

**Institute for International Research**

1815 North Fort Myer Drive #600

Arlington, VA 22209 USA

Telephone: (703) 527-5546

Fax: (703) 527-4661

*In collaboration with Juárez and Associates, Inc. and the University of Pittsburgh*

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RESEARCH REPORTS ON AVAILABILITY &  
UTILIZATION OF MATERIALS IN  
THE CENTRAL REGION OF GHANA:  
Phase 1 Study

University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana  
IEQ Occasional Paper #1

June 1993

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The views expressed in this document are those of the Improving Educational Quality Project and do not necessarily reflect those of the United States Agency for International Development.

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**RESEARCH REPORT ON AVAILABILITY  
& UTILIZATION OF MATERIALS  
AT ATWEREBOANDA DC PRIMARY SCHOOL**

**University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana**

**By**

**Henry F. Akplu  
S.K.E. Mensah  
Dwame Akyeampong  
Anthony Mensah**

**June 1993**

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## 1.0 INTRODUCTION

The United Nations Declaration of Human Rights (Art. 26, 1948) states that "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory". In response to this article, Ghana, through her Accelerated Development Plan of 1951, sought to give access, in the shortest time possible, to six years of primary education for all Ghanaian children. "But access does not guarantee quality" (Adams, D. 1993, p.1). Quality depends on other educational inputs such as instructional materials and effective instructional techniques. Forty years after the Declaration of Human Rights Article 26, a World Bank Study (1988) lamented "the stagnation of enrollments and erosion of quality" of primary schools in sub-saharan countries. Ghanaian educational researchers (Yakubu, 1991) confirm the observations of this report, especially the erosion of quality in the 3Rs (Reading, Writing and Arithmetic) of Ghanaian children.

The notion of educational quality is dynamic. In Ghana, educational quality is construed to be linked with the ability of our children "to live a better life, to read the signs on the road; to go to the bank and sign their names; to be useful in the community; to be able to read a pamphlet that provides nutritional information; to know that it is critical to boil water before drinking and to write their names and vote" (Ibid). It is this notion of educational quality which underscores the current educational reforms in Ghana.

However, the Ghanaian researchers who carried out this preliminary investigation see themselves as being privileged to contribute to building the knowledge base that will serve as a spring board for reaching the goal of quality education for all by the year 2000 AD as set by the Jomtien Meeting of 1990.

## 2.0 THE PURPOSE OF THE STUDY

The purpose of the study was to carry out preliminary investigations in six selected schools in the Central Region of Ghana to find out what goes on in them with respect to the ongoing educational reforms in Ghana and to write their descriptive profiles in such a way that issues can be identified for further action and study.

## 3.0 FOCUS OF THE STUDY

The focus of the study was to observe the teaching of English, Mathematics and Science with respect to the availability and the use of materials in primary classes 1-6; specifically seeking answers to the following questions:

- i) What materials are available for the teaching of English, Mathematics and Science?
- ii) What is the source of these materials?
- iii) How are these materials used by teachers and pupils?
- iv) What are the implications of these findings on learning and teaching in the classroom?

## 4.0 RESEARCH METHODOLOGY

The study was carried out in the Central Region of Ghana in six of the twelve Educational Districts. Six schools, comprising of one from each District, were selected. Four of them were rural while two were urban.

With information from the Ministry of Education, the following criteria were formulated and used for the selection of the schools:

- (a) Population of the school -- small, medium or large

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- (b) Rural/Urban Location
  - (c) Management -- Church or District
  - (d) Geographical Location
  - (e) Equity Scheme School
  - (f) Educational District

The schools were:

1. AME Zion Primary School, Cape Coast, an urban school with a population of 240 pupils managed by the AME Zion Church.
2. Swedru ADC Primary School, Agona Swedru, an urban school with a population of 438 pupils, managed by the District Council.
3. Moree Methodist Primary School, Abura-Asebu District, a rural school with a population of 331 pupils managed by the Methodist Church.
4. Babinso DC Primary School, Ajumako-Enyan District, a rural school with a population of 93 pupils managed by the District Council.
5. Atwereboanda DC Primary School, Twifu-Heman, Lower Denkyira District, a rural school with a population of 145 pupils and managed by the District Council. The only school in the "Equity Scheme" of PREP.
6. Brofoyedur Roman Catholic Primary School, Gomoa District, a rural school with a population of 211 pupils managed by the Catholic Church.

After considering the objectives of the study and discussing these in light of the literature, the qualitative method was agreed upon as the most appropriate. The following were specifically used:

- i. The ethnographic, narrative or descriptive approach to classroom observation.
- ii. A semi-structured short check list on the inventory and use of materials in the classroom.
- iii. Open-ended interviews of pupils, parents, teachers and other members of the community who are connected with the school.

The researchers were organized into six teams of four members. Each team was assigned to a school. Three sets of visits were made as follows:

- i. A three day "Initial Visit" by Research Team Leaders to locate and introduce themselves to their schools.
- ii. A three day "Exploratory Visit" by each team to their school to familiarize themselves with the school.
- iii. A twelve day "Classroom Observation" to investigate what went on inside the classroom. This was the core of the investigation.

Each team observed three classrooms:

- i. Three teams observed primary classes 1, 3 and 5; and
- ii. Three teams observed primary classes 2, 4 and 6.

Two researchers observed a class at a time:

- i. Each class was observed 4 times for 4 hours at a time (16 hrs);
- ii. A total of 48 hours were spent in observing each set of 3 classes.

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A one-day seminar was organized to test and discuss the observation schedule before the 12-day classroom observation. At the end of the classroom observation, a five-day seminar was held to discuss the findings of the groups prior to the final writing of the reports.

## 5.0 GENERAL PROFILE OF THE SIX SCHOOLS

### 5.1 Physical Features/Infrastructure

#### (i) Classroom Buildings

All the schools had a classroom block built since the foundation of the school. After more than thirty years, the populations of the schools have outgrown the rooms of the main buildings. This has led to some schools putting up extra structures such as wooden or mud buildings with thatched roofs.

None of the permanent buildings of the schools have been renovated for a very long time. The plastering on the walls is peeling off, and the paint has been defaced or become dirty. Invariably, the classroom walls are devoid of educational materials such as pictures, charts, etc. Unlike the urban schools, most of the rural schools' classrooms do not have door frames while the rooms have no ceilings and the roofs leak.

#### (ii) Environment

All the schools have compounds which include sports/games grounds.

#### (iii) Canteen/Catering Facilities

None of the schools has a purposely built canteen. Food is sold to pupils under trees, in the open, or under sheds.

#### (iv) Water

Only the two urban schools and one rural school have standing taps within the school compound. Water is fetched from taps in the village and brought to the schools. In one school, the water is fetched from a stream in the village. Drinking water is stored in earthenware or plastic containers in some of the schools.

#### (v) Sanitation

Most schools have built separate urinals for males and females, but some are in a bad state.

**Toilets:** None of the schools has a toilet on the school compound.

**Waste Disposal Facilities:** In most schools, garbage is dumped near the school and possibly cleared periodically. No school observed had a purposely built waste disposal system such as a dust bin or incinerator.

#### (vi) Dispensary/First Aid Facilities

In two schools, First Aid Kits were present but did not contain supplies. A rural school had medicine for emergencies. Most of the schools had water basins for pupils and teachers to wash their hands.

#### (vii) Furniture

With the exception of one urban school, the supply of pupils' and teachers' tables and chairs was adequate. In one rural school, pupils took their tables and chairs home and brought them back everyday. Most of the classrooms have no door frames, and the school runs a shift. Parents, through the PTA, help acquire the tables and chairs for their children. The only school under the PREP "Equity Scheme" has been provided with tables and chairs. Cupboards and shelves exist in all the schools for the storage of books. In most of the schools they are not in good condition and the supply is inadequate. In one school, all the cupboards from the various classrooms were stored in one classroom because that was the only classroom with doors and locks.

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## 5.2 Population of the School

### (i) Population of Pupils

The AME Zion Primary School, Cape Coast, was founded in 1958 and has a population of 240 pupils comprising of 133 boys and 107 girls. The boy:girl ratio is approximately 1:0.8.

Swedru DC Primary C, Agona Swedru, was founded in 1961 and has a population of 438 pupils comprising of 241 boys and 197 girls, having a boy:girl ratio of approximately 1:0.8.

Moree Methodist Primary School was founded in 1937 and has a population of 331 pupils comprising of 172 boys and 159 girls, giving a ratio of approximately 1:0.9.

Babinso DC Primary School was founded in 1967 and has a population of 93 pupils comprising of 48 boys and 45 girls with a ratio of approximately 1:0.9.

Brofoyedur Catholic Primary School was founded in 1944 and has a population of 211 pupils comprising of 112 boys and 99 girls, having a boy:girl ratio of approximately 1:0.9.

A total of 1,458 pupils were involved in the study. The boy:girl ratio overall was approximately 1:1.

### (ii) Population of Teachers

AME Zion Primary School is staffed with 7 teachers comprising of 5 female and 2 male teachers. The teacher/pupil ratio is 1:34.

Swedru ADC Primary C is staffed with 10 teachers comprising of 8 female and 2 male teachers with a teacher/pupil ratio of 1:44.

Moree Methodist Primary School has a staff of 7 teachers comprising of 4 female and 3 male teachers with a teacher/pupil ratio of 1:47.

Babinso DC Primary School has a staff of 5 teachers comprising of 3 females and 2 males with a teachers/pupil ratio of 1:19.

Atwereboanda DC Primary School is staffed with 6 teachers comprising of 3 female and 3 male teachers with a teacher/pupil ratio of 1:24.

Brofoyedur Catholic Primary School has a staff of 6 teachers comprising of 3 female and 3 male teachers and teacher/pupil ratio of 1:35.

There are more female teachers in the urban schools than in the rural schools. The ratio of male to female teachers in the six schools is approximately 1:2.

Of a total of 41 teachers involved in this study, three are untrained but have G.C.E. "O" level and "A" levels. The rest are certificate "A" teachers. There is one teacher who has a Diploma qualification.

Teaching experience ranges from 2 - 30 years with an average of 15 years.

## 5.3 School Organization

### (i) Time-Table

All the schools have a school Time-Table; there is a Time-Table for Lower Primary and another for Upper Primary.

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**(ii) Class Register**

All schools have class registers to record pupils' attendance class by class; however, some schools do not get their registers in time.

**(iii) Duty Roster**

This exists in most schools as it details the extracurricular responsibilities of the teachers.

**(iv) Continuous Assessment**

The Continuous Assessment Record Form is kept by all teachers to keep a record of a pupil's performance.

**(v) House System**

In most schools, the pupils are organized into Groups, Houses, or Sections. Each Group/House/Section is either given the names of the primary colours (red, yellow, green, or blue) or names of famous people (e.g. Nkrumah, Livingston, Marcus Gavey etc.). Each school has a School Prefect and Assistant School Prefects for Groups/Houses/Sections and so on.

## **6.0 AVAILABILITY OF INSTRUCTIONAL MATERIALS**

### **6.1 Materials Available for the Teaching of English Language**

All the Schools had English textbooks. However, in the urban schools, the supply was inadequate while the rural schools were adequately supplied. Supplementary readers were seen only in one rural school. Teachers' Guides to these textbooks were adequately supplied to half of the schools. In nearly every classroom observed, about five pupils did not have exercise books for seatwork and other exercises.

All schools had flash cards as they seemed to be supplied with the textbooks. However, teacher-made reading cards were seen in only a few schools. Wall pictures were not found in any school classroom. The chalkboard was the only resource always available. White chalk was in good supply, but the coloured chalk was not.

### **6.2 Materials Available for the Teaching of Mathematics**

All the schools had pupils' textbooks and workbooks. The supply was inadequate in the urban schools but sufficient in the rural schools. In one rural school, there was a supply of 30 books for 14 pupils. Teachers' Guides/Manuals were available for every teacher.

Exercise books were not adequately available. As with the English Language class, about five pupils were without exercise books in every Mathematics class. Roughly the same number of pupils did not have pens and pencils in each class. In one school, slates were used in a primary one class. Chalkboard-set squares, rulers and protractors were available in all the schools. They seemed to be supplied by the Ghana Education Service (GES). Teacher-made charts and other aids were not observed.

### **6.3 Materials Available for the Teaching of Science**

All the schools had Science textbooks. The supply was inadequate in the urban schools but adequate in rural schools. All the schools had Teachers' Guides available for every teacher. The availability of exercise books during Science lessons was fairly better than it was in English and Mathematics lessons. A few pupils were still without exercise books. An average of five pupils did not have pens and pencils. No Science equipment was seen in any of the six primary schools. Teaching aids such as charts, pictures and tables were not seen.

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## 7.0 SOURCES OF INSTRUCTIONAL MATERIALS

All the pupils' textbooks and teachers' guides are supplied by the government. Some of the teaching aids (chalkboard, rulers, chalk, coloured pencils) and a small quantity of exercise books are supplied by the government.

Parents are largely responsible for providing their children with exercise books, pens, pencils and erasers.

The school provides funds for the purchase of consumable items or "ad hoc" materials such as candles, kerosene, charcoal, matches, etc. The school is given a grant every year for such expenses, but this is highly inadequate.

## 8.0 THE USE OF INSTRUCTIONAL MATERIALS

### 8.1 For the Teaching of English Language

The chalkboard was the most frequently and intensely used instructional aid. In most classrooms, passages and key words from the textbooks were written on the chalkboard by the teacher and the pupils were instructed to recite them. Very few teachers encouraged their pupils to read their textbooks directly, either aloud or silently.

In almost all English lessons, exercises from the textbook were written on the chalkboard for the pupils to complete in their exercise books even though they could have used their textbooks.

The teacher was the primary user of the chalkboard but in a few schools, pupils also used it for exercises.

Flash cards were used in a few classrooms.

In all English lessons, some pupils did not have pens or pencils to do their seatwork with and had to go borrow them from their friends in other classrooms.

### 8.2 For the Teaching of Mathematics

In Mathematics lessons, the chalkboard and chalk were the most frequently and intensely used instructional aids in all the schools. Examples and exercises from the textbooks/workbooks were copied onto the chalkboard. Teachers were not seen using their manuals or guides openly. In one school, a teacher gave homework to the pupils from their textbooks. Pupils did their class exercises in their exercise books. The pupils' textbooks and workbooks were scarcely used directly by the pupils. In a few schools, pupils used the chalkboards to complete examples. Class exercises were corrected by the teacher in class while the lesson was in progress.

Chalkboards, rulers, set squares, and protractors were used occasionally where they were available.

"Ad hoc" or improvised materials such as bottle tops, pebbles, oranges, coins, etc. were frequently used as counters.

All Mathematics classes were characterized by a few pupils who did not have pens or pencils to write with and had to go borrow from their friends in other classrooms. Some would wait for their friends to complete their work before lending them their pens.

### 8.3 For the Teaching of Science

Science was not taught regularly even in the few schools in which it was observed being taught. The chalkboard and chalk were used but not as frequently and intensely as they were used in English and

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Mathematics lessons. The Science textbooks were seldom used. Whenever the pupils were referred to their textbooks they were asked to look at the pictures in them. Expression work was done by pupils in their exercise books. This consisted mainly of drawings of diagrams of some of the materials used.

In the few Science lessons observed, improvised materials, as well as "ad hoc" materials (coalpot, empty food cans, etc.) were used. The Teachers' Guide or Manual was rarely used. A few key words from the pupils' textbooks were copied on the chalkboard for pupils to copy into their exercise books.

## **9.0 OTHER FINDINGS**

### **9.1 Time-Table**

The school time-table was generally not followed closely. The consequence was that some subjects such as Science, Agriculture, Physical Education, Music and Life Skills were neglected. One of the Research Teams called these neglected subjects "Deprived" or "Endangered" Subjects. Of the subjects on the time-table, only Mathematics and English were consistently taught during the whole school day of four hours. Classes did not start on time in any of the six schools observed.

### **9.2 Attendance**

Pupils' attendance at school was generally irregular. It was more irregular for boys than for girls. The reasons given for irregular attendance included the following: residing a long distance from school, the inability to pay school fees, working for their parents, ill health, etc.

A few teachers demonstrated irregular attendance patterns as well. With regard to irregular attendance, pupils demonstrated worse habits.

### **9.3 Use of the Local Language**

Officially, the local language should be used as the medium of instruction in Primary classes 1, 2, and 3, and English should be used in Classes 4, 5 and 6. It was observed that the local language (Fanti) was used in all the classes for instruction. The pupils in classes 4, 5 and 6 could not express themselves orally or in writing. The teachers used the local language most of the time while at other times used a combination of English and Fanti. One of the reasons why the lessons were teacher-dominated is because the pupils are unable to communicate with him. During a Ghanaian Language lesson, the pupils became more lively because they could communicate with the teacher.

### **9.4 Pupil-Teacher Interaction**

In general, pupils did not ask questions. Whenever they answered the teachers' questions, they did so in chorus. All the teachers asked questions, but these required "yes" or "no" answers most of the time. The teachers asked pupils to repeat the correct answers in chorus.

Group activity among the pupils was rare; the pupils interacted with each other only when they were idle. They borrowed pens and pencils from each other, asked one another for explanations, and shared or distributed books. Teachers went around the room during class or seatwork to give individual attention to those pupils who needed it.

### **9.5 Coverage of Work**

It was generally observed that less than half of the term's specified work was actually completed. The first term's work was carried over to the second term; thus, progress was very slow.

### **9.6 Homework**

Pupils were generally not given homework. In two rural schools, however, two teachers gave homework in which pupils were asked to gather information from their parents and were given a reading assignment.

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### **9.7 Interruptions in School Programmes**

Sporting and cultural festivals, which are organized annually in every district, interrupt school work. These festivals normally last one or two weeks while the preparations themselves for the inter-school competitions interrupt schoolwork as well.

### **9.8 Teachers' Knowledge Base**

The knowledge base of the teachers was observed to be very low. The in-service training courses some of the teachers have attended have been on pedagogy rather than content. It is likely that teachers shy away from certain subjects because they do not have the knowledge base to teach them. Some of the subjects were created by the educational reform, and most of the primary school teachers did not learn them while they were at college. Examples of such subjects include Life Skills and Cultural Studies.

## **10.0 ISSUES ARISING FROM THE INVESTIGATIONS**

### **10.1 Textbooks**

Pupils' textbooks and teachers' guides for English, Mathematics and Science are in short supply. The GES supplies these books, but they do not arrive at the schools in time; a faster distribution system is needed. Some schools are over stocked with textbooks while others have an insufficient supply. There is a need to study the statistics of schools and supply.

### **10.2 Exercise Books**

In almost every class there were pupils without exercise books. Parents and guardians have the responsibility to provide these to their children.

### **10.3 Pens and Pencils**

In almost every class, as in the case of exercise books, there are pupils without pens, pencils and erasers. Parents and guardians again need to realize that this is their responsibility.

### **10.4 Teaching Aids**

Teaching aids are crucial in enhancing learning, and yet they are almost non-existent in all the schools observed. Teachers need training and funds to produce their own charts, models and so on. Wall pictures may be supplied by the GES, an industry/printing house or a funding agency. Teachers need to be encouraged to collect and improvise teaching materials.

### **10.5 The Chalkboard**

Teachers overuse the chalkboard in all their lessons because they lack the pedagogic skills to use textbooks in teaching. There is a dire need to organize in-service workshops to update the skills of practicing teachers. Teacher trainers need to emphasize the use of textbooks in teaching their students.

### **10.6 The Time Table**

The time table is a guide to the organization of the educational process, yet it is not followed by the teachers. This may be the result of a lack of supervision by the headteachers. The consequence is that some subjects are neglected (eg. Cultural Studies, Social Studies, P.E., Science, etc). The objectives of the primary education programme, as stated in the New Structure and Context of Education for Ghana (1974), cannot be achieved, and Ghana will not have the hope of seeing progress.

### **10.7 Coverage of the Content**

The subject content is invariably not covered. This is crucial as the knowledge acquired in one class should form the base or spring board for acquisition of knowledge in the next higher class. If the pupils do not perform well as they climb the academic ladder, this may result from a lack of the basic knowledge required for their grade level. The problem can be resolved by in-service training.

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### **10.8 Attendance**

Attendance by pupils is very irregular. The P.T.A. should be encouraged to seriously tackle this issue as parents may partly be responsible for the absenteeism or tardiness to school.

### **10.9 Interruptions of the School Programme**

The interruption of the school programme by sporting and cultural festivals contributes to the inability of teachers to complete their work. The District Director of Education, the Headteachers and organizers of these activities should reconsider the organization of their activities without jeopardizing the pupils' classwork. Coordination is needed.

### **10.10 Pupil-Teacher Interaction**

Pupil/teacher interaction during the learning/teaching process is one-sided. The teacher does the majority of the talking. In-service training in pedagogy is crucial to promoting more equal interaction.

### **10.11 The Teacher's Knowledge-Base**

The teachers' knowledge base in English, Mathematics and Science is very limited. An in-service training course is needed to update them. Teacher confidence needs to be enhanced.

### **10.12 Language in Ghanaian Primary Schools**

The pupils cannot speak English. Communication between pupils and teachers was almost non-existent, and yet without this, the learning process cannot take place. Ghanaian teachers do not encourage pupils to express themselves in English but rather allow them to resort to the local language. Again, in-service training is needed.

### **10.13 Homework**

Teachers do not give pupils homework; they need to understand its importance to the pupils. The pupils must be taught from the beginning how to look for information and to associate what they learn in class with everyday life.

