teachers who made use of community resources was calculated. Also, the chi-square (x²) statistical analysis was used to test for significant difference between the sets of frequencies examined with respect to sex; academic qualification; type of school and years of teaching experience.

Results

Summary of the Result

Table 1:

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Df</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sex</td>
<td>324</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>2. Academic Qualification</td>
<td>324</td>
<td>2</td>
<td>4.69</td>
</tr>
<tr>
<td>3. Type of School</td>
<td>324</td>
<td>2</td>
<td>1.26</td>
</tr>
<tr>
<td>4. Years of teaching experience</td>
<td>324</td>
<td>3</td>
<td>8.27*</td>
</tr>
</tbody>
</table>

* Significant at 0.05
N = No of subjects
Df = Degree of freedom
X² = Chi-square

Discussion
Findings of the study revealed that only forty-six (46%) percent of the total number of science teachers indicated that they visited community resources with their students. The percentage is less than half of the respondents used in the study. It would seem that most of our science teachers do not make use of community resources for improving the quality of instruction.
The summary on table 1, indicated that the sex of the respondents had no influence on teachers' decision to visit community resources. There was no significant difference between male and female responses on visits to community resources.

Similarly, academic qualification of the respondents had no influence on teachers' decision to visit community resources.

Also, type of school where the science teachers taught had no influence on the decision to visit community resources.

The findings revealed that the above mentioned parameters have no influence on science teachers' use of community resources for the improvement of science instruction. There is a consensus of opinion with the findings of Lagoke and Jegede (1986) who also found that there was no significant difference in the responses of the different subgroups according to sex, academic qualifications and type of school. In their submission, they were of the opinion that the attitude of science teachers was a greater force as far as undertaking fieldwork is concerned rather than factors of the three parameters mentioned earlier.

Furthermore, in the summary on the table variable by a divergent result was presented. There was significant difference in the responses of science teachers with different years of teaching experience. In this study, science teachers with more years of teaching experience were found to visit community resources than those with fewer years of teaching experience. This finding is however, not in agreement with Fido and Gayford (1982) who suggested that older, more experienced science teachers are found to be less likely to have undertaken more fieldwork than the less experienced science teachers. However, the teachers used in this study were relatively younger than those used in Fido's study.

**Implications of the Research Finding to Learning and Instruction in Science**

The research study revealed that there is the lack of use of community resources by science teachers; the researchers believe that if visits to such resources as mentioned in the study are incorporated into the school curriculum, both the learners and the teachers stand to benefit from the following advantages of visits to community resources.

1. Visits by teachers with their students to community resources would eliminate the boredom associated with the continuous confinement of science instruction to ill-equipped laboratories with limited space, which is not unconnected with the lack of interest and low enrolment of students in science subjects.
2. Students perceive science as difficult and uninteresting therefore 'shy' away from science subjects. Thus, out-of-classroom learning would be advantageous if undertaken often.
3. Considering the cognitive aspect of knowledge, the information obtained during visits to community resources of the type mentioned may be remembered for a long time (Gottfried, 1979).

This can be summed up thus:

"In fact, per unit time children may spend more time involved in learning activities on a fieldtrip and get more out of an informal learning experience than they do in a conventional school classroom."

(Falk, 1983.)

4. School children are greatly influenced by visits to community resources because they would be able to see the reality of what they learnt in the classroom especially in Ecology lessons. Such visits also would provide new experiences for them.
5. Excursions, fieldstrips and visits to community resources help to develop inquiry skills, such as observing, inferring, classifying, describing and recording which are considered indispensable skills in science. (Koran and Baker, 1979).
6. With regards to the affective domain of knowledge, visits and excursions to places have been found to provide a more relaxed and informal atmosphere for students' interaction. Also, it would improve the teacher and learner relationship.

Conclusion
Teaching styles may be major influencing factors in the achievement of educational aims. Hence, the teachers' perception of the curriculum developers' intentions and ability to shape instruction to facilitate the achievement of these goals should be considered very important. The teacher's perception of what is required if misconstrued can bring a major setback to any well-meaning educational programme such as the newly introduced 6-3-3-4 programme in Nigeria.

As a central figure therefore, the science teacher is responsible for seeking, finding, updating, presenting and evaluating relevant learning experience necessary for providing the stimulation required by the learner for the intended outcome (Muogilim 1982). In order to achieve this, a science teacher must be trained and competent to discern the role he is to play in making the content interesting, easy to grasp and internalised by the learner.

Above all, the science teachers should be able to utilise all the resources available both within the formal school setting and the community at large to make for effective science improvement in students' performance. This has become necessary for the successful implementation of the 6-3-3-4 educational programme now in progress in Nigeria.

References


Balling J.D. and Falk, J.H. (1979): The Effects of Environmental novelty and complexity on field trip learning and behaviour. A final report to National Science Foundation, SEID 77-18913.