### **10.14 Physical Characteristics of the Schools**

Most of the classrooms observed are very old and in poor condition. There is a need for repair and renovation. A healthy and safe accommodation is crucial for learning and teaching in the primary school.

### **10.15 Health and Sanitation**

None of the schools observed has a purposefully built canteen and garbage disposal system, dispensary, or first aid facility. These facilities are very important for improving the quality of education.

## **11.0 RECOMMENDATIONS**

### **11.1 Research**

Detailed research needs to be done to identify and test effective strategies for textbook use in the learning and teaching process. Research can generate a better knowledge base for the application of solutions to some of the issues listed above.

### **11.2 Workshops**

Regular workshops should be organized for teachers which address the issues of pedagogical techniques, preparation of teaching aids, language, homework, coverage of programmes, time tables, etc.

### **11.3 The PTA**

PTAs need to become more aware of their role in the educational process.

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#### **11.4 Policy for Supply of Educational Materials**

An effective policy needs to be formulated by the GES for the supply of books and other materials to schools; the organization of sporting and other festivities, and the supervision of teachers by headteachers, etc.

#### **11.5 Teacher Trainers and Curriculum Workers**

Teacher trainers and curriculum workers need to interact more frequently with primary schools. Workshops should be organized regularly to bring primary school teachers, teacher trainers and education officers together to discuss some of these problems.

#### **11.6 Involvement of the District Assemblies**

In the educational reform programme, the local community, through the District Assembly, should be responsible for the physical structures of the schools in their District. There is the need for District Policies to be formulated to improve the conditions of the dilapidated classrooms.

#### **11.7 Funding**

Funding is needed for these recommendations to be realized. The GES may not be in the position to bear all the costs. National Agencies, such as industries, publishing houses and international funding agencies, need to be approached and persuaded to support some or all of the recommendations stated above.

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**EXECUTIVE SUMMARY OF RESEARCH ON  
THE AVAILABILITY, SOURCE &  
UTILIZATION OF MATERIALS  
IN SIX PRIMARY SCHOOLS IN GHANA**

**University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana**

**By**

**Dr. J.M. Yakubu**

**June 1993**

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## FOREWORD

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The Second Annual Conference on Primary School Education in Ghana marks a special day for the Centre for Research on Improving Quality of Primary Education in Ghana (CRIQPEG) at the University of Cape Coast (UCC). CRIQPEG welcomes colleagues from national, regional and local segments of the educational system to learn about their continuing efforts to alter classroom conditions that improve pupil learning.

An insightful contribution to the Conference dialogue is a presentation of CRIQPEG's recently completed Phase I study in the Central Region. This study examined the availability, source, and use of instructional materials in English, Mathematics, and Science in 18 classrooms in six primary schools. This document is a product of that research: It assembles reports of the six school sites plus an Executive Summary.

The decision to focus the Phase I study on the availability and use of instructional materials stems from the Government of Ghana's initiative, in conjunction with USAID/Ghana and the Primary Reform Education Program (PREP), to provide textbooks and other instructional resources to primary school children. One of the PREP goals is to increase the number of Ghanaian children who have access to textbooks and instructional materials from an estimated 5-10% in 1989 to 90% by July 1995. The findings from IEQ's study on issues related to how and why particular materials are used suggest future directions for CRIQPEG.

The four overall goals of IEQ are to:

1. Understand how and why each country's classroom-based interventions influence pupil performance.
2. Demonstrate a process whereby classroom research on improving educational quality is utilized by the educational system.
3. Create opportunities for dialogue and partnerships among researchers and educators who are seeking to improve educational quality at local, regional, national, and international levels.
4. Maintain an ongoing history of the project to document the rationales for choices made, opportunities and constraints encountered, and lessons learned.

I am particularly grateful to Dr. Habib Khan, HRDO/USAID/Ghana, for recognizing the complementarity between IEQ and PREP, launching IEQ in Ghana, and introducing IEQ to our partners at UCC. This continuing support enables close cooperation and collaboration among educators who are committed to improving primary school education in Ghana.

The publication of this IEQ report reflects the combined effort of six CRIQPEG Team Leaders, Dr. Beatrice A. Okyere, Mr. Henry F. Akplu, Mr. Joseph M. Dzinyela, Mr. Francis K.

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Amedahe, Mr. H.O. Quist, and Mr. J.A. Frimpong, their team colleagues, and Dr. J.M. Yakubu, the Coordinator of CRIQPEG. These individuals conducted this study and produced this report with wisdom, dedication, and perseverance that continues to inspire us all. I am honored to work with them. I join with the entire CRIQPEG team in inviting you to participate in the dialogue on educational quality.



Jane G. Schubert  
Director  
*Improving Educational Quality Project*

October 1993



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## INTRODUCTION

Since 1987, Ghana has been pursuing educational reform in relation to the structure and content of her educational system. The major aim of restructuring the educational system is to make education cost-effective as well as produce graduates who can easily fit into the work force.

In connection with the reforms, several projects are being carried out by the Ministry of Education in collaboration with various international agencies to ensure the success of the reforms. Some of the agencies include: UNICEF, PREP, ODA, and JUSSTEP. However, complete success of the reform will depend to a large extent on the availability of up-to-date information on the situation through research. Thus, a number of research activities on different aspects of the reform are in progress. One such activity is the Improving Educational Quality Project being carried out jointly in Ghana by the Institute of International Research and the University of Cape Coast.

As a preliminary study, a sample of six primary schools in the Central Region of Ghana was selected and observed to find out what goes on in these classrooms in relation to teaching and learning, especially in connection with the availability of instructional resources and the sources from which they were obtained, and finally, their use by both teachers and pupils in the classrooms. One of the six schools upon which this research report is based was a coastal, urban primary school in the Central Region of Ghana, the AME Zion Primary School.

## PROFILE OF THE SCHOOL

The school was established in 1958 and is in the form of an L-shaped block situated on a hill. It has six standard classrooms which accommodate both the Primary and Junior Secondary schools. The primary school uses three of the classrooms for P1, P5 and P6. An originally open shed has been partitioned and converted into two classrooms to accommodate P2 and P3. P4 uses the basement which was originally used as a workshop. The walls of the building are plastered and painted, though the painting has faded. The roofs and ceilings leak when it rains. The school compound and the classrooms are relatively neat most of the time. However, there are no bulletin boards in the classrooms and no learning or teaching aids in the form of charts, pictures, diagrams etc.

### Other Facilities

The school has a playground but has no toilet, canteen or library facilities. The school has a first aid box but it is empty. There are no drugs or first aid materials to cater to minor accidents or emergencies.

### School Furniture

For the pupils, a total of 76 out of 240 do not have chairs and tables and therefore have to share with their friends. All seven teachers have tables in their classrooms but only four of them have chairs. For storage of instructional materials, the whole school has two cupboards but no file cabinet. As a result, textbooks and other materials were stored in boxes.

### Staffing

There are seven teachers including the headteacher who is detached. He is the headteacher for two streams B and C using the school buildings. Apart from the Headteacher there is an assistant headteacher. Each of the teachers has a special duty assigned to him or her; for example, grounds and gardens overseer, cultural organizer, etc. There are five female teachers and two male teachers including the headteacher.

**TABLE 1**  
**Background Variables of Teachers**

Status	Rank	Qualif.	Years Teaching	Years Present Status	Number of Inset Att.	Sex
P1 Teacher	Senior Supern	Cert A 4 Years	20	5	6	Female
P3 Teacher	Senior Supern	Cert A 4 Years	17	4	3	Female
P5 Teacher	Supern	Cert A Post B	25	6	5	Male
Head Teacher	Princ. Supern	Cert A Post Sec	22	13	15	Male

All the teachers have the same basic teaching certificate. Teaching experience ranges from 17 years to 25 years with a mean of 22 years. The teachers have been teaching in their present classes for at least 4 years and have attended at least three INSET workshops related to their teaching.

#### **Student Population**

The student population of the school is 240. There are 133 boys and 107 girls. The age range of the students is between six and fourteen. According to the headteacher, the general attitude of the pupils towards school is very positive, and this has been greatly enhanced by the continuous assessment because the students generally deem tests as important and they like taking them. School absences are mainly due to the inability to pay school fees.

#### **School-Community Relations**

The school has a strong Parent-Teacher Association which meets regularly to consider the needs and progress of the school. The PTA provides a lot of input to meet some of the needs of the school; for example, the Association is responsible for the repairs and maintenance of the school.

Even though the school is a mission school, the church's involvement in the running of the school is very minimal. The only interaction the school has with the church is during Children's Day and Children's Harvest organized by the church. The proceeds from these two events are donated to the school.

There is not much interaction between the District Assembly/Council and the school, and the needs of the school are not regularly catered to by the council. The only provision the District Council has made to the school since 1989 is fifteen bags of cement.

#### **PURPOSE OF THE STUDY**

The purpose of the study was to find out what goes on in the classrooms in relation to: teaching and learning, especially in connection with the availability of instructional materials; the sources from which they were obtained; and finally, their use by both teachers and pupils in the classrooms. This led to the following questions: what materials are available for English, Mathematics, and Science?; what are the sources of these materials?; and finally, how are they used in the teaching of the three subjects?

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## METHODOLOGY

The questions posed in the study demand an in-depth understanding of the transactions in the primary classroom. As such, the case study approach which involves the collection of qualitative information was used. Observation was the main technique used for data collection and this was supplemented by formal and informal interviews and written documents such as the syllabus, textbooks and time-tables. The narrative style was used to record the information gathered during the observations and interviews.

### Interviews

Both formal and informal interviews were conducted to verify assertions made during the observations. An instrument in the form of an interview guide was prepared separately for teachers, pupils, parents, and the Headteacher. The major items in the interview guide for the teachers included background and general professional experience and classroom experience. For the pupils, the major items included views about school, learning, and their class and teacher. The major items for the parents included their views about the school and the teachers, and their wards. For the Headteacher, the major items included general teaching and administrative experience and views about the teachers and the PTA.

**TABLE 2**  
**The Status and Number of Individuals Selected & Interviewed**

Status	Number Selected	Number Interviewed
Teachers	3	3
Pupils	30	29
Headteacher	1	1
Parents	30	10
<b>Total</b>	<b>64</b>	<b>43</b>

### Use of Video, Audio Tape, and Cameras

To supplement the data recording exercise, a sample of the classroom observations and the interviews were videotaped and audiotaped respectively. In addition, snapshots were taken of the school buildings, and the pupils observed in the classrooms.

### Observations

The observations were carried out in three classrooms, P1, P3 and P5. Each of the classrooms was observed at least 8 times during the five weeks of the data collection. Two of the four researchers in the team paired on each occasion to observe a lesson. This was to ensure reliability of the data that would be collected. After each observation informal discussions were held with the teachers to clarify among other things aspects of the presentations that were unclear. Then, the two researchers discussed what was recorded during the lessons to ensure consistency in the data collected.

The team observed all the subjects on the time table that were taught by the teachers even though the main focus was on English, Mathematics and Science. This was not made known to the teachers as part of the procedure in order to minimize as much as possible the artificial behaviors that were likely to be displayed. All the data gathered during the five weeks was brought together, analyzed and discussed.

### Analysis of the Data

The analysis of the data was based on the three main questions posed in the study. The constant

comparison method (Glasser & Strauss, 1967 and Strauss 1980) was used for the data analysis. The process involves the identification and isolation of initial patterns or issues in the data that relate to the research questions. This is followed by a process of adding, deleting or modifying issues or patterns as warranted by other data; interpreting both pattern-validating incidents and discrepant ones; and continuing to sample and organize data until a core group of well supported patterns emerge. Therefore, the narratives were examined to identify for each teacher, each subject the assertions and issues in the teachers' behavior related to the three main questions.

## FINDINGS

### Number of Lessons Observed

Table 3 shows the number of lessons observed for each class and subject.

**TABLE 3**  
**Number of Lessons Observed for Each Class & Subject**

Class	Subject	# Lessons Observed	# Lessons T-Tabled Visits	Class Size	# Males in Class	# Females in Class
P1	English	9	12*	25	14	11
	Math	9	12*	25	14	11
	Science	2	7*	25	14	11
P3	English	8	9	38	25	13
	Math	8	11	38	25	13
	Science	2	7	38	25	13
P5	English	7	10	45	19	26
	Math	7	10	45	19	26
	Science	1	7	45	19	26

\* Double periods were counted as two lessons.

P1 English and Mathematics were observed nine times each, but Science was observed two times. English and Math had been time-tabled to be taught twelve times each while Science was to be taught seven times during the data collection period. In P3, English and Math were observed 8 times each; they had been time-tabled to be taught 9 and 11 times, respectively. However, Science was observed 2 times; it had been time-tabled to be taught 7 times. In P5, English and Math were observed 7 times each; They had been time-tabled to be taught 10 times each. Science was observed only once even though it had been time-tabled to be taught 7 times. On three occasions when Science was to be taught in P5, the teacher taught Fante and Life Skills instead.

### Materials Available in Classes Observed

Tables 4.1-4.3 show the description of materials available in classes for each of the three subjects observed. All the three subject have basic textbooks with teachers' handbooks provided by the Government. In addition to the supply of textbooks by the Government, some parents have purchased books in English and Mathematics for their wards. For example, in P5, the Government supplied 8

textbooks English while the remaining 10 were supplied by some parents for their wards.

The mean ratio of books to pupils in all the subjects and classes except Ghana Science Series Pupils Book 3 is approximately 1:2. The ratio for the Science series was 1:19. However, on record, the number of various books supplied by the headteacher were higher than those provided by the teachers. For example, the P3 teacher indicated there were only two copies of the Ghana Science Series Book 3. Cross-checking with the headteacher, records showed that 34 copies of the book had been supplied to the teacher.

Apart from the textbooks, there were exercise books for English and Science in all the classes. For Mathematics, the pupils had one exercise book each for mental drill and mathematics assignments in all three classes. However, not all the pupils had exercise books. The chalkboard and chalk were also available in each classroom. Once in a while the teachers used local materials such as bottle tops, sticks and empty math boxes, etc., as teaching aids for Mathematics and Science.

**TABLE 4.1**  
Materials Available in Primary One

Subject	Desc. of Material	Source	No. of Copies	No. of Pupils	Ratio: Bks/Pp	# Bks Sup by HeadT
English	Eng for Pry Sch: Pp Bk 1	Govt.	30	25	1:83	28
English	Eng for Pry Sch: Tr Hbk	Govt.	1			
Math	Ghana Math Series: Pp Bk 1	Govt.	20	25	1:1.25	53
Math	Ghana Math Series: Tr Hbk	Govt.	1			
Science	Ghana Science Ser:Pp Bk 1	Govt.	23	25	1:1.1	26

**TABLE 4.2**  
**Materials Available in Primary Three**

Subject	Desc. of Material	Source	No. of Copies	No. of Pupils	Ratio: Bks/Pp	# Bks Sup by HeadT
English	Eng for Pry Sch: Pp Bk 3	Govt.	12	38	1:3.2	37
English	Eng for Pry Sch: Tr Hbk	Govt.	1			
Math	Ghana Math Series: Pp Bk 3	Govt.	14	38	1:2.8	25
Math	Ghana Math Series: Tr Hbk 3	Govt.	1			
Science	Ghana Science Ser: Pp Bk 3	Govt.	2	38	1:19	34
Science	Ghana Science Ser: Tr Hbk 3	Govt.				

**TABLE 4.3**  
**Materials Available in Primary Five**

Subject	Desc. of Material	Source	No. of Copies	No. of Pupils	Ratio: Bks/Pp	# Bks Sup by HeadT
English	Eng for Pry Sch: Pp Bk 5	Govt./ Parent	8/10	45	1:2.5	35
English	Eng for Pry Sch: Tr Hbk	Govt.	1			
English	English Grammar & Comp	Parent	22	45	1:2.0	
Math	Ghana Math Series: Pp Bk 5	Govt.	28	45	1:1.6	40
Math	Ghana Math Series: Tr Hbk 5	Govt.	1			
Science	Ghana Science Ser: Pp Bk 5	Govt.	15	45	1:30	18
Science	Ghana Science Ser: Tr Hbk 5	Govt.	1			

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## The Use of Materials

### Primary One

**English:** In P1, nine lessons in English were observed. Out of the nine lessons, the English textbook was used 44% of the time (4 out of 9). The teacher either referred the pupils to a page and asked them to read silently or copied exercises from the textbook on to the chalkboard for students to do as an assignment.

The materials consistently used during the nine lessons were the chalkboard and the chalk. The chalkboard was used mainly for illustration purposes, for example, identification and pronunciation of key words and sentences. The teacher also used flashcards during two of the lessons, and a chart on one occasion.

The pupils on the other hand used exercise books for class exercises and assignments when asked to do so, even though not all of them did. Some stared at the pages while others conversed with their friends. The material most frequently used by pupils was the exercise books in which they completed assignments.

**Mathematics:** Nine Mathematics lessons were observed in P1 during the period of data collection. The teacher made use of the math textbook 44% of the time, that is, 4 out of 9 lessons observed. She mainly copied problems from the textbook onto the chalkboard. The pupils did not have access to the textbooks even though there were 20 copies available according to the class teacher. However, the pupils made use of their exercise books in completing their math assignment. They used bottle tops, small sticks and pebbles as counters.

**Science:** According to the official time table, elementary Science was allocated 3 periods in a week spread over two days. However, Science was taught two times during the five weeks of observation. The teacher used mainly local materials in teaching the two topics "uses of water" and "types of soil" even though she used the textbook during one of the lessons. She asked the pupils to open to page 15 and led them to describe the pictures on that page. The teaching materials she used were two jars, a plastic cup, sea water, tap water, and well water, black soil, clayey soil and soil mixed with sawdust.

### Primary Three

**English:** Eight English lessons were observed in P3. The teacher used the textbooks 20% of the time (2 out of 8). The main materials used by the teacher were the chalkboard and the chalk. During the times she used the textbook, she just copied passages and assignments from it onto the chalkboard for pupils to read and complete in their exercise books.

**Mathematics:** In Mathematics, 8 lessons were observed and during six out of the eight lessons, the teacher used the Math textbook. She either copied examples of problems from it onto the board or gave assignments from the text (two times). However, not all the pupils had access to the textbook. The ratio was 1:2.8. Other materials the teacher used were pieces of paper, and an orange which she used to teach fractions. The pupils, on the other hand, completed the assignments in their exercise books and used the textbook when they referred to it.

**Science:** Two Science lessons were taught during the visits; no textbooks were used. However, for one of the lessons, the teacher used local materials as samples for the topic that was being taught. For the first lesson on solid, liquids and gas, the teacher brought a cup of water, ice blocks and then boiled the water to obtain the vapor. During the second lesson the teacher taught "reproduction in animals"

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and she did not use any materials. For both lessons the children were asked to draw some of the items the teacher talked about in their exercise books.

The teacher did not use the textbook because she indicated there were only two copies. It was later discovered on record that 34 Science textbooks had been issued to her.

### **Primary Five**

**English:** In P5 English, seven lessons were observed during the period of data collection. The teacher made use of the English textbook during five out of the seven lessons. He either directed the pupils to read passages silently from the textbook or wrote questions from the textbook on to the chalkboard for the students to answer in their exercise books. Not all the pupils read the passages when asked to because some did not have access to a textbook. The ratio of books to pupils was 1:4.

**Mathematics:** Mathematics was observed 7 times, and in 2 out of the 7 lessons (28.55%) the teacher used the textbook by assigning problems from it to the pupils or copied exercises from the text on the board for pupils. Materials used consistently by the teacher were chalk and the chalkboard. Pupils consistently used their exercise books and pens or pencils.

**Science:** Science was taught only once during the eight visits made by the observers. On two occasions when science was to be taught the teacher taught Fante instead. For the one lesson, the teacher taught "sound". Materials used for the lesson were a whistle and a drum. the teacher blew the whistle to make a sound at the beginning of the. After a brief discussion on sources of sound the teacher asked one of the pupils, apparently a drummer, to beat the drum and the others danced to the tune. This went on for some 20 minutes. Finally, the teacher asked the students to draw any 2 things that make sound in their exercise books. No textbook was used or referred to during the lesson.

### **CONCLUSION**

From the data collected, one can conclude that there are basic textbooks available in English, Math, and Science even though the ratio of books to pupils has not yet reached 1:1. However, these available are not being used efficiently. The average percentage use of textbooks by all three teachers was 36.5%. Of the three subjects, the textbooks were least used in Science where the average percent use was 16.6%. The percent use of textbooks in English and Mathematics was almost the same.

Of the three classrooms, the textbooks were least used in P3 (31%). Almost all the required textbooks used for the three subjects (English, Mathematics, and Science) were supplied by the Government. There were inconsistencies in the number of books available in the classrooms and those issued by the Headteacher to the teachers. The conclusion one can draw regarding the inconsistencies is: 1) maybe the textbooks are not properly kept and therefore get destroyed easily; 2) materials used to prepare the books are not durable; and 3) the books are finding their way into unauthorised hands.

### **RECOMMENDATIONS**

The textbooks supplied should be properly monitored, and headteachers and teachers should be made accountable for their proper storage and use.

The Inspectorate Division of the Ghana Education Service should: 1) conduct inspections to ensure that all subjects on the school time-table (especially Science) are taught; and 2) organize checks on textbooks supplied are how they are being used.

Intensive in-service training for teachers should be provided in Science.

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## CONTINUED ANALYSIS

### Use of Materials

#### Primary One

**English:** The English textbook was used during 4 out of 9 lessons observed and it was used as an instructional aid. For example, during two of the four lessons, the teacher directed the pupils to pages 3 and 13 respectively, and asked them to describe pictures on those pages. On two other occasions, they were directed to read the textbook silently. The pupils on the other hand read the textbook either aloud or silently as directed by the teacher.

The chalkboard was the most frequently used instructional material during the lessons observed. The teacher wrote words on the chalkboard for pupils to read, and this occurred in all nine lessons. During one of the lessons some of the pupils were called to the chalkboard to match words written on flashcards with those written on the chalkboard.

Exercise books were the most frequently used material by the pupils. In all nine lessons observed, the pupils copied words or drew pictures in their exercise books. Expressive writing was not observed in any of the nine lessons.

Ad hoc materials were used as teaching aids during three of the nine lessons observed. The teacher used flashcards on two occasions and a chart during one of the lessons. The pupils used flashcards and the chart during two of the lessons.

**Mathematics:** During four out of nine lessons observed, the teacher used the textbook by copying problems from them on to the chalkboard for pupils to complete as assignments. The pupils, on the other hand, never completed assignments using the textbook directly.

The chalkboard was observed to be the most frequently used instructional tool by the teacher in teaching Mathematics during the period of data collection. The use of the chalkboard by the pupils never occurred in any of the nine lessons observed. The slate chalkboard was never used; however, the pupils wrote on their tables with chalk during one of the lessons.

Ad hoc materials were used during eight out of the nine lessons observed. These were used more by the pupils than the teacher; for example, the teacher used ad hoc materials during six of the eight lessons and the pupils in seven out of the eight lessons. The most frequently used ad hoc materials were counters (bottle tops, match boxes, pupils' fingers, etc).

**Science:** Two science lessons were observed and during both lessons ad hoc materials were used extensively by both the teacher and the pupils. The science textbook was used during one of the lessons by both the teacher and the pupils; the teacher led the pupils to describe pictures on page 15 of the textbook. The chalkboard was used by the teacher in one of the lessons to write down the topic for the lesson.

#### Primary Three

**English:** The textbook was used during two out of the eight lessons observed. The teacher integrated the textbook into direct instruction. For example, passages and exercises were copied from the textbook onto the chalkboard. The pupils did not use the main textbook apart from "My Copy Book" which they used during one lesson to complete a writing assignment.

The most frequently used instructional material by the teacher were the chalkboard and chalk. These

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were used during all the lessons observed. The most frequently used instructional material by the pupils were the exercise books in which they copied words and passages and completed exercises. Ad hoc materials were not used by the teacher or the pupils in any of the lessons observed.

**Mathematics:** During six out of the eight lessons observed, the teacher used the Mathematics textbook. The teacher copied problems from the textbook onto the chalkboard for the pupils to solve during four of the six lessons. For the remaining two lessons, the teacher assigned work directly from the textbook for the pupils to complete.

The chalkboard was the most frequently used instructional material by the teacher, and the exercise books were the most frequently used material by the pupils. These materials were used effectively during each of the lessons observed.

Ad hoc materials were used during two of the eight lessons, in one lesson by the teacher and the other by the pupils. The materials were pieces of paper and an orange which the teacher used to teach "fractions".

**Science:** The textbook was not used in any of the two lessons observed during the data collection period. The most frequently used instructional material was the chalkboard on which the teacher drew sketches of water boiling in an open pan, and the names of animals that reproduce by either giving birth or laying eggs. The most frequently used material by the pupils was their exercise books in which they drew sketches.

During one of the lessons, the teacher used ad hoc materials such as coal pot, pan, ice block and water to teach the three states of water. The pupils on the other hand did not use the ad hoc materials.

### **Primary Five**

**English:** During five out of the seven lessons observed, the teacher used the English textbook. In four of the five lessons the teacher directed the pupils to read from the textbook and search for answers to questions he wrote on the chalkboard, and for the last lesson, the students were directed to read on their own silently.

The chalkboard was used in all the lessons observed, and it was the most frequently used instructional material by the teacher. The teacher wrote questions based on passages in the textbook for pupils to answer. He also wrote key words on the chalkboard for students to pronounce.

Exercise books were the most frequently used material by the pupils as they were used during every single lesson observed to complete assignments. In four out of seven lessons observed, the exercise books were used in conjunction with the English textbook.

Ad hoc materials were not used by either the teacher or the pupils in any of the seven lessons observed.

**Mathematics:** During two out of seven lessons observed, the teacher used the Mathematics textbook. In one lesson, the teacher assigned problems from the textbook to the pupils, and in the other lesson he copied exercises from it on to the chalkboard for the pupils to complete.

The chalkboard and chalk were the most frequently used instructional materials by the teacher. These were used in all the lessons observed. The teacher copied exercises and worked examples of problems which were being discussed on the chalkboard.

Exercise books and pens were the most frequently used instructional materials by pupils to complete

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assignments and work examples. The exercise book was used in conjunction with the textbook during one of the seven lessons observed.

Ad hoc materials were not used by either the teacher or the pupils in any of the seven lessons observed.

**Science:** On the one occasion when Science was taught, the textbook was not used. Even though the chalkboard was used, it was not effectively used as nothing was written on it except for the topic for the lesson - sound.

The teacher primarily used ad hoc materials in teaching the lesson - a whistle and a drum. The pupils, on the other hand, used their exercise books to complete the assignment given by the teacher.

### **Time-Table and the Use of Time**

The time-table available in the school was seldom followed by the three teachers observed. In teaching English, Math and Science, the teachers tended to use more time than allocated on the time-table. The values in Table 5.1 show that the P1 teacher, for example, spent 65 minutes teaching sentence reading and writing in a period which should have taken 30 minutes, thus exceeding the official duration by 35 minutes. This tends to use periods for other subjects and as such, teachers are not able to teach all six subjects in a day's time-table.

The P1 teacher rationalizes this by saying the pupils' delay in writing class assignments makes it impossible for her to teach all the day's subjects. The P3 teacher ascribes her action to her desire to ensure pupils understanding of what is taught. The P5 teacher believes the periods are too short for what needs to be taught.

Two of the teachers suggested ways in which this could be solved. The P3 teacher supported the suggestion that the number of subjects per day should be reduced to 4 and the length of the period increased to one hour. The P5 teacher suggested more teachers with special interests in different subjects be employed.

Also, the teachers rarely taught Science. Of the 20 lessons observed in Primary One, only two of them were Science lessons while English and Mathematics lessons were seen 9 times each. For Primary Three, only 2 Science lessons were observed out of the total of 18 lessons. In Primary Five only one Science lesson was observed. Where science was taught no textbook was used except on one occasion in P1. Time allocated on the time-table for Science was used to teach other subjects such as Life Skills and Fante. This teacher behavior could be due to the claim that the science books are inappropriate. Both the P1 and P3 teachers indicated the Science books have only pictures and no facts which makes it difficult for them to use the books. This made them use other sources. The P3 teacher, for example, used the syllabus to select activities for Science teaching.

They suggested the effective teaching of Science will require in-service training in the use of the Science textbooks since the in-service training they attended have been in subjects such as Mathematics and English and not in Science.

The attitude of the teachers is reflected in that of the pupils who also seemed to be unenthusiastic about Science as found in the interviews.

**TABLE 5.1**  
**Lesson topics and their duration in Primary 1**

SUBJECT	TOPIC/INFERRED TOPICS	Observed dur. of lesson (min)	Official dur. of lesson (min)	Difference in duration
English	1. Item (Use of can/can't)	31	30	+1
	2. Writing/action words	95	60	+35
	3. Pronunciation & word identification	51	30	+21
	4. Reading	70	30	+40
	5. A table (composition)	85	60	+25
	6. Sentence writing/reading	65	30	+35
	7. Picture identification & drawing	115	30	+85
	8. Sentence writing/reading	70	60	+10
	9. Picture identification & drawing	55	60	-5
Math	1. Counting and writing numerals	59	30	+29
	2. Addition	28	30	-2
	3. Mental addition	31	30	+1
	4. Sets	26	60	-34
	5. Addition & subtraction	50	30	+20
	6. Subtraction	30	30	0
	7. Take away (subtraction)	40	30	+10
	8. Subtraction	15	30	+15
	9. Place Value - Tens & Ones	49	30	+19
Science	1. Soil	75	30	+45
	2. Uses of Water	60	60	0

**TABLE 5.2**  
**Lesson topics and their duration in Primary 3**

SUBJECT	TOPIC/INFERRED TOPICS	Observed dur. of lesson (min)	Official dur. of lesson (min)	Difference in duration
English	1. Noun	70	30	+40
	2. Dictation	40	30	+10
	3. Noun	40	30	+10
	4. Writing	18	30	-12
	5. Comprehension	55	60	-55
	6. Adjectives	52	30	+22
	7. Subordinators	50	30	+20
	8. Reading & Comprehension	73	30	+43
Math	1. Fractions	45	60	-15
	2. Fractions	44	30	+14
	3. Comparing fractions	85	60	+25
	4. Shopping (addition of money)	55	30	-25
	5. Shopping (addition of money)	60	30	+30
	6. Shopping (addition of money)	55	30	-25
	7. Money (subtraction)	40	60	-20
	8. Money (division)	59	30	+29
Science	1. States of matter	43	60	-17
	2. Reproduction in animals	51	60	-9

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**TABLE 5.3**  
**Lesson topics and their duration in Primary 5**

SUBJECT	TOPIC/INFERRED TOPICS	Observed dur. of lesson (min)	Official dur. of lesson (min)	Difference in duration
English	1. Composition	56	60	-4
	2. Comprehension	35	30	+5
	3. Comprehension	43	30	+13
	4. Dictation	29	30	-1
	5. Composition	70	60	+10
	6. Reading & Comprehension	30	30	0
	7. Reading	27	60	-33
Math	1. Integers (Number line & inequalities)	52	30	+25
	2. Inequalities	35	30	+5
	3. Number line (writing Math sentences)	51	30	+21
	4. Mental Drill/ Inequalities	80	30	+50
	5. Inequalities	44	30	+14
	6. Lines and rays	40	30	+10
	7. Geometry	60	30	+30
	8. Money (division)	59	30	+29
Science	1. Sound	40	30	+10

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**RESEARCH REPORT ON AVAILABILITY  
& UTILIZATION OF MATERIALS  
AT AME ZION PRIMARY SCHOOL**

**University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana**

**By**

**Beatrice A. Okyere  
Jophus Anamuah-Mensah  
Albert K. Koomson  
Kobena A. Enyan**

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## INTRODUCTION

For nearly two decades beginning from the late sixties Ghana experienced severe economic depression. Investment in education dropped drastically, plunging the whole educational system into a crisis. Infrastructure facilities deteriorated due to lack of funds for maintenance, replacements and new acquisitions. The state of infrastructure and instructional resources in educational institutions was so deplorable that teaching and learning virtually ceased. Some schools did not have pupils' desks and teachers' tables. At one time even chalk was not available and teachers had to use dried cassava as chalk. Basic textbooks were either not available at all or were available in quantities far below the barest minimum requirements.

Teachers' salaries were low and unattractive, so thousands of teachers deserted the classrooms. Some found other jobs inside Ghana while many others went to Nigeria and other neighboring countries, in search of better paying jobs. Those who remained were poorly motivated. They did not have any in-service training opportunities. Besides, the supervision system also collapsed so there was no quality control mechanism in the system.

Since 1986 several interventions have been introduced to halt the deterioration in the educational system and improve quality. One of these interventions is known as the Primary Education Programme (PREP). PREP has among other things supplied textbooks to schools, provided in-service training to teachers and is addressing certain equity issues on a priority basis.

Studies such as this one are necessary to get feedback on instructional material availability and utilization in Primary schools so that corrective action may be taken where necessary.

## PURPOSE OF THE STUDY

The main purpose of this study was to try out methodological approaches to classroom data collection and to describe pupil experiences with regard to learning materials availability and usage in three core subjects: Math, English and Science.

Specifically, the study was designed to answer four basic questions:

- (a) What materials were available for English, Math and Science instruction?
- (b) What were the sources of these materials?
- (c) How were the materials used by teachers and pupils?
- (d) What are the implications of the findings on teaching and learning in the classroom?

Through this small-scale study the research team would identify problems, issues and research questions that should be the focus of a large-scale study.

## THEORETICAL FRAMEWORK FOR THE STUDY

Dunkin and Biddle's (1974) model of the Study of Classroom Teaching provides the theoretical framework for this study. In the model, learning outcomes are determined by a combination of input variables and process variables. Teaching-learning materials are input variables which fall within "Classroom Context" in the model. The usage of materials by teachers and pupils are part of the process variables. It is assumed that material inputs and usages produce certain outcomes, other things held constant. However, the measurement of learning outcomes produced by input and process variables was not part of the objectives of the current study.

## METHODOLOGY

### Selection of Schools

A purposive sample of six schools was selected from among the primary schools in the Central Region. Four factors were considered in the selection of schools:

- (a) rural-urban location;
- (b) school size (total enrollment - low, medium, high);
- (c) geographical spread; and
- (d) type of educational unit.

The schools selected were as follows:

SCHOOL	DISTRICT	UNIT	LOCATION	TOTAL ENROLLMENT
A.M.E. Zion Primary C/C	Cape Coast	A.M.E. Zion	Urban	240 (Medium)
Swedru ADC Primary C	Agona-Swedru	DC	Urban	438 (High)
Moree Methodist Primary	Abura-Asebu	Methodist	Rural	331 (High)
Babinso DC Primary	Adjumako	DC	Rural	93 (Low)
Atwereboanda DC Primary	Lower-Denkyira	DC	Rural	145 (Medium)
Brofoyedur Catholic	Gomoa	Catholic	Rural	211 (Medium)

Atwereboanda DC Primary School was the only "Equity" School in the sample. It had a furniture and library programme, but only the furniture programme had been implemented at the time of the visits.

#### Selection of Classes for Observation

Three classes were selected for observation in each of the six schools. Primary classes 1, 3 and 5 were selected for observation at Atwereboanda, A.M.E. Zion, and Moree Methodist Primary while classes 2, 4 and 6 were selected for observation in the three other schools.

#### Visits to the Schools

Visits were made to the schools in three phases. The first phase, called "Introductory Visits", enabled the Research Team Leaders to locate the schools and become acquainted with school staff and community leaders. The second set of visits termed "Exploratory" involved both Research Team Leaders (RTLs) and three other team members for each school. The purpose was to get all researchers acquainted with the school and to have firsthand experience in classroom observation. The third set of visits lasted 12 days in each school.

#### Data Collection Procedure

Four observers were assigned to each school for data collection. During the introductory and exploratory visits, observers collected general information in order to construct a profile of each school.

During the classroom observation observers sat through each assigned classroom from the commencement of the day to closing time. Each class was observed for four days by each pair of observers giving a total of 8 days of observation or 32 hours of observation (8 days X 4 hours/day) per class. Each pair of observers thus observed each of the three classes for four days.

In each of the classrooms studied one observer focused on the teacher, while the other focused on four pupils (two boys and two girls). These same four pupils were observed even when observers rotated from class to class. Four pupils were focused on in line with a recommendation made by Good and Brophy (1991) for dealing with the complexity of the classroom environment during observations:

"one excellent way to overcome this complexity ... is to study the behaviour of a few students. Such students can be studied intensively, and their behaviour will mirror what is taking place in the entire classroom." (p.61)

### Observation Instruments

Four types of data collection instruments were used for the classroom observation. One form (Appendix A) was used to collect descriptive data on the classroom environment. Another (Appendix B) was used to record materials available for teaching and learning Math, English, and Science in the three classes and their sources. The third and fourth forms were used to record how the teacher used materials (Appendix C), and how pupils used materials (Appendix D). The last two forms contained categories of uses of materials and served as checklists.

At the end of the classroom observations, separate interviews were held with the headteacher, the entire school staff, and the PTA executive members.

### Number of Observations

The number of observations made across classes and across the three core subjects is shown in Table I.

Table I  
Number of Observations by Class

Class	Math	English	Science	Total
Primary 1	8	6	0	14
Primary 3	6	8	2	16
Primary 5	8	6	3	17
Total	22	20	5	47

## PROFILE OF THE SCHOOL

### Geographical Location

Atwereboanda D/C Primary School is located at Atwereboanda, a hamlet in a tropical forest area in the Twifu Lower Denkyira District. One may reach Atwereboanda either through bush paths or by a timber truck road that starts from Wawase on the Cape Coast Twifo Praso road. Only strong four wheel-drive vehicles dare use the timber truck road from Wawase to Atwereboanda. After trying all the paths leading to Atwereboanda, the research team chose the one-hour walk (about 3 miles north-east) from Kwamoano to Atwereboanda. Practically speaking, Atwereboanda is accessible only by foot though it is not very far from the main Cape Coast - Twifo Praso road.

### School Infrastructure:

#### School Building

At the time of the visits classes in the school were accommodated in two buildings that presented a sharp contrast. The old classroom block, built in 1960 had aluminum roofing, and was comparable to classroom blocks in towns and cities in Ghana. It was the largest and most modern structure in the village. In this block were classes 4, 5, and 6, each of which had a floor space of 24 feet by 20 feet, and Class 2 which had a floor space of only 12 feet by 10 feet. Classroom floors in this block were

scratched; walls were once plastered and painted but the paint had peeled off and the walls pitted. One roofing sheet had been blown off by a rainstorm but the Parent Teacher Association made efforts to have it replaced.

Walls of the second building were constructed with mud, and plastered with red clay. Its floors were dusty. It was roofed with thatch. Rain eroded part of the walls. There were no windows or door frames. Domestic animals could enter and leave the classrooms at will, even when classes were in progress. Primary One and Three, and the Nursery section of the school were housed in this dilapidated structure. The children were exposed to the ravages of the weather, particularly during a rainstorm.

The school had two urinals, one for males and the other for females. There was no toilet; pupils and members of staff used toilets in the community. Apart from the school blocks and urinals, the only other facility on the school compound was an undulating football field lying between the school and the dwelling houses in the community.

#### Furniture

The six classes in the school had a total of seventy-five (75) dual desks for pupils. All the desks were delivered in November, 1991 under the PREP/EIP scheme. Before then, pupils had to bring their own chairs, stools, and tables. Classes 1, 4, 5, and 6 have tables and chairs for teachers. Pupils sat in pairs except in P3 where there were 12 desks for 30 pupils. In the two other classes (P2 and P3), the teachers used pupils' desks.

There was a table in the Headteacher's office but there was no permanent chair. Chairs had to be moved from classrooms to the office as needed. Also, there were two benches and a large cupboard which had no lock in the Headteacher's office.

#### PUPIL CHARACTERISTICS

Table II shows the enrollment statistics for the school in the 1991/92 and 1992/93 academic years.

**Table II**  
Enrollment Statistics

CLASS	1991/1992			1992/1993		
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL
P. 1	12	11	23	10	10	20
P. 2	9	5	14	16	7	23
P. 3	9	13	22	17	13	30
P. 4	15	6	21	11	12	23
P. 5	20	8	28	16	6	22
P. 6	12	7	19	19	8	27
<b>TOTAL</b>	<b>77</b>	<b>50</b>	<b>127</b>	<b>89</b>	<b>56</b>	<b>145</b>

Class Two contributed 16 out of the 18 additional pupils that were enrolled in 1992/93 as compared with 1991/92. The pupils must have come from Primary One in other schools.

Pupil ages ranged from 6 years in Class One to 15 in Class Six (Table III).

**Table III**  
**Age Distribution of Pupils**

	Average Age (years)			Youngest		Oldest	
	Boys	Girls	Total	Boy	Girl	Boy	Girl
P.1	6.6	6.7	6.9	6	6	8	8
P.2	8.4	8.6	8.4	7	7	11	10
P.3	10.5	11.1	10.7	9	10	12	12
P.4	10.9	11.3	11.1	10	10	12	12
P.5	11.4	11.2	11.3	10	10	14	13
P.6	12.8	13.0	12.8	11	12	15	14

The average age for girls was slightly above the overall average age in five of the six classes suggesting that girls might be entering school late and/or were not progressing smoothly alongside the boys in the same cohort.

#### TEACHER CHARACTERISTICS

There were six teachers in the school, three trained and three untrained ones. All three trained teachers did the four-year "modular" programme. (The modular Programme was a part-time course organised in modules). Their teaching experience ranged from four to six years. Three of them had been teaching in the school for 4, 5, and 6 years respectively.

The headteacher is a four-year "modular" graduate. His ethnic origin is Larteh and he grew up in one of the settlements nearby; he therefore feels quite at home in the community. He was clearly the most conscientious among the teachers in the school. His style of leadership could be described as open and democratic but as one PTA executive member remarked, "He is weak in exercising supervisory authority over his staff." The P.T.A. executive member referred specifically to the headteacher's inability to deal with the drinking habits of three teachers in the school.

One teacher walks six and half kilometres to school each morning (13 kilometres a day); another walks about 10 kilometres each day. Two others walk about two-and-half kilometres to and from school from different settlements in the forest area. The headteacher lives on one of the settlements not far away from Atwereboanda, while the sixth teacher stays in the village during the week and goes to his hometown near Twifo Praso on the weekends.

#### COMMUNITY CHARACTERISTICS

Atwereboanda is one of the 132 settler-communities which constitute the school's community. A primary school, a JSS, and the cocoa purchasing facility there make Atwereboanda the headquarters of the settlements. Total population in the settlements was estimated at three thousand (3,000).

At Atwereboanda itself, there are twenty-one (21) family compounds. All the inhabitants at Atwereboanda are said to be descendants of one Kwame Ananse whose grandson is currently the chief of the village.

Atwereboanda inhabitants are migrant farmers from Larteh in the Eastern Region. Other migrant groups within the school community are Ewes and Fantis. However, the Lartehs are in the majority. The ethnic mix in the community is complex but partly resolved by the fact that Atwereboanda is

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within a Twi-speaking area, so the Ghanaian language of instruction used is Twi.

All the dwelling houses at Atwereboanda have red mud walls and thatch roofing, portraying rural poverty. In striking contrast to the apparent poverty is the level of education among the inhabitants of Atwereboanda. Several of the adult men encountered during the visits spoke fluent English, and were very enlightened. The inhabitants know the value of formal education, and showed concern for the education of their children. They have a very active Parent Teacher Association executive which monitors what takes place in the school. P.T.A. members check pupils' exercise books, help the staff collect fees from defaulting parents, and consult teachers when parents complain about teachers caning their children. Many parents are said to be paying their wards' fees regularly.

Other things the PTA has done include providing meals for National Servicemen posted to the village, providing tables and benches for pupils and teachers; and raising funds for the school to entertain visitors. The PTA itself does not meet often because of the geographical spread of its members.

The main occupation of the people is farming. Young men in the village lamented that their cocoa farms had become old and the trees were not yielding much money, hence their poverty.

Poverty at Atwereboanda may be more apparent than real. The inhabitants maintain close ties with their relatives at Larteh. They pay levies at home, and like migrant farmers and fishermen elsewhere, may be sending their savings home for building modern houses, etc. One young man said during a conversation that most of them went to Larteh to continue their education after completing primary school at Atwereboanda. Could it be that the Atwereboanda people consider life in their settlement temporary and, therefore, would not invest in putting up modern buildings at Atwereboanda?

#### **MATERIALS AVAILABLE FOR TEACHING AND LEARNING**

Tables IV, V, and VI show the quantities of the various materials available for teaching and learning Math, English and Science in the three classes studied. The main materials were pupils' textbooks, teacher's manuals and exercise books. Added to these were chalkboard and chalk. Two questions may be asked regarding the available materials:

- (a) Does the variety of materials available meet the barest minimum requirements for teaching and learning to take place?
- (b) Are the materials available in "sufficient" quantities?

The barest minimum requirements for teaching and learning to occur are: (i) chalkboard and chalk; (ii) textbook for teacher and pupils; and (iii) writing materials for pupils (pen/pencil, paper or exercise book). Since these were available one could say that the barest minimum requirements for teaching and learning to take place were met. It should be stressed, however, that this conclusion does not mean that material availability was satisfactory in terms of variety and quantity.

**TABLE IV**  
Materials Available for Teaching/Learning Mathematics

Type of Materials	Quantity in P1	Quantity in P3	Quantity in P5	Source of Material
Textbooks (Pupils') New Edition	15	20	15	Ministry of Education (MOE)
Textbooks (Pupils) Old Edition	18	10	10	"
Teachers' Manual (New Edition)	1	-	-	MOE (One for the whole school)
Set Squares	1	-	-	MOE (One for the whole school)
Bottle tops	130	120	-	Class teacher
Numeral Cards	12	-	-	Class teacher

**TABLE V**  
Materials Available for Teaching/Learning English

Type of Materials	Quantity in P1	Quantity in P3	Quantity in P5	Source of Material
Textbooks (Pupil's) New Edition	12	14	7	M.O.E.
Teachers' Manual (New Edition)	1	1	1	"
Textbooks (Pupil's) Old Edition	6	-	7	"
Flash Cards	15	-	-	"
Flash Cards (Small Sizes)	6	-	-	Class teacher
Pupils' Work book	-	-	10	M.O.E.

**TABLE VI**  
**Materials Available for Teaching/Learning Science**

Type of Materials	Quantity in P1	Quantity in P3	Quantity in P5	Source of Material
Textbooks (New Edition)	20	20	9	M.O.E
Teachers' Manual	1	1	1	
Textbook (Pupils) Old Edition	6	12	10	"
Syllabus Guide	-	-	-	
Equipment	-	-	-	

The chalkboard in P5 was comparable in size and smoothness to those in town and city schools but those in P1 and P3 were smaller and had rough surfaces. Mathematics textbooks for the three classes would meet the minimum requirement of one book to two pupils. Likewise English textbooks for Primary One, and Science textbooks for Primary One and Three. As Table IV shows, textbook stock levels were not up to the ratio of one-book-to-two pupils English in Primary 3 and 5, and for Science in Primary 5. For most of the other subjects, there were no textbooks at all for either pupils or teachers. Some teachers attribute their failure or inability to teach certain subjects to lack of textbooks.

In learning Science, pupils must observe, feel and perform experiments. The team examined the pupils' textbooks for science and concluded that materials for teaching science could be obtained in the immediate locality. These materials include bottles, cans, jars, flutes, bells, eggs, root crops, fruits, and different types of soil. None of these materials was available in the school most probably because the subject was not being taught in the first place.

**TABLE VII**  
**Book/Pupil Ratios**

Subject	P1 Ratios	P3 Ratios	P5 Ratios
Mathematics	1:1.33	1:1.67	1:1.40
English (Main book)	1:1.67	1:2.1	1:3.14
Pupils Workbook	-	-	1:2.2
Science	1:1	1:1.67	1:2.44
<u>Others:</u>			
Social Studies	0:20	0:30	0:22
Cultural Studies	0:20	0:30	0:22
Life Skills	0:20	0:30	0:22
Agriculture	0:20	0:30	0:22
Ghanaian Language	1:2	1:3.0	1:5.5
Physical Education	0:20	0:30	0:22

The Book/Pupil Ratio was at least equal to or better than 1:2 for all the three subjects (Math, English and Science) in Primary One. In P3 the ratio for English was slightly above 1:2; the other ratios were better than 1:2. In P5, book-pupil ratio was equal to or better than 1:2 only in Math.

Concerning writing materials for pupils, each pupil needs a pencil (or pen in P5) and at least three exercise books for Math, English and Science. Table VII shows the number of exercise books possessed by pupils.

**TABLE VIII**  
**Average Number of Exercise Books Possessed by Pupils**

Class	Number Expected by Teacher	Mean, Boys	Mean, Girls
Primary One	4	1.76	1.57
Primary Three	7	3.3	2.5
Primary Five	7	3.6	3.3

(The means were arrived at by compiling class lists and the number of exercise books each pupil had). Boys tended to have more exercise books than girls. Teachers did not have syllabi (except in Life Skills) at the time of the observations. (Two weeks after the observation period, two copies of each syllabus, of the remaining syllabus except Life Skills, were given to the school.).

#### **Instructional Charts**

None of the classes had instructional charts whether teacher-made or commercially produced. Classroom walls were bare.

#### **SOURCES OF MATERIALS FOR TEACHING THE THREE SUBJECTS**

As is the practice all over the country, pupils' textbooks and teachers' manuals/handbooks are supplied by the Ministry of Education (M.O.E.). Atwereboanda DC Primary received new supplies of textbooks on July 10, 1992. Before that date, textbook stock levels were very low. For example, the numbers of "English Course" books available before the new deliveries were: none for Primary One, four for Primary Three, and four for Primary 5.

Tables IV, V, and VI show the various materials available and their sources. Parents are expected to provide their children with exercise books, pencils and pens. As Table V shows, the average number of exercise books used by pupils was much lower than what the teachers expected. Some parents were said (by the headteacher) to have argued that if the Government is coming to help them, then it should help them fully, meaning that the Government should supply free textbooks as well as writing materials. However, one parent interviewed would like to purchase textbooks for her ward. Teacher-supplied materials were observed in Primary One and Primary Three. The two teachers provided counters in the form of bottle caps and sticks. They also prepared a few numeral cards and flash cards to supplement those supplied by the Ministry of Education.

#### **HOW MATERIALS ARE USED BY TEACHERS AND PUPILS**

This section describes how teachers and pupils used available teaching-learning materials. These materials are chalkboard, textbooks, exercise books/workbooks, instructional charts, and concrete objects. Descriptions are given of how each material was used by teachers and pupils across classes and across the three subjects of interest.

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Appendices E to J show the frequencies with which the various materials were used. In analyzing the data in these appendices, qualitative descriptions extracted from field notes were used to support assertions made.

## CHALKBOARD

### General Observations

(a) The chalkboard tended to be used as a substitute for the textbook. Teachers would copy material from the textbook on to the chalkboard, put the book aside, and engage the pupils on the chalkboard material.

(b) Chalkboard techniques for developing lessons in order to bring about thorough understanding of subject matter were either not used at all or were used only superficially.

(c) Pupils were seldom asked to write their responses or work examples on the chalkboard as a means of checking their understanding of the material.

### Specific evidence

The predominant usage of the chalkboard by pupils was for them to recite in unison after the teacher copied material from the textbook onto the chalkboard. For English, this practice occurred in five out of six lessons observed in Primary One; seven out of eight lessons observed in Primary Three; and, in five out of six lessons observed in Primary 5. (See Appendix H)

### Examples:

(i) During a reading class in P3, (February 26, 1993) the teacher copied the following material on the board and asked pupils to recite after him several times.

Mr. Boamah is a shopkeeper.

He has a big shop at Sokode.

Mr. Boamah sells many things in his shop.

(ii) A P5 Science lesson was observed on February 15th. The teacher copied the following material on the board and asked the pupils to recite several times over:

Name some of the liquids you know.

How are they different from each other?

Name some of the liquids which are (six) different colours.

After reciting material from the chalkboard, pupils were often asked to copy such material into their exercise books as if they were having a writing lesson. In the P5 Science lesson just cited, for example, the pupils copied the questions but were not asked to provide the answers. The lesson was really a recitation and writing lesson, not a Science lesson.

Chalkboard techniques which teachers use to develop lessons were hardly applied by the three teachers.

## TEXTBOOKS

### General Observations

1. In general pupils were not given the opportunity to use available textbooks regardless of the subject area. Pupils' books were kept at the Headteacher's Office and only one copy was used by the teacher.

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2. In almost all the lessons observed, teachers did not use the textbook for developing the content of their lessons. What they used the book for was to copy a few lines or exercises from it onto the board; after that they put the book aside.

3. On those rare occasions when pupils and teachers used the textbook, they did not read the books much; more attention was paid to visual-aids than to print.

4. Teachers' manuals were available but were being kept in the headteacher's house until the team asked about them.

5. Reference to the teacher's manual was observed only once, that was in a P5 Math class.

### Specific Evidence

1. P1 pupils used the English textbooks in four out of six lessons. P3 pupils never used it at all in any of their 8 lessons; P5 pupils used their books briefly in 2 out of 6 lessons (See Appendix H). Math textbooks were never used at all by P3 and P5 pupils. P1 pupils used their books in 3 out of 8 Math lessons (See Appendix F).

2. In teaching Math, P1 and P3 teachers each copied exercises from the textbook on to chalkboard in five out of 8 and 7 lessons respectively, while the P5 teacher did so in 6 out of 8 lessons.

3. Pupils seldom read the textbook either silently or aloud in class. P5 pupils read their Science textbook silently. In English, it was only in P1 that pupils read aloud in two out of six lessons. Pupils in other classes never read aloud even during reading lessons.

### EXERCISE BOOKS

#### General Observations

1. Pupils were given classwork to be done in exercise books in Math and English but Math exercises were done more often than English.

2. Teachers marked all classwork during the Class period either by going round or asking pupils to take their exercise books to the teacher's table.

3. Pupils often did "Correction" immediately after having their classwork marked by the teacher. Most of the time however, no remedial teaching was done before the correction.

4. Most classwork assignments in English and Science merely involved pupils copying something; no thinking was required.

5. There were a few occasions when one or two pupils did not do seatwork because they did not have exercise books or pencils. The P.1 teacher tackled the problem by keeping pupils' writing materials in the classroom, giving them out during seatwork.

6. Pupil output in the exercise books was generally poor. Below is a reproduction of the output of one of the pupils observed in P5. The exercise was on operations with fractions.

#### Emelia's Work.

1. $F(3,10) + F(6,10)$	(2). $F(1,4) + F(1,4)$	(3) $F(4,7) + F(2,7)$	(4) $F(1,6) + F(2,6)$
10	4	7	6
3	1	1	2
<u>16</u>	4	<u>4</u>	<u>6</u>

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The PTA members interviewed were very much concerned about the poor quality of work done by pupils in their exercise books. They complained the pupils could not write on straight lines; that in writing, the pupils jammed words together and so on, yet the teachers did not make any effort to correct them. In fact, they pointed out that teachers often marked as correct pupils responses that were clearly wrong.

### **INSTRUCTIONAL CHARTS AND CONCRETE OBJECTS**

Instructional charts were not used in any of the classes. There were no charts in the classrooms either. Flash cards were used in two English lessons in P3 and in one lesson in P5. Numeral cards were used in three out of eight Mathematics lessons observed in P1.

At one interview session with the teachers, they lamented that there were no materials for the preparation of instructional charts. They expected the GES to provide cardboard, felt pens, and other necessary supplies for the preparation of the instructional materials.

Counters were the only concrete objects used by the teachers in a planned way. Other uses of concrete objects were fortuitous. For instance, the P1 teacher was teaching English words one of which was "fowl." The teacher spotted a cock around, and immediately called the pupils to observe it. Similarly, the P5 teacher on impulse took his pupils out of the classroom to observe a tree during an English class when he spotted a tree through a window.

### **IMPLICATION OF TEACHING-LEARNING MATERIALS AVAILABILITY AND USAGE IN CLASSROOMS**

Discussion of the implications of our findings on pupil learning focuses on the chalkboard and textbook usage because the two are the most crucial materials for teaching and learning in the classroom.

#### **Chalkboard Usage**

In the Ghanaian context, the chalkboard is the arena for the visual presentation of content, hence the curriculum. Without the chalkboard content would be largely abstract and incomprehensible to pupils.

The chalkboard enables the teacher to create stimuli for explaining content point by point; show how to work solutions to textbook problems; use diagrams and sketches to make concepts concrete and clear, etc.

If a teacher is unable to use the chalkboard extensively and effectively then his pupils are not likely to understand what is taught because his explanations would be abstract and difficult to retain. In the classes studied, the teachers hardly used the chalkboard for explaining content point by point. Consequently, the pupils were not adequately prepared for seatwork; some did seatwork without knowing what they were doing (Example, Emelia's work page 14).

Chalkboard use by pupils serves many purposes: it enables the teacher to check pupils' understanding of the material; it enables pupils to learn from one another (the pupil using the chalkboard serves as a teacher); it helps pupils build self-confidence in performing in front of the whole class. Also, during chalkboard work by a pupil, other pupils normally pay attention and contribute. A teacher who does not give pupils the chance to use the chalkboard frequently would be depriving his pupils of the learning opportunities described above. The teachers studied, therefore deprived their pupils of learning opportunities that could be derived from pupil use of the chalkboard.

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The use of the chalkboard as a substitute for the textbook seriously limits the exposure of pupils to printed text. This would at least partly explain why pupils in the three classes cannot read their textbooks.

### Textbook Usage

Verspoor and Wu (1990) have pointed out that "in developing countries where teachers are poorly educated and inadequately trained, textbooks are crucial in implementing what gets taught and how it is taught in school." Writing on "How Textbooks Facilitate Teaching and Learning" the two authors explain that "when textbooks are available, there is no need to waste valuable time on copying text on and off the chalkboard." Other ways in which textbooks aid pupil achievement include:

- (a) Serving as substitute for gaps in teacher knowledge and skills (Altbach 1983);
- (b) promoting the delivery of a more complete and coherently organised curricula (Altbach, 1983);
- (c) enabling the teacher to make better use of time spent teaching (Walberg, 1984);
- (d) enabling the teacher to assign higher quality homework (Walberg, 1985);
- (e) providing pupils basic exposure to written material otherwise unavailable in the environment (Heynemen et al, 1981);
- (f) enabling pupils to learn independently of the teacher (Rohlen, 1983).

Confirming previous research on the effects of textbook on achievement, Lockheed, Vail and Fuller (1987) found that students of teachers who used textbooks scored higher (the equivalent of 1.61 more months of school) than students of teachers who did not use textbooks.

In the Atwereboanda case the failure or inability of the teachers to use the textbook produced the following visible effects:

- (a) Gaps in teacher knowledge and skill were pronounced: the teachers sometimes passed on wrong information to pupils. For instance, in teaching opposites in an English Language Lesson, the P5 teacher gave the following information to his pupils:

<u>Word</u>	<u>Opposite</u>
Man	woman
pen	pencil
black	white
table	chair
Ama	Kofi
Out	Inside

- (b) teachers wasted time copying textbook material onto the chalkboard;
- (c) the pupils could not read printed text in any of the classes; they could only read after the teacher what was written on the board;
- (d) teacher explanations (of content) were brief and shallow.

The inability of the pupils to read, write and express themselves in English was at crisis level. A P5 pupil could not answer a simple question such as "What is the name of your school?" In general the pupils could construct simple sentences or read a single sentence from their textbooks on their own.

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## TENTATIVE FINDINGS

### Material Availability and Utilization in Mathematics

- M1: The main materials available for teaching and learning Math were chalk and chalkboard; pupils' textbooks, teachers' manuals, a chalkboard, set square, counters, pupils' exercise books, pencils and pens.
- M2: Pupils' exercise books, pencils and pens were provided by parents, counters were provided by teachers; the other materials were supplied by the Ministry of Education. Most of the pupils' textbooks were delivered in July, 1992. Before then, stock levels were very low. For example, the stock of Math books were 0, 2, and 5 for P1, P2 and P5 respectively.
- M3: Book-pupil ratios in the three classes (in Math) were at least equal to or better than 1:2. Pupils sat in pairs and there were enough Math books for each pair.
- M4: Pupils were seldom asked to work Math exercises on the board for teachers and the rest of the class to see. Pupils worked Math exercises on the board only in 6 out of the 22 lessons observed. P3 however, was an exception; pupils were asked to work exercises on the board in 4 out of six lessons observed. They were sometimes asked to merely copy teachers' worked examples from the board into their exercise books.
- M5: In general pupils were not asked to use their textbooks in their Math lessons. Their books were either stored on shelves in the headteacher's office or were packed on the teachers' tables in the classrooms. P1 was somehow an exception. There pupils were asked to use the textbook in three out of eight lessons. However, pupils' attention was focused only on visual aids in the textbook, not on printed text. Where pupils were asked to use the textbook in P1, they did the following with the book: pointed to visual aids at the teacher's prompting, studied visual aids in the textbook at the teacher's prompting, and interpreted the visual aid at the teacher's prompting.
- M6: Pupils did seatwork in their exercise books in nearly all Math lessons observed. However, direct instruction that preceded seatwork was usually brief and shallow. The teachers did not take pains to explain concepts and procedures thoroughly or check pupils' readiness for seatwork before assigning them work.
- M7: Content taught was repetitive and teachers did only a brief review to refresh pupils' memory before seatwork. There was hardly any lesson in which totally new content was introduced by the teachers.
- M8: Pupils nearly always had their classwork marked by the teachers during class period (18 out of 22 lessons). Output of many pupils reflected serious misunderstanding of the subject matter.
- M9: Pupils often did "correction" in class immediately after having their work marked by the teacher. However, no remedial instruction was done before the "correction."
- M10: Counters were the only concrete objects (ad hoc materials) used by pupils in the Math lessons observed; they were used in 6 out of 22 Math lessons.
- M11: Though the chalkboard was the main instructional materials used by teachers in Math lessons, teacher explanations and illustrations on the board were brief and repetitive from day to day. There were virtually no interactions between the teachers and pupils during chalkboard

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illustrations and explanations.

M12: Teachers used the textbook in class only when they wanted to copy exercises on the chalkboard for pupils to work.

### **Material Availability and Utilization in English**

E1: Except in P5 there were enough English Language textbooks to go round: one book to two pupils (in P5 the ratio was above one book to three pupils).

E2: For pupils, the chalkboard served as the main source of reading material. They read mostly from the chalkboard rather than from the textbook.

E3: The main strategy used by teachers was for them to ask pupils to repeatedly recite material copied on the board. Recitation from the chalkboard occurred in 17 out of the 20 English Language lessons observed.

Example of material recited: (P3, 26th Feb., 1993)

Mr. Boamah is a shopkeeper.

He has a big shop at Sokode.

Mr. Boamah sells many things in his shop.

E4: After the recitation pupils were often asked to copy the material into their exercise books as seatwork.

E5: Pupils were hardly asked to read their textbooks aloud or silently in English Language Lessons. Reading aloud from the textbook occurred in two out of 6 lessons in P1 only; there was none in P3 and P5. Pupils were asked to read silently from their textbooks in one out of 6 lessons in P5.

E6: In 40 percent of the English Language Lessons observed (8 out of 20), pupils did seatwork in their exercise books, and presented work for marking. However, P1 pupils did not do any written work in any of their 6 lessons.

E7: Instructional charts were not used in any of the English lessons observed; flash cards were however used in P3 lessons and one P5 lesson.

E8: Concrete objects (ad hoc material) were hardly used in English lessons; usage occurred only fortuitously on two occasions (once each in P1 and P5); eg. in P1 the teacher called pupils to observe a "cock" which was passing by chance.

### **Material Availability and Utilization in Science**

S1: Except in P5, there was at least one science book to two pupils; P1 had one book-to-one pupil while P5 had one book to nearly three pupils.

S2: Though materials required for teaching science as reflected in the textbooks could be obtained in the immediate locality, no such materials were assembled in the school for teaching the subject.

S3: Teachers and pupils rarely used the chalkboard in science lessons; what one found on the board was the topics for the various lessons, and few lines written by the teachers for pupils to recite. Out of the five lessons observed, drills were written on the board (from the textbook) for pupils to recite in unison.

- S4: In the two classes where science was taught, textbooks were distributed to pupils but pupil engagement on the textbooks was negligible. They did only two things: (a) read the book silently (once in P5); and (b) interpret visual aids in the book (once in P3, and twice in P5).
- S5: Neither charts nor concrete objects were used in teaching science in the three classes; the exception was a single lesson (P3) where the teacher brought in a plant for pupils to observe.
- S6: Pupils never did any practical work in science lessons; pupils' written exercises, where they occurred, were in the form of copying a few lines from the chalkboard into their exercise books.

## OTHER

### Time Allocation and Use of Time

- OT1: Basically the teachers taught two lessons each day, one in Math and the other in English; occasionally they taught a third subject which might be science or Ghanaian Language or Cultural Studies.
- OT2: Total instructional time (measured from the beginning to the end of lessons taught) for the day ranged from 22.9% to 70.8% of the daily scheduled time. The distribution of time utilization rates for the 24 class-observation was as follows:

<u>% of Scheduled Time</u>		<u>Number of Class Observations</u>
0%	- 40%	10
41%	- 50%	2
51%	- 60%	5
61%	- 70%	6
Above 70%		<u>1</u>

- OT3: The two lower primary classes had more play time than the upper primary class (P5).
- OT4: When children were not in class, they played football (soccer) in the football field, or played around the school compound unsupervised by teachers. Unsupervised play was a daily activity and it accounted for a large proportion of the school day.
- OT5: Math and English lessons could last for anything between 20 minutes and 105 minutes instead of the official 30 minutes per lesson. (with the exception of a few "double" periods on the time table).
- OT6: Though Math and English accounted for the major part of classroom time in the three classes, active teaching by teachers in the three subjects was always brief and superficial. The following is a summary of instructional events that occurred in a P5 Math lesson (5/2/93):

9:00-9:08	Class starts; pupils recite "five times table."
9:08-9:09	Teacher drills pupils on the pronunciation of topic "Operations with Fractions."
9:09-9:11	Pause, silence.
9:11-9:15	Teacher goes to P4 to maintain order (P4 teacher absent). Three pupils also go out.
9:15-9:19	Teacher explains the concept of fractions using an orange and works an example of addition of fractions.
9:19-9:25	Teacher goes out to talk to a visitor.
9:20-9:25	Teacher works an example of operations with fractions on the board and

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	copies six practice exercises on board.
9:25-10:06	Seatwork; teacher goes around: interrupts seatwork with a chalkboard review; insults a child saying "Kwasia" for doing the wrong thing while going around to check pupils' work.
10:06-10:15	Pupils work exercises on board; lesson ends.
Total time:	75 minutes

Active teaching time: Approximately 11 minutes.

### Homework

OH: Pupils were not given homework in almost any of the 47 lessons observed.

### Attendance

OA1: Daily attendance was quite irregular in all three classes observed. For P3, for example, the rate of attendance for the eight observation days were: 43.3%; 86.7%; 53.3%; 36.7%; 46.7%; 83.3%; 60%; and 76.7% (of total class enrollment).

OA2: The data, though not conclusive, supports teacher observations that absenteeism was usually high on market days, that is Tuesdays and Fridays.

### Language

OL1: In the three classes studied, teachers mixed Twi (the Ghanaian language) and English in their presentations.

OL2: Pupils never communicated with their teachers in English language (whether lower primary or P5) except where they had to give one-word responses.

## FOCUS OF THE ANALYSIS

This analysis further examined our findings in terms of their implications for educational quality improvement.

Educational quality as pointed out by Adams (1993, p.13) has multiple meanings. It may be perceived from different angles and may change in meaning over time (Adams, 1993). For the avoidance of doubt, educational quality is used in this context in the restricted sense of student achievement.

Our subsequent analyses focus on textbook availability and utilization. We have already cited literature that throw light on the link between textbooks and student achievement. Though further discussion of such literature is possible it is necessary also to probe further into observed phenomena themselves. Hence attention is devoted to the interpretation of participant perspectives.

## DATA ANALYSIS PROCEDURES

Our data collection methods combined some elements of qualitative research with those of quantitative methods. We used pre-determined categories in the form of checklists to focus our observation on material utilization and then supplemented these checklists with qualitative descriptions on the form of field notes.

As the observation progressed, we identified emerging issues for closer study, posing questions on which to obtain participant perspectives for the interpretation of their behaviours.

At the end of the observations, we compiled the various indicators of material utilization into tables (Appendices E to K) showing the number of lessons in which each category of material usage occurred

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at least once. We read the field notes over several times, circling vignettes that threw more light on the various categories of material utilization observed.

Assertions were generated from the frequency tables and supporting field notes. Confirming data as well as exceptions were searched for from the field notes.

Some suggestions made by Bogdan and Biklen (1991) for qualitative data analysis were employed. They include: (a) developing analytic questions to guide the analysis; (b) exploring and using relevant literature to give meaning to the data; and (c) proposing theses and arguing them out (Bogden and Biklen, 1991 p.185). The above analytic techniques were used to examine teacher behaviours and perspectives in relation to the issues at hand.

### **TEXTBOOK AVAILABILITY**

Textbooks were available for teaching and learning Math, English and Science in P1, P3 and P5. The question is whether the quantities were adequate. Except in P5 the Ministry's target of at least one-book-to-two-pupils (Manu, 1992) has been reached. Pupils in the two classes should be able to share available textbooks conveniently as they sit in pairs. Even in P5 where book-pupil ratio is not satisfactory in English and science, a teacher with good management skills can share the books such that every pupil has access to the textbook. Pupil absenteeism further makes the management easier, for on most occasions pupils could indeed work with books in pairs.

The conclusion is that textbooks were available in manageable quantities (Math, English and Science in the three classes).

### **TEXTBOOK UTILIZATION**

Textbooks were not used by either teachers or pupils in most of the lessons observed. Sometimes the teachers brought them to the classrooms but kept them on their tables; they copied material from the textbook onto the board for pupils to recite. The question that would intrigue any observer is, why did the teachers avoid using the textbooks? We put this question to them and their response was that there were not enough textbooks so the pupils would struggle for the few available. They wanted to avoid this occurrence. When it was suggested to them that they could distribute most of the books one-to-two-pupils, the teachers did not challenge the suggestion but gave another reason. They complained the pupils could not read the books so they had to copy on the board for them to read (the same material that they could not read from the textbook). However their complaint deserves investigation; the readability of the textbooks should be investigated. Truly, the pupils couldn't read. But could their inability to read not be attributed to the cumulative effect of not being exposed to the textbook from primary one?

Explanations given by the teachers were not sufficiently convincing. There could be some other subtle factors at work, factors which they might not or would not openly admit. Our theses on the issue were that:

- (1) the teachers (especially the headteachers) wanted the books to remain intact so that school inspectors would not accuse them of textbook losses and spoilage; and
- (2) the teachers' behaviour could be the result of previous conditioning--the momentum of tradition.

#### **(1) Concern for the security of the books.**

The headteacher and his teachers could be practicing a false philosophy of management which says that the best way to manage a thing is not to use it. Or perhaps school inspectors compelled the teachers to behave that way in order to be out of trouble.

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A school inspector who knows the value of textbook utilization would recognize that spoilage must necessarily occur through usage and that if books remain as new as they were when delivered, it means they are not being used; he would rather query the teachers for not using the book. If the inspectors have overlooked the appearance of the books, then by their mission they are encouraging the teachers to continue "good" behaviour--keeping the books neat.

## **(2) The momentum of tradition**

Before additional stocks of books were delivered to the school on July 10, 1991, textbook stock levels were very low. For example, P1 had only four English books. In that case the teachers were justified in copying material onto the board since they could not reproduce the material in any other way. They must have done that for a long time and automatized the behaviour such that even when conditions changed, tradition propelled them on.

We were unable to determine exactly why the teachers did not encourage the use of textbooks by their pupils. The two theses we have advanced could be operating simultaneously and be mutually reinforcing.

## **Textbook Utilization for Homework**

Textbooks facilitate the teachers' work in giving homework and are essential for pupil learning to take place at home. Current textbook policy does not allow pupils to take textbooks home. In the case of the school studied home conditions, according to the teachers, are not supportive of pupil learning. Basic furniture may not be at home; and in the absence of light children are unable to study in the evening.

So for the pupils studied, the use of the textbook in class or at home was out of the question. How then will they be able to read and write?

## **CONCLUSIONS**

Just before the commencement of the educational reforms, the Education Commission (1986) in its report remarked that:

" It is only through the provision of basic textbooks, supplementary literature, equipment and relevant teaching aids and the teachers' purposeful interaction with them that basic education can produce the required end result - the development of learning skills in pupils." (p. 27)

The two key issues in the above statement relevant to this study are the provision of learning materials and their purposeful utilization. Learning materials may be provided but unless they are used purposefully, desired learning outcomes will not occur.

From our findings, we cannot agree more with the Education Commission. The basic materials for learning Math, English and Science were available at Atwereboanda, DC Primary School, but the extent and quality of usage were so low that the materials made virtually no impact on the reading, writing and computational skills of the pupils.

Though formal measures of student achievement were not made, evidence collected through observation of pupils work and from concerned parents gave sufficient view of the state of pupils learning in the school. This cry from a member of the PTA executive sums up the situation at the school.

"The children cannot read at all. Formerly we did dictation,

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reading and spelling but now they don't do that. We don't know whether the problem is with the teachers. We have seen children written wrong things that have been marked correct by the teachers. Also children have complained that teachers did not explain things well. We have discussed the issue with the teachers but they also claimed that they teach pupils, only the pupils don't want to learn. They want parents to teach their children at home but many parents are illiterates; they cannot help their children at home."

Learning material utilization is not the only determinant of student achievement but it is the central element of classroom processes. Learning cannot be occurring without some material being used. To focus on learning material utilization in order to improve educational quality is therefore appropriate.

It is puzzling why teachers will not make their pupils use textbooks supplied for the purpose of learning. The finding at Atwereboanda may not be unique; they could exist in other schools, not necessarily rural schools only because the theses we proposed in our analyses could operate in other schools. Enormous dividends then can be derived from large-scale study of material availability and utilization in the country towards the goal of improving educational quality. In such a study, the researchers might want to investigate further the reasons why teachers avoid using textbooks so that appropriate interventions can be instituted to promote utilization.

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## RECOMMENDATIONS/ISSUES

### RECOMMENDATIONS FOR THE LARGE-SCALE STUDY DESIGN

#### **Concerning what should be the focus of the study.**

A large amount of money has been invested in furniture, textbooks and other instructional materials with the view to improving educational quality. Results from this case study show that even where instructional materials are available teachers and pupils may not be using them as intended. It is therefore necessary to carry out a large-scale study to determine whether materials supplied have actually reached the intended users and whether the materials are being used effectively.

*Recommendation 1:* The large-scale study should focus on Instructional materials availability and Utilization in Primary Schools. The study also revealed that teachers do not teach certain subjects on the time table. The deviation is alarming and needs to be investigated on a large scale so that policy makers can be advised.

*Recommendation 2:* A subsidiary objective of the large-scale study should be to find out how much time teachers actually allocate to each subject on the official time table.

#### **Concerning Number of Schools/Classes to be Used.**

Two alternatives need consideration. The large scale study may use relatively few schools and study them intensively or use a large number of schools with each school having a few visits (two or three visits).

*Recommendation 3:* If material availability and utilization are the focus of the study, then the large scale study should involve a relatively large number of schools; the number of visits per school would be reduced. We recommend at least six schools per region, two classes per school, i.e. at least 60 schools (120 classes). Sampling should take into account rural-urban factors, school size, retention rate, etc.

#### **Concerning Number and Duration of Visits Per Class**

*Recommendation 4:* Each class selected for observation should be visited for four days (assuming a large number of schools is selected).

#### **Concerning Number/Role of Observers**

*Recommendation 5:* Each class should be observed by two observers at a time and both observers should be observing the same thing so their observations can be cross-checked or validated.

#### **Concerning Data Collection Instrument**

*Recommendation 6:* A structured instrument such as a checklist should be developed for the data collection to ensure uniformity and to help focus the observations. However, all observers should take field notes giving qualitative descriptions of what they observe.

#### **Concerning the Duration of Observations**

*Recommendation 7:* Since teachers do not follow the time table, observers must stay in the classroom from the beginning of the first lesson to the end of the last lesson. However, our focus will remain Math, English and Science.

#### **Concerning the Training of Observers**

*Recommendation 8:* The observation and recording of utilization of instructional materials can be elusive. Observers need training, especially in the use of whatever data collection instrument that is finally agreed upon.

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## RECOMMENDATIONS TOWARDS THE SOLUTION OF PROBLEMS AT THE SCHOOL

*Recommendation 9:* The teachers at Atwereboanda DC Primary urgently need training in chalkboard and textbook utilization. It is recommended that the Faculty of Education in collaboration with the GES organizes a short course for teachers in the school (and neighboring schools) on chalkboard and textbook utilization.

*Recommendation 10:* The District Assembly should prevail upon the Feeder Roads authority to level the road from Wawase to Atwereboanda. This will make Atwereboanda more accessible to school Supervisors and any organisation/institution willing to assist the school.

*Recommendation 11:* The Faculty of Education should adopt the school on a long-term basis with the objective of raising pupils achievement through teacher effectiveness training. Teachers at this school need long-term assistance before they can change their teaching styles. Special interventions and regular visits have to be made to the school in order to help pupils attain basic reading and writing skills.

### RECOMMENDATION TO PREP

*Recommendation 12:* The staff at Atwereboanda DC Primary need to be strengthened with one Post-Secondary trained teacher or a good four-year Post-middle Certificate 'A' teacher. Accommodation problems are, however, likely to frustrate any attempt to strengthen the staff with better qualified, more motivated teachers. PREP should consider adding accommodation for teachers to the Equity Package deal for Atwereboanda so that investments so far made can have better chances of yielding results.

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APPENDIX A

OBSERVER: \_\_\_\_\_ Date: \_\_\_\_\_

CLASS: \_\_\_\_\_

PHYSICAL ENVIRONMENTS INFORMATION

1. Condition of Building

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2. Walls, Ceiling/Roof/Room size

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3. Pupils' Furniture (Number & Description)

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4. Teacher's Furniture

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5. Seating Arrangement (Draw the seating chart on a separate sheet)

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6. Classroom Space

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7. Lighting/Ventilation/Noise Level

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8. Displays in Classroom

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9. Instructional materials/Equipment

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10. Other

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APPENDIX B

OBSERVER: \_\_\_\_\_ Date: \_\_\_\_\_

CLASS: \_\_\_\_\_

RESOURCES AVAILABLE IN THE CLASSROOM FOR TEACHING MATH,  
ENGLISH, AND SCIENCE

(Complete this form during break time, once for each subject)

SUBJECT/RESOURCES	Quantity	Sources Cem/PA/PREP/M OE	Comments
<u>Math</u>			
Textbooks (Pupils)			
Set squares			
Teachers Manual			
Syllabus Book			
Instructional Charts			
<u>Other</u>			
<u>English</u>			
Textbooks			
Teachers' Manual			
Syllabus			
Dictionary			
Supplementary Leader			
Instructional Charts			
<u>Other</u>			
<u>Science</u>			
Textbooks (Pupils)			
Teachers' Manual			
Syllabus			
Equipment			

APPENDIX C

Date:-----  
 Observer -----  
 Class -----  
 Subject -----

Time Started -----  
 Time Ended -----

TEACHER USE OF MATERIALS

INSTRUCTIONAL RESOURCE	Yes	No	Comments/Other Characteristics of usage
<b>CHALKBOARD USAGE</b>			
Writing Topic/Subject on board			
Outlining content/subject matter			
Working examples for pupils to see			
Writing notes for pupils to copy			
Summarising points as lesson progresses			
Writing pupils suggestions/contributions			
Writing drills for pupils to recite			
Building explanations point by point			
Sketching/Drawing models			
Using chalkboard Drawing Aids:			
Templates			
Oversized rulers			
Oversized protractors			
Coloured chalk			
Writing homework assignment			
Writing Classwork			
<b>TEXTBOOK USAGE</b>			
Reading passage aloud			
Copying passage from book on to c. b.			
Dictating material from book			
Copying exercises from book on to c.b.			

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INSTRUCTIONAL RESOURCE	Yes	No	Comments/Other Characteristics of usage
Asking pupil(s) to read textbook aloud			
Asking pupil(s) to read textbook silently			
Pupils interpret visual aids in books			
Making Reference to:			
Teacher's manual			
Syllabus			
Dictionary			
Other			
<b>USE OF INSTRUCTIONAL CHARTS</b>			Count/describe charts used
Using flash cards			
Asking pupils to point at parts of chart			
Showing parts of the chart			
Explaining relationship in charts			
Asking pupils to interpret chart			
Asking pupils to reproduce what is on chart			
<b>USE OF CONCRETE OBJECTS</b>			Describe type and usage

APPENDIX D

Date:-----  
 Observer -----  
 Class -----  
 Subject -----

Time Started-----  
 Time Ended -----

PUPIL USE OF MATERIALS

MATERIAL	PUPIL A	PUPIL B	PUPIL C	PUPIL D
<b>CHALKBOARD USAGE</b>				
Reading/Reciting Material from c.b.				
Copying what is on chalkboard				
Working exercise D(Math)on c.b.				
Writing responses on chalkboard				
Drawing on chalkboard				
Painting out something on board				
<b>TEXTBOOK USAGE</b>				
Reading book aloud				
Reading book silently				
Opening to a specific page				
Working exercise from textbook				
Studying & visual aid in textbook				
Interpreting visual aid in book				
Searching for answer to teacher's question in book				
Finding meanings of new words				
<b>EXERCISE BOOK/WORK BOOK USAGE</b>				
Working fresh assignment				
Presenting book for marking				
Doing correction				
<b>OTHER</b>				
Reading from flash cards				
Identifying part of a chart				
Explaining how parts are related				

MATERIAL	PUPIL A	PUPIL B	PUPIL C	PUPIL D
Interpreting chart to class				
Drawing chart in own book				
USE OF CONCRETE OBJECTS				
Type/Object				

APPENDIX E  
TEACHER USE OF MATERIALS IN MATHEMATICS

Number of lessons in which  
usage occurred at least once.

TYPE OF MATERIAL USAGE	N=8	N=7	N=8
<b>CHALKBOARD USAGE</b>			
Writing topic/subject on board	7	7	8
Outlining content/subject matter	1	-	-
Working examples for pupils to see	5	3	5
Writing notes for pupils to copy	-	-	-
Summarising points as lesson progresses	1	-	-
Writing pupils suggestions/contributions_	2	-	-
Writing drills for pupils to recite	-	-	1
Building explanations point by point	1	1	2
Sketching/Drawing models on board	4	2	1
Using chalkboard drawing aids:			
- rulers/protractors	4	-	-
- coloured chalk			
Writing homework assignment	-	-	-
Setting classwork for pupils	8	5	8
<b>TEXTBOOK USAGE</b>			
Reading passage aloud to class	-	-	-
Copying passage from book on to board	-	-	-

TYPE OF MATERIAL USAGE	N=8	N=7	N=8
Dictating material from book	-	-	-
Copying exercises from book on to board	5	5	6
Asking pupils to read book silently	-	-	-
Guiding pupils to interpret visual aid in book	2	-	-
Making reference to:			
Teacher's manual	-	-	-
Syllabus guide			
<b>USE OF INSTRUCTIONAL CHARTS</b>			
Using flash cards/numeral cards			
Using flash cards/numeral cards	3	-	-
Showing parts of a chart			
Explaining relationships in chart			
Asking pupils to interpret chart			
Asking pupils to reproduce what is on chart			
<b>USE OF CONCRETE OBJECTS</b>			
Using counters, pencils, duster, and			
Chalkboard ruler as members of a set	1	2	-
Using oranges and other objects		1	2

APPENDIX F  
PUPIL USE OF MATERIALS IN MATH  
No. of lessons in which Usage occurred at least once.

TYPE OF MATERIAL USAGE	N=8	N=6	N=8
Chalkboard	P1	P3	P5
Reading/Reciting Material from board	-	-	1
Copying what is on board.	3	2	4
Working exercise on board	1	4	1
Writing responses on board	4	-	1
Pointing to something in board	1	-	1
Drawing on Chalkboard	-	-	-
TEXTBOOK USAGE			
Reading book aloud		-	-
Reading book silently		-	-
Writing exercises from book		-	-
Interpreting visual aid in book	2	-	-
Searching for answer to teacher's question	2	-	-
USE OF EXERCISE BOOKS			
Working fresh assignment	8	5	8
Presenting book for marking	6	5	7
Doing Correction		2	5
USE OF CONCRETE OBJECTS			
Using counters	3	2	1

APPENDIX G  
TEACHER USE OF MATERIALS IN SCIENCE

Number of lessons in which usage occurred at least once

	P.1	P.3	P.5
TYPE OF MATERIAL USAGE	N=0	N=2	N=3
<b>CHALKBOARD USAGE</b>			
Writing topic/subject on board	-	2	2
Outlining content/subject matter	-	-	-
Working examples for pupils to see	-	-	-
Writing notes for pupils to copy	-	1	-
Summarising points as lesson progresses	-	-	-
Writing pupils suggestions/contributions	-	-	1
Writing drills for pupils to recite	-	1	1
Building explanations point by point	-	1	-
Sketching/Drawing models on board	-	1	-
Using chalkboard drawing aids:			
- ruler/protractors	-	-	-
- coloured chalk	-	-	-
Writing homework assignment	-	-	-
Setting class work for pupils	-	-	-
<b>TEXTBOOK USAGE</b>			
Reading passage aloud to class	-	-	-

	P.1	P.3	P.5
TYPE OF MATERIAL USAGE	N=0	N=2	N=3
Copying passage from book onto board	-	-	1
Dictating material from book	-	-	-
Copying exercises from book onto board	-	-	1
Asking pupils to read book aloud	-	-	-
Asking pupils to read book silently	-	-	1
Guiding pupils to interpret visual aid	-	1	-
Making reference to:			
-Teacher's manual	-	-	-
-Syllabus guide	-	-	-
USE OF INSTRUCTIONAL CHARTS			
Using flash cards	-	-	-
Using flash cards	-	-	-
Asking pupils to point to parts of chart			
Showing parts of a chart	-	-	-
Explaining Relationships in chart	-	-	-
Asking pupils to interpret chart			
Chart	-	-	-
USE OF CONCRETE OBJECTS			
A plant	-	1	-

APPENDIX H  
PUPILS USE OF MATERIALS IN SCIENCE

Number of lessons in which usage occurred at least once.

	P1	P3	P5
TYPE OF MATERIAL USAGE	N=NIL	N=2	N=3
<b>CHALKBOARD USAGE</b>			
Reading/Reciting Materials from chalkboard	-	-	2
Copying what is on chalkboard	-	-	1
Working exercise on chalkboard.	-	-	-
Writing responses on chalkboard	-	-	-
Drawing on chalkboard	-	-	-
Pointing to something on c. b.	-	-	-
<b>TEXTBOOK USAGE</b>			
Reading book aloud	-	-	-
Reading book silently	-	-	1
Opening to a specific page	-	2	1
Working exercises from textbook	-	-	-
Interpreting visual aid in book	-	1	2
Searching for answer to teacher's question	-	-	-
Finding meanings of new words	-	-	-
Approaching teacher for help in reading book	-	-	-

	P1	P3	P5
TYPE OF MATERIAL USAGE	N=NIL	N=2	N=3
<b>EXERCISE BOOK/WORK BOOK</b>			
Working fresh assignment	-	2	-
Presenting book for marking	-	-	-
Doing correction	-	-	-
Copying work into exercise book	-	-	1
<b>USE OF INSTRUCTIONAL CHARTS</b>			
Reading from flash cards	-	-	-
Identifying part of a chart	-	-	-
Explaining how parts are related	-	-	-
Interpreting chart to class	-	-	-
Drawing chart in own book	-	1	-
<b>USE OF CONCRETE OBJECTS</b>			
Concrete things	-	1	-

APPENDIX I  
TEACHER USE OF MATERIALS IN ENGLISH

Number of lessons in which usage occurred at least once.

	P.1	P.3	P.5
TYPE OF MATERIAL USAGE	N=6	N=8	N=6
<b>CHALKBOARD USAGE</b>			
Writing topic/subject on board	4	8	4
Outlining content/subject matter	1	-	1
Working examples for pupils to see	-	-	1
Writing notes for pupils to copy	-	-	-
Summarising points as lesson progresses	1	-	1
Writing pupils suggestions/contributions	1	1	2
Writing drills for pupils to recite	2	3	2
Building explanations point by point	1	-	1
Sketching/Drawing models on board	1	-	-
Using chalkboard drawing aids:			
- rulers/protractors	2	-	-
- coloured chalk	1	-	-
Writing homework assignment	-	-	-
Setting classwork for pupils	-	5	3
<b>TEXTBOOK USAGE</b>			

	P.1	P.3	P.5
TYPE OF MATERIAL USAGE	N=6	N=8	N=6
Reading passage aloud to class	1	-	2
Copying passage from book on to board	2	2	1
Dictating material from book	-	-	-
Copying exercises from book on to board	2	6	2
Asking pupils to read book aloud	2	-	2
Asking pupils to read book silently	-	-	1
pupils to interpret visual aid	2	-	-
Making reference to:			
Teacher's manual	-	-	-
Syllabus guide	-	-	-
USE OF INSTRUCTIONAL CHARTS			
Using flash cards	-	1	1
Asking pupils to point to parts of chart	-	-	-
Showing parts of a chart	-	-	-
Explaining relationships in chart	-	-	-
Asking pupils to interpret chart	-	-	-
Asking pupils to reproduce what is on chart	-	-	-
USE OF CONCRETE OBJECTS			

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	P.1	P.3	P.5
TYPE OF MATERIAL USAGE	N=6	N=8	N=6
A cock	1	-	-
A Pupil used to explain "friend"	-	1	-
A pupil used to explain "brother"	-	1	-



APPENDIX J  
PUPILS' MATERIALS IN ENGLISH

No of lessons in which usage occurred at least once.

	P1	P3	P5	Total
TYPE OF USAGE	N=6	N=8	N=6	N=6
CHALKBOARD USE				
Reading/Reciting Material from cb.	5	7	5	17
Copying what is on chalkboard	3	1	3	7
Working exercise (Math) on cb.	-	-	-	-
Writing responses on chalkboard	-	1	1	2
Drawing on chalkboard	-	-	-	-
TEXTBOOK USAGE				
Reading book aloud	2	-	2	4
Reading book silently-		-	1	1
Opening to a specific page	4	-	2	6
Working exercises from textbook		-	-	-
Searching for answers to teacher's question	2	-	-	2
Interpreting visual aid	2	-	-	2
Finding meanings of new words		-	-	-
Looking into book while teacher reads	-	-	1	1
EXERCISE BOOK/WORK BOOK USAGE				

Working fresh assignment	-	5	3	8
Presenting book for marking	2	4	3	9
Doing correction-	-	2	2	4
Other (specify) copying what is on cb. into exercise book	-	-	1	1
USE OF INSTRUCTIONAL CHARTS				
Reading from flash cards	-	2	1	3
Identifying part of a chart	-	-	-	-
Explaining how parts are related	-	-	-	-
Interpreting chart to class	-	-	-	-
Drawing chart in own book	-	-	-	-
USE OF CONCRETE OBJECTS				
Using Counters	-	-	-	-
Taken out to see a tree	-	-	1	1
Identifying colours of objects in classroom	2	-	-	2

APPENDIX K

ACTUAL DAILY INSTRUCTIONAL TIME AS A PERCENTAGE OF  
TOTAL DAILY SCHEDULED TIME

(SCHEDULED TIME PER DAY = 240 mins)

DAY	P1		P3		P5	
	Total Teach-ing Time	% of Sche-d uled Time	Total Teach-i ng Time	% of Sche- d uled Time	Total Teach-i ng Time	% of Sche- dul ed Time
1st Day of Observation	71	29.6	157	65.4	150	62.5
2nd Day "	95	39.6	167	69.6	116	48.3
3rd " "	105	43.8	133	55.4	130	54.2
4th Day "	83	34.6	92	38.3	160	66.7
5th Day "	150	62.5	85	35.4	146	60.8
6th Day "	140	58.3	60	25.0	170	70.8
7th Day "	130	54.2	90	37.5	132	55.0
8th Day	55	22.9	20	8.3	55	22.9
Total Scheduled Time for Day		(240 mins)		(240 mins)		(240 mins)

APPENDIX L  
TOTAL TIME ALLOCATION TO SUBJECT ON THE TIME TABLE  
(On 8 observation days)

	P1			P3			P5		
	Actual	Expected	%	Actual	Expected	%	Actual	Expected	%
Mathematics	457	390	117.2	277	300	92.3	475	240	197.9
English Lang.	297	420	70.7	375	240	156.3	361	300	120.3
Science	0	120	0	77	150	51.3	128	120	106.7
Social Studies	0	60	0	40	240	16.7	0	0	0
Cultural Studies	20	300	0.07	0	300	0	0	0	0
Agriculture	0	150	0	0	120	0	0	0	0
Ghanaian	15	150	0.10	35	210	16.7	70	210	331.3
Physical Educ.	0	30	0	0	120	0	0	0	0

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**SPECIAL INTEREST OF THE TEAM  
ACTUAL TIME ALLOCATED TO SUBJECTS BY TEACHERS**

**PURPOSE**

To determine how much time teachers actually allocate to specific subjects in the primary school curriculum.

**METHODOLOGY**

Two observers using a common form recorded separately the starting and finishing times of lessons taught in P1, P3 and P5 over a period of eight days per class. At the end of each day the observers compared and reconciled their records. They also recorded the official time table for each day of observation in a class.

**FINDINGS**

By far, the most striking feature observed in the classrooms during the study was the vast discrepancy between the official time table and the teacher's own work schedule for the day. Whereas the official time table makes provisions for eight 30-minute lessons a day (total of 240 minutes), the three teachers taught, on average, two lessons a day - one in Mathematics and the other in English. Furthermore, the duration of lessons in the two subjects was random and highly discretionary. One lesson could be as long as 90 minutes while another would be 33 minutes compared with the time table stipulation of 30 minutes per lesson. Actual instructional time (measured from the beginning to the end of each lesson taught) for the day ranged from 22.9% to 70% of the official scheduled time for the three classes. In P1, the busiest day was 62.5% of the total scheduled time. On five out of eight days, the pupils (P1) had less than 45% of the scheduled time for instruction (Appendix 4). P3 pupils had less than 40% of the scheduled instructional time on five out of the eight days.

Cultural Studies, Life Skills, Agriculture and Physical Education were not allocated any time by the teachers; Mathematics was allocated more time than the official time allocated to it. For example, total time actually allocated to Math in P5 was 197.9% of the official total time. Actual time allocated to English in P1 was 70% of the expected total time while in P5 it was 120.3% (Appendix 5).

The actual time allocated to Math and English may look impressive, but in reality active teaching time was low in all cases. Teacher explanations were brief and shallow. The following breakdown of a P3 lesson (Math 2/3/93) illustrates how teachers distributed instructional time within a lesson:

Teacher's Explanation	10:00 - 10:10	(10 minutes)
Seatwork	10:10 - 10:32	(22 minutes)
Review	10:32 - 10:35	(3 minutes)
Correction	10:35 - 10:42	(7 minutes)

The school day for pupils could take any of the following forms:

P1 (9/3/93)		P3 (4/13/93)		P5 (15/3/93)	
Math	09:15-11:00	Math	08:55-09:40	Math	09:29-10:15
Break	11:00-11:50	English	09:40-10:15	Break	10:15-11:40
English	11:50-12:50	English	10:15-11:50	Science	11:40-12:25
		English	11:50-12:43		
				P5 (25/2/93)	
				English	09:06-09:30
				Math	09:30-10:04
				Science	10:04-10:40
				Break	10:40-11:20
				Twi	11:20-12:30

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In an interview with the PTA executive members, two parents complained the "teachers only teach for two hours and then throw the pupils out to play." They added that the presence of the research team made the teachers keep the pupils longer in the classroom. These comments indicate the situation is much worse when visitors or supervisors are not in the school.

Another major issue affecting time allocation is that each month every teacher goes on "Pay out" for at least one day. "Pay out" means the teachers go to the District capital to collect their salaries. One teacher spent three days on "Pay out" during which time the pupils were virtually idle.

## CONCLUSION

Time is needed for the implementation of the curriculum. If teachers deviate significantly from time allocations to subjects on the time table, then it means they are operating a private curriculum and changing the goals of education.

This brief study cannot reveal why teachers abandon the official curriculum. Remoteness and lack of supervision may be possible reasons, but it is also likely that the situation at Atwereboanda is widespread. A large-scale study is needed to investigate teacher time allocation to subjects in order for appropriate solutions to be found.

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**RESEARCH REPORT ON AVAILABILITY  
& UTILIZATION OF MATERIALS  
AT BABINSO PRIMARY SCHOOL**

**University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana**

**By**

**F.K. Amedahe  
R.B. Montford  
E.T. Atta  
E.K. Bartels**

**June 1993**

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## INTRODUCTION

The quality of education is of paramount importance to those concerned with the education industry. For it is generally believed that a quality education leads to an increase in the efficiency of human resources necessary to accelerate the rate of national development. In consonance with this belief, educational reforms in both developed and developing countries are geared towards, among other things, improving the quality of education. Indeed, this was one of the cardinal goals of the educational reforms introduced in Ghana by the Government of the erstwhile Provisional National Defence Council (PNDC) in 1987. However, the concept quality defies a universally accepted definition and remains elusive. Different authorities and professionals look at the concept from different perspectives. While some authorities view quality in terms of effectiveness others look at it as proof of excellence. Still others explain it in terms of the outcomes or outputs of education.

It is probably not very necessary to belabour what exactly educational quality is in this paper. However, suffice it to say that from the various viewpoints in the literature, the quality of education is related to those characteristics that promote effective and efficient outcome of the enterprise of education. To this end what can be described as the building blocks of education must be put in place in an interactional form to yield the expected results, that is, quality education. Paramount in this process are the resources, both human and material in a stimulating environmental setting. Any single factor in isolation cannot yield the expected results. Thus, in an effort to examine the quality of primary education in Ghana, it is imperative to begin with the resources in various forms on the ground, which could help promote the teaching and learning of pupils in the schools; and based on existing facilities and their uses, strategies could be developed to improve the situation.

## PURPOSE OF THE STUDY

The purpose of this study was mainly threefold. First, the study was to investigate the resources, both human and material, available for the teaching and learning of Mathematics, Science and English Language (which were considered core subjects) at the Babinso Primary School and ascertain their adequacy or otherwise. Second, to ascertain the sources of available materials; and third, to determine how the available materials were being used by both teachers and pupils to promote learning. Thus, the main focus of the study was on the resources of the school and their uses in the facilitation and promotion of learning. In addition to the main issues of the study, the use of the school timetable by the teachers, homework and school/community relations were also examined.

On the whole, the outcomes of this study are to be used in the planning and execution of nationwide research on the quality of primary education in Ghana.

## PROFILE OF BABINSO PRIMARY SCHOOL

Babinso is a village in the Ajumako-Enyan-Essiam district of the Central Region of Ghana. Its position is roughly 6° N and 1.5° West, and it is situated north-north east from Cape Coast, the regional capital. Babinso has a population of 487 according to the 1984 population census report. It is mainly a subsistence farming community.

The Babinso Primary School was established in 1967 by the local authority with community assistance. It is situated on the outskirts of the village on the Ajumako-Besease road. Some of the buildings of the village border the school compound. The school has one main block, originally made up of three classrooms, but was later divided into six smaller rooms with sawn boards. The length of the building has dwarf walls made of mud and plaster, parts of which have begun to peel off. The walls have never been painted. Part of the veranda in front of the school at one end of the block was sectioned off to become the store/office of the school. This is where virtually all the materials of the school are

kept in two cupboards. The dimensions of the store/office are 4.6 metres by 1.5 metres. The classrooms have no ceilings and the floors are cemented. However, most classrooms have broken floors creating what can be described as N pot-holes here and there. The dimensions of the present classrooms are 7.72 metres by 3.04 metres. Classrooms are bare with no pictures on the walls. Two concrete chalkboards are found in each classroom, one in front of the class and one behind. The only items found in the classroom are dual tables and forms for pupils and tables and chairs for teachers. The tables for the pupils measure 0.86 metres by 0.38 metres in length and width respectively.

The school has a compound dotted with mango trees, a playing field and a building for the kindergarten. The Babinso primary school has no permanent urinals or latrines. The temporary urinals were erected during the period of study. Food items are sold in the open under the mango trees.

The school has a pupil population of 93. Table 1 shows the population of the Babinso primary school by class and gender.

**TABLE 1**  
**PUPIL POPULATION OF BABINSO PRIMARY SCHOOL**

CLASS	MALE	FEMALE	TOTAL	AVERAGE AGE (years)
1	5	9	14	7.1
2	6	8	14	8
3	9	6	15	9.4
4	6	8	14	9.8
5	15	9	24	11.1
6	7	5	12	11.8
TOTAL	48	45	93	

According to Table 1, 48 out of the 93 pupils are males and 45 are females; their respective percentages are approximately 52 and 48.

The staff of the Babinso Primary School is made up of five teachers. They are all certificate 'A' 4-year trained teachers; two of them possess the General Certificate of Education, Ordinary levels. The years of teaching experience range from 2 to 25 years. None of the staff is a native. Of the five teachers, three are females and two males. Only one of the teachers resides in the Babinso village. The rest, including the headteacher, commute daily between Ajumako, the district headquarters, and the school, a distance of 1.6 kilometers.

The school, managed by the District Assembly, is administered by the headteacher with support of the other staff members who have been assigned various duties. The pupils have been organized into sections named after renowned Ghanaians (e.g. Danquah, Aggrey, Sarbah and Quarshie).

School/community relations at Babinso can be described as healthy. From discussions with the representatives of the Town Development Committee (TDC) and Parent Teacher Association, it is clear that the community has taken responsibility for the maintenance of the school block and furniture.

## METHODOLOGY

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The study was, more or less, an exploratory one which was to lead to the identification of relevant variables for quality education and the subsequent planning of a national study even though the emphasis was on resources and their uses. As such, there was the need to conduct 8 weeks of intensive data collection on the teaching of English, Mathematics and Science. The research consisted mainly of observational case studies in which the focus was on the school and the classroom. Continuous observation was used in conjunction with records and interviews. The study was qualitative, or ethnographic, non-participant observer research in which semi-structured instruments were used. For instance, rather than studying the teaching teaming process by collecting test scores before and after treatment, the study involved observing many aspects of the learning environment, attempting to identify factors associated with effective education with regard to English, Mathematics and Science.

The Babinso Primary School was selected as a case to be studied after considering the characteristics of the school particularly its low enrollment and location in a rural setting according to the national educational statistics in Ghana. The sampling procedure could be described as purposive sampling. The implication is that the school would typify rural schools in Ghana characterized by low enrollments.

The unit of study was the school, but the main unit of observation was the classroom. Three classes were systematically selected, namely 2, 4 and 6. This was done alongside the selection of the classes to be observed in five other schools taking part in the preliminary studies of the Improving Educational Quality (I.E.Q.) Project in the Central Region of Ghana.

Observation was continuous and unstructured. The observers tried to record virtually everything that occurred in the classroom setting in connection with the teaching of English, Mathematics and Science. A guide was used which has space for recording date, observer, school, class, the subject in which the observation was being made, the time the lesson began and ended, and the total instructional time. In addition, spaces were provided for the description of teacher and pupil usage of materials (see Appendix 1). An inventory form was also used to take stock of available materials and their sources. With regard to records, relevant data were collected on:

- (i) the teachers - their training, qualification and teaching experience; and
- (ii) the available resources/materials such as textbooks for each class for the teaching of the three subjects in question.

Interview guides were developed for the various parties to be interviewed, namely the headteacher, teachers, pupils and parents (see Appendices 2a-d). The purpose of these interviews was to validate some of the observations made during the period of study as well as illuminate other relevant issues with regard to quality education. Representatives of the PTA and Town Development Committee were also interviewed.

## RESEARCH PROCEDURE

The procedure adopted in executing the study consisted of four distinct stages. The first of these stages was the introductory visits by the Team Leader of the research group in November, 1992 on the 20th, 23rd and 24th. This three-day visit had two objectives: (i) to familiarize the Team Leader with the school and its environs, and (ii) to explain the purpose of the project to the teachers as a means of preparing them for the study. Activities undertaken during the visits included: (i) a meeting with the staff during which the purpose of the project was explained to them, (ii) the collection of data on teachers, and (iii) the collection of information from the headteacher on available materials such as textbooks, workbooks and teaching aids.

The next stage of the study consisted of a three-day visit by the entire research team on 7-9 December

1992. These preparatory visits afforded the research team and school staff the opportunity to get to know each other and allowed the team to explore the situation in the classrooms. By sitting in and observing the teachers at work, they minimized the effect of the presence of observers in the classroom during the main study. During this period, Team Members were introduced to the staff. They visited classrooms to observe lessons, including those not included in the main study, so as to put the teachers at ease. In other words, all the classrooms were visited by the Team Members, singly or in pairs for at least two lessons each. More information was collected on materials and pupil characteristics.

The preparatory visits were followed by a 12-day visit of intensive classroom observation. This was during the months of February and March, 1993 (see Appendix 3 for the schedules of visits). The schedule was prepared using the extended Latin square design. Each time, two people observed a lesson. The schedule was such that each of the three classes had an expected total of eight days of observation from the 12 days from the pair of observers. Each observer was to make 4 visits to each class. As the result of the absenteeism of the primary two teacher, class two did not receive the expected number of days of observation. This occurred on three separate occasions. Unfortunately, she could not return to school before the conclusion of the observation period. This led to an increase in the number of days spent in classes 4 and 6; they had 9 and 10 days of visit respectively. Table 2 shows the number of observations per class and subject. Observations were done in pairs to ensure dependability of data collection. In this situation, observers met immediately after each session to compare notes for any omissions and additions to be discussed and agreed upon as well as the issues arising from the lessons observed. Clarifications were sought from teachers when necessary. Summaries were then written. During the observations, observers sat at the back to avoid disrupting the class. Once in a while observers circulated to observe pupils at work.

TABLE 2  
OBSERVATIONS PER CLASS AND SUBJECT

CLASS	NUMBER OF OBSERVATIONS			TOTAL
	ENGLISH	MATHEMATICS	Science	
2	5	4	1	10
4	8	8	3	19
6	8	9	3	20
TOTAL	21	21	7	49

Even though casual interviews were done during the observation period, a day was used for the formal interviewing of the headteacher, teachers, some pupils and parents using the aforementioned interview guides. The number of subjects interviewed were three teachers, parents/guardians, pupils and the headteacher.

Table 3 shows the distribution of subjects interviewed based on classes. The team members interviewed subjects simultaneously on the same day using the guides.

**TABLE 3**  
DISTRIBUTION OF SUBJECTS INTERVIEWED

CLASS	TEACHER*	PUPILS	PARENTS/ GUARDIANS	TOTAL
2	1	3	4	8
4	1	5	5	11
6	1	4	4	9
TOTAL	3	12	13	28

\* Headteacher exclusive.

#### DATA ANALYSIS

Data collected were analysed using categorization and comparison.

#### FINDINGS OF THE STUDY MATERIAL

In order to put the presentation of the materials in the right perspective it is important to bear in mind the Ghanaian government policy on the supply and use of textbooks: that they are to be kept and used at school only. With regard to the textbook-pupil ratio, the present objective is to attain 0.50, even though the ideal is 1.

Materials in the school can be divided into two main categories. These were the general materials kept in the store/office for use by teachers when necessary depending upon the lesson being taught and specific class-related materials (e.g. textbooks, teacher's guide, etc.) The following general materials were found at Babinso Primary School:

- Two cupboards
- Two chalkboard rulers
- One chalkboard compass
- One chalkboard protractor
- Chalk (for daily use)
- Dual tables and chairs/forms
- Notebooks (one for each teacher)
- Registers (one for each class)
- Teaching aids, eg. five dummy clock faces
- One copy of the syllabus for each subject

With the exception of tables and chairs which were provided by the Parent Teacher Association (PTA), all other materials listed above were supplied by the Ministry of Education (MOE) through the Ghana Education Service (GES). Data on class-specific materials are presented in the following section

#### Primary Two (2)

With regard to the teaching of English Language, the main material available was An English Course for Primary Schools Book 2. Twenty copies of this textbook were available in the store for use by the teacher and her pupils. Flash cards were also available in the store. From the number of pupils on roll, i.e., 14, one could say that the available readers were adequate since each pupil had the opportunity to use one.

Exercise books and pencils were other materials observed to be in use in the class. Not all pupils had these items. Eleven out of the fourteen pupils had exercise books for English Language expression work. The number of pupils without pencils varied each day. On average, two pupils at a time did not have pencils for writing.

The main textbook for Mathematics in Primary Two was Ghana Mathematics Series, Pupil Book 2. Thirty copies of this text were supplied. The textbook-pupil ratio was 2.1. (A further 7 copies were supplied after the study). The Teacher's Guide was also supplied. All the pupils in the class had exercise books and pencils for written work. The number of pupils with pencils varied; on the whole two pupils at a time did not have pencils. Counters in the form of bottle tops, stones or short sticks were used by the pupils in Mathematics lessons.

For Science, a textbook was available for use by pupils, i.e. Ghana Science Series Book 2. The quantity available was 15 giving a ratio of 1.05; nine pupils had exercise books for expression work in Science. Blue pencils were provided for use during a Science lesson. Besides these materials, local materials abounded in the environment for use by the teacher. Table 4 summarizes the available materials for Babinso Primary Two.

TABLE 4  
SUMMARY OF AVAILABLE MATERIALS FOR PRIMARY 2

SUBJECT	MATERIALS	PROVIDED BY	QUANTITY		TXTBK/ PUPIL RATIO*
			FOR PUPILS	FOR TEACHERS	
ENGLISH	English Course Book for Primary Schools, P2.	Government	20		1.4
	Teacher's Guide	" "			
	Flash cards	" "			
	Exercise Books	Parents	11		
	Pencils	" "			
MATH	Ghana Math Series, P2.	Government	30	1	2.1
	Exercise Books	Parents	14		
	Pencils	" "			
	Counters	Pupils			

SUBJECT	MATERIALS	PROVIDED BY	QUANTITY		TXTBK/ PUPIL RATIO*
			FOR PUPILS	FOR TEACHERS	
Science	Ghana Science Series, P2.	Government	15		1.07
	Blue Pencils		30		
	Exercise Books	Parents	9		

\* Textbook/Pupil Ratio = No. of Books/No. on Roll

#### Primary Four (4)

Materials available in Primary 4 are summarized in Table 5 as follows:

TABLE 5  
SUMMARY OF AVAILABLE MATERIALS FOR PRIMARY 4

SUBJECT	MATERIALS	PROVIDED BY	QUANTITY		TXTBK/ PUPIL RATIO
			FOR TEACHER	FOR PUPIL	
ENGLISH	English Course for Primary Schools, P4.	Government	1	10	0.71
	Teacher's Guide	" "	1		
	Exercise Books	Parents		12	
	Pens	Parents			
	Pencils				

SUBJECT	MATERIALS	PROVIDED BY	QUANTITY		TXTBK/ PUPIL RATIO
			FOR TEACHER	FOR PUPIL	
MATH	Ghana Math Series: Pupil book, P4.	Government	1	25	1.79
	Teacher's Guide	" "	1		
	Exercise Books	Parents		14	
	Pens	Parents			
	Pencils	Parents			
Science	Science for Primary Schools: P4.	Government		5	0.35
	Teacher's Guide	" "	1		
	Exercise Books	Parents		12	
	Pens	" "			
	Pencils	" "			

\* Textbook/Pupil Ratio = No. of Books/No. on Roll (14)

The basic textbook available for mathematics was Ghana Mathematics Series: Pupil's Book 4. Twenty-five copies of this textbook were available for use by pupils. The teacher also had a copy of the textbook and the corresponding Teacher's Guide. The textbook-pupil ratio was 1.79. Ten additional copies were supplied just after the observation period in the school.

With regard to English Language, the basic textbook available was An English Course for Primary Schools, Pupil's Book 4. Ten copies were available for use by the pupils and one copy for the teacher. However, the condition of the copies was poor.

For Elementary Science, five copies of Science for Primary Schools Book 4 were available for use by the teacher and the pupils. Three additional copies were provided later.

In the light of the government's current policy of at least 0.50 textbook-pupil ratio, the ratios for mathematics (1.79) and English (0.71) can be said to be quite high in this class. Thus, in this circumstance, the quantities of textbooks for Mathematics and English Language were more than adequate in this class. The ratio for Elementary Science (0.35) is less than the reference point of 0.50.

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Pupils also used exercise books, pencils, and pens; however, not all pupils had these items. All the pupils did have exercise books for Mathematics; two did not have any for English, and two also did not have any for Science. Those pupils without exercise books either did their class assignments on pieces of paper or sat idle. None of the pupils had notebooks to take down notes during class. In addition, 2-3 pupils at a time did not have pens to work with. Those without pens sometimes borrowed them from their friends in the other classes.

Pupils sent in local materials like coal-pot, charcoal, etc. for experiments, practicals or demonstrations, and when necessary for Science lessons in particular.

#### **Primary Six (6)**

There were 10 copies of the "An English Course for Primary Schools: Pupil's Book 6. There was no copy available of the Teacher's Guide for the teaching of English available. This information is shown in Table 6 below. The textbook-pupil ratio for the class of 12 was 0.83 which was a little above the 0.50, the current expected ratio of the Ministry of Education.

The textbook available for Primary 6 Mathematics was the Ghana Mathematics Series, Pupil's Book 6 as shown in Table 6. There were 20 copies of the book for a class of 12 pupils.; the Teacher's Guide was also available. The books were considered adequate for the class because the ratio was 1.66, above the minimum of 0.50. Eight additional copies were supplied after the observation.

Science for Primary Schools, Pupil's Book for Class 6 was the textbook for Elementary Science. As shown in Table 6, there were 9 copies of the book for the class. There was one copy of the Teacher's Guide available to P4-P6 teachers. In terms of ratios and adequacies, the pupils' copies were adequate because the ratio was 0.64.

Pupils had stationery such as class exercise books, pens, pencils, rulers and erasers for use in English, Mathematics, Science assignments and all other subjects. As shown in Table 6, each pupil was expected to have a set of all the stationery. However, no pupil had the mathematical set, only 2 pupils had erasers, and of the 12 pupils, only 7 had rulers.

**TABLE 6**  
**SUMMARY OF AVAILABLE MATERIALS IN CLASS 6**

SUBJECT	MATERIALS	PROVIDED BY	QUANTITY		TXTBK/ PUPIL RATIO
			FOR TEACHER	FOR PUPIL	
ENGLISH	Primary English Reader: P6.	Government		10	0.83
	Supplementary Readers: The Brassman's Secret	" "		12	1
	My First Book of Birds	" "		13	1.08
	My First Book of Mammals	" "		13	1.08
	Bobo and the Kind Lion	" "		13	1.08
MATH	Ghana Math: P6.	Government		20	1.66
	Teacher's Guide	" "	1		
Science	Science for Primary Schools: P6.	Government		9	0.75
	Teacher's Guide	" "	1		
	Stationery	Parents			
	Rulers	" "	7		
	Pens	" "			
	Pencils	" "			
	Erasers	" "	2		

From the set of tables above, it can be observed that, in general, basic materials were available in the Babinso Primary School. The textbook/pupil ratios were good. There were a few cases where materials were inadequate, e.g. chalkboard, rulers.

#### SOURCES OF MATERIALS

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All the textbooks for the three subject areas in the school were supplied by the Ministry of Education (MOE) through the Ghana Education Service (GES). (See Tables 4, 5, and 6.) Even though copies were sold in the open market, parents could not obtain any for their wards.

Parents and guardians were supposed to provide exercise books and pencils to their wards; however, some parents were unable to do so. These pupils just idled about while their colleagues were working. With regard to the lack of pencils and pens, those who were without usually borrowed from friends. This category of pupils averaged two per class.

## USES OF THE MATERIALS

### Primary Two (2)

In general, it was observed that materials available for Primary Two were not being put to maximum use. For instance in the only Science lesson observed, the available pupils textbook was not referred to. Neither were the specimen leaves brought in by the pupils. In this particular lesson the teacher's knowledge base appeared to be very weak. There were misspellings of words written on the board. Stem was misspelt "stern" while leaf was written "leave."

With regard to Mathematics, the textbook served as the workbook. The Teacher's Guide was used once out of the 4 observations conducted while the teacher suspended lessons and sought clarification with the headteacher about problems in the pupils' books. The teacher appeared to be unprepared for the lessons and was thus unable to meaningfully plan the use of available materials. In one instance, a lesson was half-way completed before the teacher asked pupils to go out to look for counters.

In lessons observed in English Language, the readers available were not fully used. Instead of referring pupils to drawings in the book, the teacher explained things in abstract form. Even though 30 copies of the textbook were available only five were given to pupils to read in groups of roughly three. No reading cards were used in the lessons observed. The chalkboard was used by the teacher during lessons to illustrate points raised.

Pupils' use of materials was prominent in two main areas. The first area was the use of readers during English Language lessons. Even here, as pointed out earlier in this section, only 5 out of the 30 copies were being used by pupils in groups. The second was the use of pencils during expression work and/or the solution of problems put on the chalkboard.

### Primary Four (4)

The teacher used the basic textbooks and the Teacher's Guide in the preparation of her lesson notes. In Science, however, she claimed to have used only her lecture notes from the Teacher Training College. She only made use of the Science textbook once in the three lessons observed. She used the chalkboard extensively for demonstration work and class exercises. All class exercises from the textbooks were copied onto the chalkboard during lessons. This practice, among others, tended to adversely affect instructional time since much time was wasted in the cleaning of and writing on the chalkboard. Most importantly, reading passages were always written on the chalkboard while 10 copies of the reader were available.

The teacher nearly always left the class half-way during lessons to collect teaching materials such as chalkboard ruler and dummy clock face. This also affected instructional time. Instructional time was always used for grading pupils' exercises and expression work.

With regard to the pupils' use of materials it was observed that they rarely used any textbooks in class. The textbooks were always displayed on the teacher's table and were scarcely given out to the pupils for use. For instance, for the 8 observations of English Language lessons which were all on reading, the pupils never handled any of the 10 available copies of the reader. In Mathematics

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lessons, pupils frequently used stones as counters; yet they were never made available until half-way through the lesson when pupils were asked to go and collect them from the compound. Pupils worked sums/problems on the chalkboard under the teacher's guidance. Pupils did not take down any notes during the lessons apart from the exercises they did in class which were kept in the school. There was therefore no material to refer to at home for private study.

During one Science lesson, however, the teacher allowed the pupils to handle the materials used to demonstrate that air occupies space. On the whole, however, the use of materials by pupils for learning fell short of expectation.

### **Primary Six (6)**

In teaching the various aspects of English Language (reading and comprehension, composition, story telling and grammar), the teacher used the chalkboard to display words and expressions and while conducting various drills. For example, in teaching question tags he wrote the questions and their corresponding responses on the chalkboard to guide the pupils. In the composition lesson on "Simple Official Letters (Apology)," he outlined the steps and format of official letters on the chalkboard to guide pupils to write an apology letter to the class teacher about misbehaviour towards the teacher and the class. In the story telling lesson, the teacher wrote the theme of a story on the chalkboard for children to copy into their exercise books.

Besides the use of the chalkboard, the teacher used the Primary English Reader, Pupil's Book 6 by asking pupils to read from it or answer questions from it. The reader had no Teacher's Guide. In most cases, the teacher asked pupils to write exercises from the chalkboard into their exercise books.

During English grammar, reading and comprehension, composition and story telling lessons, pupils read from the chalkboard and copied expressions, sentences, and teacher's examples into their exercise books. Pupils made efforts to read aloud or individually from the Primary English Reader, Pupil's Book 6. Among the exercises which pupils copied from the chalkboard into their class exercise books were one on question tags, another on a letter of apology and, finally, a story.

In teaching Mathematics, the teacher used the chalkboard extensively to write answers to mental drills, demonstrate, explain and give exercises. The teacher occasionally set sums from the pupils' mathematics text-books on the chalkboard for pupils to practice. Furthermore, the teacher chose four assignments for homework from the pupils' textbook.

Pupils wrote answers to the mental exercises in mental exercise books and helped in marking their work. They also wrote on the chalkboard during lessons by solving problems, giving examples and demonstrating issues. In teaching the "Different States of Water" and "Sources of Water" in one of the three Science lessons observed, the teacher composed a summary on the chalkboard as the lesson progressed. He occasionally asked pupils to refer to their Science textbooks. The teacher gave samples of water (river water, well water, sea water and rain water) to pupils to taste and smell. He drew pictures and diagrams on the chalkboard for the lesson. First, he demonstrated and then directed pupils to use a coal-pot to boil water, illustrating water in the different states, e.g. gaseous and liquid.

Pupils read the teacher's chalkboard summary and answered a few questions in Twi because they could not express themselves in English. They observed diagrams and illustrations in their textbooks and copied summaries and diagrams from the chalkboard into their exercise books. The available supplementary readers were never read during the study period..

### **OTHER FINDINGS**

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## **The Use of Time Table**

The teaching time table was virtually disregarded and subjects were taught at the teacher's convenience in all classes. However, two subjects, namely Mathematics and English Language, featured prominently in daily lessons. In Primary Two, not a one of the ten observations made was taught at the appropriate time on the time table. For instance, on 1st March 1993 a Mathematics lesson which should have been taught between 8:15 and 9:15 was taught between 9:00 and 10:00 while an English Language lesson on the same day was taught between 10:00 and 11:30 instead of 9:55 to 10:55. The only Science lesson observed was taught between 10:00 and 10:50 instead of 8:45 to 9:45.

At Primary 4, the situation was the same. Instances were that on 26th February 1993, the teacher taught Science from 8:15 to 10:30 instead of 8:45 to 9:45. On 10th March 1993 an English lesson which was to be given from 9:55 to 10:25 was held between 10:05 and 11:20.

In Primary 6 for instance on 1st March 1993 the teacher taught English from 10:15 to 11:45 instead of 10:05 to 11:25. The effect of this situation in the school was that certain subjects were rarely taught. Such subjects included Culture, Life Skills, Agriculture, Physical Education and Ghanaian Language. (Refer to Appendices 4a and b.)

## **Homework**

In most of the lessons observed, pupils were not given any homework to enable them to continue learning activities after school. Learning therefore ended after classes. In Primary 2, for example, on the ten occasions the teacher was observed teaching the three subject areas, she gave no homework to the pupils. Even though two parents interviewed said that their wards studied at home, one wonders what they were studying since they did not have any reading materials at home. The other two parents stated that their wards did not study at home after school.

In Primary 4, no homework was given throughout the period of observation. Pupils had no material to refer to at home. Interviews with a sample of the pupils and their parents revealed that most of the parents were illiterates. Moreover, in most cases there were not any literate relations in the near vicinity to assist the pupils in their studies at home.

In Primary 6 the situation was better. At the end of the period of observation, the teacher gave three homework assignments in Mathematics. The teacher and pupils interviewed confirmed this situation. No homework was given in Elementary Science. In English Language, the teacher obtained permission for the readers to be sent home with the pupils to enable them read in the evenings.

## **Weak Knowledge-base of Teachers**

The three teachers observed appeared to have poor grounding in English Language and other subjects as well. For instance, the Primary 4 teacher made many grammatical mistakes in her expressions in class. In an English Language lesson she repeatedly asked the pupils:

- (i) "Where does your father lives?"
- (ii) "What food does your father likes?"

In Primary 6, the teacher got confused in teaching prime factorization of numbers. He found it difficult to exactly point out what the factors of specific numbers were and made mistakes on the chalkboard by accepting wrong numbers offered by pupils as factors. In a Science lesson on the topic "States of Water," he discussed the sources of water.

The situation with the Primary 2 teacher was already mentioned in the section on the uses of

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materials.

### **The Use of Fante at Primary 4 and Primary 6**

According to the policy of the Ministry of Education, the pupils at Primary 4 and Primary 6 should be instructed in English. However, at Babinso, most lessons were conducted using Fante as the medium of instruction in Primary 4 and Primary 6. Science lessons were conducted in these two classes with about 80% in Fante. Even English Language lessons were interspersed with the use of Fante to explain issues to the pupils. The net effect of this situation was that pupils were not encouraged to learn to speak English and therefore found it difficult to answer questions in English, let alone ask questions.

### **Extent of Coverage**

It was observed that most lessons have not gone far. Most lessons observed were topics which could have been covered in the first term. For instance a lesson was observed in Primary Two in February, 1993 in which the pupils were at page 16 of the Ghana Mathematics Series, Pupil Book 2. At Primary 6 the situation was not much different. Pupils were on the third lesson of a thirty unit English Reader in March. From what was observed, one would with no doubt conclude that the teachers were not really teaching before the commencement of this study. Some parents who were interviewed were frank to state that, thanks to the study, the teachers were regular at school and teaching was going on.

## **ISSUES AND RECOMMENDATIONS**

The foregoing findings have implications for teaching and learning at the Babinso Primary School and for that matter quality education.

### **Materials**

The finding that basic textbooks were available in adequate ratios meant that teachers could make use of them in teaching the pupils. Pupils could therefore meaningfully benefit from lessons by using the texts. However, observations established that the textbooks were not being put to maximum use. This is rather unfortunate because even though the textbooks were available the pupils were not made to have access to them to promote their learning. The more they were denied the maximum use of the textbooks, the more the quality of their education would be adversely affected. In the long run, the state would not derive the maximum benefit from the resources invested in them.

Related to this is the issue of in-service training courses for teachers. If courses could be organised for teachers on the use of textbooks and other teaching and learning materials, teacher effectiveness could be improved. No doubt two of the three teachers interviewed saw the need for regular in-service training courses to put them abreast with the challenges of present day classroom teaching.

Stationery in the form of exercise books, pens and pencils and erasers were found not to be possessed by all pupils. As pointed out in the report, such pupils idled about when their colleagues were working. Others went about looking for pens and pencils to borrow from their friends in other classes. Such a situation could not promote maximum learning. While the government policy is that those items should be supplied by parents, those parents who could not afford such items would have their wards at a disadvantage, not gaining the full impact of lessons. The government would probably have to review this policy based on a national study so that disadvantaged areas can be mapped out and the pupils in those areas assisted in acquiring stationery. This takes us to the next issue of sources of the materials found in the school.

### **Sources of Materials**

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Three main sources were identified for materials, namely the government, the PTA and parents/guardians. While materials from government sources appeared to be adequate in the school those supplied by parents/guardians had short falls.

Parents are mainly subsistence farmers some of whose economic base was weak and therefore could not provide the needed materials for their wards. About 75% of parents interviewed stated that if the government would come to their aid with regard to exercise books and writing materials they would appreciate it. Some parents could not easily pay the textbook user fees for their wards. The role of the PTA was limited to the maintenance and repair of school plant. This had sustained the school but the PTA need to put in more effort to make the school attractive. This could take the form of mending broken down tables and chairs, re-cementing the floors of the classrooms and replastering and painting of the walls.

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## FURTHER ANALYSES

### 1. AVAILABILITY OF MATERIALS

#### General Materials

- G1. Two cupboards
- G2. Two chalkboard rulers
- G3. One chalkboard compass
- G4. One chalkboard protractor
- G5. One set square for chalkboard work
- G6. Dual table/desks and chairs/forms
- G6a. P2 - 6 dual tables and forms
- G6b. P4 - 7 dual tables and forms
- G6c. P6 - 6 dual desks
- G7. Notebooks (one for each teacher)
- G8. Registers (one for each class)
- G9. Teaching aids
- G9a. 5 dummy clock faces
- G9b. Flash cards (for P1)
- G10. One copy of the syllabus for each subject

#### *Primary 2:*

##### English

- E1. 20 copies of English course for Primary schools, Book 2, were available for use by pupils and the teacher.
- E2. One copy of the Teacher's Guide to the English Course Book 2.
- E3. 11 out of 14 pupils had exercise books for English expression work.
- E4. Some pupils had pencils for doing class assignments and expression work.
- E4a. On average, 2 pupils at a time did not possess pencils for expression work.

##### Mathematics

- M1. 30 copies of Ghana Mathematics Series Books were available for the 14 pupils.
- M1a. 7 new copies were supplied during the follow-up visit.
- M2. One copy of the Teacher's Guide to Math Book 2 was available for use by the teacher.
- M3. All the 14 pupils had exercise books for math assignments.
- M4. Some pupils did not have pencils for doing Math exercises/assignments.
- M4a. On average two pupils at a time did not have pencils for maths exercises.
- M5. All pupils in class had counters in the form of stones and short sticks for use.

##### Science:

- S1. 15 copies of Ghana Science Series book 2 were available for the 14 pupils and the teacher.
- S2. One Teacher's Guide was available for P1-3.
- S3. 9 out of the 14 pupils had exercise books for expression work in Science
- S4. 30 blue pencils were supplied for use by pupils during the only Science lesson observed.

#### *Primary 4:*

##### English Language:

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- E1. 10 copies of English for Primary Schools book 4 were available for use by the pupils and the teacher.
  - E2. One copy of the Teacher's Guide was available.
  - E3. 12 pupils out of the 14 had exercise books for expression work in English Language.
  - E4. Some pupils had pens and pencils for expression work.
  - E4a. On average 2 pupils at a time did not have pens to do exercises.

Mathematics:

- M1. 25 copies of Ghana Mathematics Series Book 4~Workbook were available for use by the teacher and the 14 pupils.
- M1a. 10 new copies were supplied during a follow up visit.
- M2. One copy of the Teacher's Guide to the Maths Book 4 was available for use by the teacher.
- M3. All the 14 pupils had exercise books for maths.
- M4. Some pupils had pens for maths assignments in class.
- M4a. On average 2-3 pupils did not have pens to work with at a time.

Science:

- S1. 5 copies of Science for Primary Schools book 4 have been supplied.
- S2. One copy of the teacher's guide was available for use by P4~ teachers.
- S3. 12 pupils out of the 14 had exercise books for expression work in Science.
- S4. Some pupils had pens and pencils for Science expression work.
- S4a. The number of pupils possessing pen and pencils varied with the Science Lessons observed.
- S4b. 2 - 4 pupils did not have pencils and pens during the Science lessons observed each time.

Primary 6:

English:

- E1. Ten copies of English Course for Primary Schools book 6 were available.
- E2. Teacher's Guide to the reader was not available.
- E3. All pupils had exercise book for English Language expression work and assignments. E4. Four different supplementary readers were available.

Mathematics:

- M1. Twenty copies of Ghana Mathematics Series book 6 were available.
- M1a. 8 more copies were supplied after the study.
- M2. The teacher's Guide was also available.
- M3. All pupils had exercise books and jotters for maths assignments exercises.

Science:

- S1. Nine copies of Science for Primary Schools book 6 were available.
- S2. The teacher's Guide for P4 - 6 was available

Sources of Information on Materials:

- (a) The Headteacher
- (b) The class teacher
- (c) The Records (Inventory and Waybills)
- (d) Checking of the available books by counting them.

2. SOURCES OF MATERIALS:

- SO1. Ministry of Education (MOE) through the Ghana Education Service (GES)
- SO1a. Supply of Text books and general materials.
- SO2. Parents and Guardians.

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- SO2a. Supply of exercise books, pens and pencils.
  - SO3. Parent Teacher Association (PTA) Town Development Committee (TDC).
  - SO3a. Supply and maintenance of pieces of furniture as well as the school building.

### 3. MATERIAL UTILIZATION:

#### *English Language:*

- E1. Teachers used the basic textbooks for instruction during lessons.
- E1a. Teachers observed copied key or main words from the textbook on the chalkboard for the pupils to pronounce.
- E1b. Passages were written from the textbook on the chalkboard for pupils to read in P2 and P4 in all English reading lessons observed.
- E1c. P6 teacher read paragraphs of textbook to the pupils as a model.
- E1d. P2 teacher never used available flash cards in reading lessons.
- E2. Pupils used textbooks in P2 and P6 during reading lessons.
- E2a. Pupils read silently from the textbook.
- E2b. Pupils read aloud from the textbook in class
- E2c. P6 teacher gave an assignment to be done at home using the textbook -reading.
- E2d. P4 pupils never used the textbook in reading for the 6 reading lessons observed.
- E2e. P4 Teacher always copied passage on the chalkboard.
- E2f. P6 pupils never used the supplementary readers available.
- E3. Teachers used chalkboard in all their English lessons.
- E3a. Teachers wrote key new words in lessons on the chalkboard for children as well as passages (P4 and P2) .
- E3b. Teachers wrote exercises on the chalkboard for pupils to do in their exercise books.
- E4. Pupils used the chalkboard at every English lesson.
- E4a. Pupils read new/key words from the chalkboard (P2, P4 and P6).
- E4b. Pupils read passages/sentences from the chalkboard (P4 and P2).
- E4c. Pupils did exercises/expression work from the chalkboard in most cases.
- E5. Few pupils were without pens, pencils and exercise books.

#### *Mathematics:*

- M1. Teachers used basic maths textbooks for instruction and class assignments.
- M1a. Teachers copied problems from the text books on the chalkboard for the pupils in teaching (P2, 4 and 6).
- M1b. Teachers used textbooks as instructional aid eg. In P4 referring pupils to clock faces and saying the time.
- M1c. Teachers used the textbooks in giving class assignments to pupils on the chalkboard.
- Md.. Teachers used teaching aids in maths lessons to demonstrate to pupils eg. P4 teacher used a dummy clock face, and a pair of compasses, wrist watch in lessons on Time.
- M2. Pupils used textbook during lessons for referencing and for answering questions.
- M2a. P2 pupils worked in their textbooks/workbook
- M2b. P4 pupils used their textbook 4 times out of the 8 lessons observed. Teacher referred them to the textbook.
- M2c. P6 pupils used textbook for homework on 3 occasions out of the 9 observations in maths.
- M3. Teachers used chalkboard extensively in their lessons.
- M3a. To demonstrate solution of problems.
- M3b. In giving class assignments to the pupils.
- M4. Pupils also used the chalkboard during lessons occasionally.
- M4a. Working examples of problems taking turns.
- M4b. In P4, on 3 occasions teacher allowed three pupils to solve problems on the chalkboard simultaneously.

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- M5. Pupils used counters in solving problems in P2 & P4 and occasionally in P6.  
M6. Mathematical sets were not available for U# by the pupils (negative case)

*Science:*

- S1. Teachers occasionally used Science textbooks in their lessons.  
S1a. P2 teacher never used the available Science textbooks in her Science lesson observed.  
S1b. P6 teacher used the textbooks in two lessons out of the 3 observed while the P4 teacher used it once in the 3 lessons observed.  
S1c. P6 and P4 teachers referred pupils to pictures on topics being treated on one occasion each from the textbook.  
S2. Pupils occasionally used Science textbooks.  
S2a. Pupils in P4 and P6 had the opportunity to use the textbook by referring to pictures and answering questions on them from the teacher.  
S3. Teachers used ad hoc materials in teaching Science lessons.  
S3a. Teachers used materials such as coal-pot, charcoal, bottles, water, bowls, to experiment on topics such as Air has weight, and states of water etc.  
S4. Pupils also used ad hoc materials during lessons by carrying out experiments. eg. P4 & P6  
S5. Teachers used chalkboards for illustrations and demonstrations of issues.  
S6. Pupils did expression work such as drawing of diagrams of experiments or completing tables.

Sources of information:

Observation and Interview.

4. OTHER FINDINGS:

*TIME TABLE*

- OT1. The time table was invariably neglected in teaching.  
OT1a. Lessons were not taught at their appropriate scheduled time, eg. in P2 all the 4 Mathematics lessons observed were not taught on schedule. This applied to English and Science in other classes.  
OT1b. Subjects were taught at the teachers convenience. In more than 60% of the cases the teacher decided what to teach not the time table.  
OT1c. Some subjects feature more than scheduled, thus taking the place of others. eg. In P4 in 3 cases the teacher taught maths in place of English, P.E. and Ghana Language respectively.  
OT1d. Lessons were in some subjects particularly English and Maths were prolonged beyond the duration specified at the expense of other subjects like Cultural Studies, Agriculture and P.E.  
OT2. Instructional time was always used to grade class assignments. This permeated the work of the three teachers observed.

*HOMEWORK*

- OH1. Homework was not or seldom given to pupils.  
OH1a. Through out the period of study P2 and P3 teachers never gave a single homework to pupils in any of the 3 subjects.  
OH1b. P6 teacher gave 3 homework in maths and a reading assignment in English Language and none in Science throughout the period.

*USE OF VERNACULAR:*

- OV1. Vernacular was used in giving instruction.  
OV1a. In P4, the teacher conducted almost all lessons in maths, Science and sometimes English Language in the vernacular.  
OV1b. In P6 when pupils appeared not to understand the lessons, the teacher used the local language to explain issues.

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- OV2. Pupils in all classes communicated with the teacher mainly in vernacular.  
OV2a. Pupils always interacted with each other in vernacular

*KNOWLEDGE BASE OF TEACHERS:*

- OK1. Teachers had weak grounding in subjects  
OK1a. Teachers committed a lot of grammatical errors in lessons eg. In P4 the teacher asked, "Where does your father lives?" The P6 teacher also stated "You're Charles. Isn't it?" In P2 teacher wrote "stern" for stem and "leave" for leaf.  
OK2. Pupils were sometimes misinformed. eg. The teacher in P6 during a Science lesson under the topic "States of Water" taught "Sources of Water." In some aths lessons teacher (P6) accepted wrong answers to questions eg. Prime mfactors of 40.

*EXTENT OF COVERAGE:*

- OC1. Most lessons had not gone far  
OC1a. In P2 pupils were on unit 2 (page 4) of a 30 unit reader. For maths, they were on unit 3 out of 15 units as at the end of the second term.  
OC1b. In P4 pupils were on Unit 3 of the 30 Unit reader at the end of the second term.  
OC1c. The supplementary readers for P6 pupils have never been read by them.

*Sources of Information:*

Observation, Interviews, Records.

*EXPANDED CONCLUSIONS:*

1. The basic textbooks and materials were available at Babinso primary school. In most cases, the textbook-pupil ratios were higher than 0.50 which is the prevailing government policy. In some cases the ratio was above 1. However, not all pupils had exercise books, pens, and pencils. In most cases 2-3 pupils did not possess these items and in the case of pens and pencils, pupils collected from their friends.
2. Materials were obtained from three main sources viz the government, Parents/Guardians and Parent Teacher Association
3. Textbooks and other materials such as chalkboard and ad hoc teaching aids were used by the teachers and pupils. However, in most cases the chalkboard had replaced the textbook - thus pupils read passages from the chalkboard instead of reading from the textbook. Science textbooks were not frequently used either. Expression work was done virtually after each lesson in exercise books.
4. The teaching time table was invariably thrown over board. Teachers taught subjects at their convenience. English Language and Maths were subjects taught on daily basis which others like Cultural Studies, Agriculture and Physical Education were neglected. Lessons in English and Maths were prolonged at the expense of other subjects.
5. Homework was seldom given. Of the 3 classes observed two gave no homework to pupils during the period of study. In one class 3 assignments were given at the tail end of the period of study in Maths and one in English.
6. Teachers appeared to have weak knowledge base in most subjects. This, probably led to some errors in their presentations.
7. The local language was used in teaching pupils in P4 and P6 contrary to laid down government policy. Pupils interacted with teachers in the local language. Pupils always used the local language in communicating with friends. Pupils found it difficult communicating in English.
8. The extent of coverage of lessons had not gone far. Most topics being treated at the end of the second term were topics expected to be treated at the early part of the first term. Pupils may thus not b able to complete the scheduled work for their grades.

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APPENDIX 1

CENTRE FOR RESEARCH ON IMPROVING QUALITY OF  
PRIMARY EDUCATION IN GHANA - CRIQPEG  
FACULTY OF EDUCATION  
UNIVERSITY OF CAPE COAST  
OBSERVATION FORM

Date: \_\_\_\_\_ Observer: \_\_\_\_\_

School: \_\_\_\_\_ Class: \_\_\_\_\_

Lesson in: Math: \_\_\_\_\_ Science: \_\_\_\_\_ English/Language Arts: \_\_\_\_\_ (check one)

Time Began: \_\_\_\_\_ Time Ended: \_\_\_\_\_ Total Instructional Time: \_\_\_\_\_

Describe how the TEACHER use any material in teaching this lesson (e.g. what's being used, what's the teacher doing etc.) Record FACTS. Be specific

T1. \_\_\_\_\_

T2. \_\_\_\_\_

T4. \_\_\_\_\_

T5. \_\_\_\_\_

Note. e.g. any appropriate materials not being used.

Select a small group of PUPILS to observe. Record number of students and gender. Observe these same students each visit. Note if one is absent. Describe each occasion when one or more of these students used a resource (e.g. text, exercise book, bottle caps). Be as complete as possible (see notes on Guidelines). Note if entire class did the same thing as what you have recorded.

Student description \_\_\_\_\_

\_\_\_\_\_

S2. \_\_\_\_\_

\_\_\_\_\_

S3. \_\_\_\_\_

\_\_\_\_\_

S4. \_\_\_\_\_

- Remember to record what the pupils were doing If they were not using any instructional materials.
- Did the teacher assign homework? \_\_\_\_ Yes \_\_\_\_ No  
What was the assignment? \_\_\_\_\_

(• Your comments on anything that was said or done).

---

APPENDIX 2a

INTERVIEW FORMAT FOR HEADTEACHER

A. BACKGROUND AND EXPERIENCE

1. Academic Qualification
2. Professional Status
3. Length of experience in the Teaching Service.
4. For how long have you been a headteacher?

B. GENERAL TEACHING AND ADMINISTRATIVE EXPERIENCE

6. Do you like teaching?
7. For how long did you teach before you became a headteacher?
8. Which do you like better - Classroom teaching or Administration?
9. How many in service training classes have you attended since you became the head of the school?
10. What were they about?
11. Do you share the experiences you gather at the in-service training with your teachers?
12. How do you enroll your pupils?
13. Do you have any criteria for enrollment? If yes, what are they?

C. VIEW ABOUT TEACHERS AND PTA

14. Have you supplied your teachers with all the requisite teaching materials?
15. Do you go out to supervise the work your teachers do in the classroom?
16. Do they prepare daily or weekly notes?
17. Are these vetted before use?
18. Would you describe the following Class teachers as above average, average, below average in teaching performance.
  - (a) P2 class teacher
  - (b) P4 " "
  - (c) P6 " "
19. Do you give your teachers extra assignments?
20. What type of assignments?
21. Do they perform them well?
22. How often do you have staff meetings?
23. Do the teachers complain about the work they do in the school?
24. How helpful has the PTA been to the school?
25. What forms of complaint do they make?
26. Do you expect the PTA to play a greater role?
27. What plans do you have for the development of the school?
28. What problems do you have in the school?
29. How can those problems be solved?
30. Who do you think should supply teaching and learning materials? Government or Parents or Both.
31. Any general comments about our visit to the school?

---

APPENDIX 2b

STRUCTURED INTERVIEW FORMAT FOR TEACHERS

A. BACKGROUND AND EXPERIENCE

1. What is your academic qualification(s)?
2. Professional Status.
3. How long have you been in the Teaching Service?
4. For how long have you taught in your present school?

B. GENERAL TEACHING EXPERIENCE

5. Why did you choose the teaching as your profession?
6. How did you find teaching (enjoyable or difficult - why?)
7. What was your view about teaching before you joined the profession?
8. What is your present view.
9. Have you attended any in-service training when you joined the teaching service? How many times?
10. What kind of teaching experiences did you learn? (e.g. assessment; use of new books etc).
11. Do you have any plans for up-dating your knowledge about teaching?
12. If yes, what plans?
13. What teaching skill did you acquire during your initial training?

C. TEACHING EXPERIENCE IN PRESENT SCHOOL

14. How do you find the general conditions in your school since you joined it? (the conditions improving or deteriorating).
15. Does your school have any special needs? What are they?
16. Which of these needs do you expect the following to provide?
  - (a) Government
  - (b) P.T.A.
  - (c) Staff of the school
17. What are the general problems faced by the school?
18. How can these problems be solved?
19. What is your general impression about the organization and administration of the school?
20. How would you describe the relationship that exists between you and
  - (a) the Headteacher
  - (b) Parents of Pupils
  - (c) Your colleagues

D. CLASSROOM TEACHING EXPERIENCE

21. For how long have you taught in your present class?
22. Do you find all the textbooks designed for your class as appropriate?
23. If no, which of the textbooks are not appropriate?
24. Why are they inappropriate?
25. Do you see the need for special training in the use of those textbooks?
26. Have you been using any textbooks outside what the Government has supplied to your class?
27. (a) Have you attended any in-service training in the use of those books?  
(b) Does your headteacher hold in-service training for teachers?
28. Do you face any peculiar problems in teaching all the subjects on the time table?
29. If yes, in what way can such a problem be solved?
30. Which of the subjects on the time table pose problems to you?
31. Which of the subjects on the time table pose problems to you?
32. How can these problems be solved?
33. Are your pupils punctual to class?

- 
34. If no, why?
  35. Are your pupils hardworking?
  36. Do you give them homework after each lesson?
  37. Do you inspect and mark their work?
  38. Do you have adequate textbooks and equipment for your class?
  39. Do you have enough tables and chairs in the classroom?
  40. Did you see our few days visit to your class as imposing some burden on you?
  41. If yes why?
  42. Do you have any general comment to make regarding the way and manner standard of teaching and learning in the Ghanaian schools can be improved?

---

APPENDIX 2C

INTERVIEW FORMAT FOR PUPILS

A. BACKGROUND OF PUPIL AND PARENTS

1. Name: \_\_\_\_\_
2. Age: \_\_\_\_\_
3. Class: \_\_\_\_\_
4. Name of Teacher: \_\_\_\_\_
5. Name of Parent/Guardian: \_\_\_\_\_
6. Occupation of Parent/Guardian: \_\_\_\_\_

B. VIEWS ABOUT SCHOOL AND LEARNING

7. Do you like coming to school?
8. If yes/no, why?
9. What do you do before coming to school?
10. Do you like learning?
11. What would you like to be after school? why?
12. Do you stay far/near to the school/
13. How do you get to the school? (Transport/walking)

C. VIEW ABOUT CLASS AND TEACHER

14. Do you like your teacher? Why?
15. Does your teacher give you homework each day?
16. Who buys your exercise books, pencils and erasers?
17. Do you have your own textbooks at home?
18. If yes, who bought them for you?
19. Who is your best friend in the class?
20. Do you like Mathematics? If yes/No why?
21. Do you like Science?
22. Do you like English?!
23. Which subjects do you like best and why?

---

APPENDIX 2D

INTERVIEW FORMAT FOR PARENTS

A. BACKGROUND

1. Name: \_\_\_\_\_
2. Tribe: \_\_\_\_\_
3. Literate \_\_\_\_\_ Illiterate \_\_\_\_\_
4. If literate, level of education: \_\_\_\_\_
5. Occupation: \_\_\_\_\_
6. How many children do you have?
7. (a) How many are in school?  
(b) How many are out of school?  
(c) How many are yet to enter school?

B. VIEWS ABOUT WARD

8. What would you want your child to be?
9. Why did you enroll your child in school?
10. What plans do you have for your ward after completing the Basic Education?
11. Do you provide your ward with all the learning materials he/she requires?
12. (a) Do you encounter problems in providing these materials?  
(b) What problems do you encounter?  
(c) How do you expect these problems to be solved?
13. Do your wards learn at home?
14. What do your wards generally do at home before they go to bed?

C. VIEWS ABOUT SCHOOL

15. Are you a member of the PTA?
16. How many time do you attend PTA meetings in a year?
17. What forms of assistance have the PTA members given to the school?
18. What problems are faced by the school?
19. How are the PTA helping to solve the problems?
20. (a) What do you think about the teachers?  
(b) Are they hardworking and punctual?  
(c) Are they lazy and less punctual?
21. Do you like the way the Headteacher relates with the PTA?
22. Who do you think should supply textbooks and materials to pupils?  
Government or Parents or both?

APPENDIX 3

SCHEDULES FOR OBSERVATION AT BABINSO

CLASS	FEBRUARY						MARCH						# OF VISITS
	8TH	11TH	22ND	23TH	25TH	26TH	1ST	2ND	4TH	9TH	10TH	11TH	
P2	AB	BD		CD	AC		CD		BC	AB		AD	8
P4	CD		BC	AB		AD		AC	AD		BD	BC	8
P6		AC	AD		BD	BC	AB	BD		CD	AC		8

OBSERVERS' CODES:

A = F.K. Amedahe

B = E.T. Atta

C = R.B. Montford

D = E.K. Bartels

11/6

APPENDIX 4A

TIME TABLE FOR P1 - 3

	8:00 8:10	8:10 8:15	8:15 8:45	8:45 9:15	9:15 9:45	9:45 9:55	9:55 10:25	10:25 10:55	10:55 11:25	11:25 11:35	11:35 12:05	12:05 12:35
MON	A S S E M B L Y	R E G I S T R A T I O N	Math	Math	P.E.	B R E A K	English	English	Gh. Lang.	B R E A K	Culture	Culture
TUES			English	English	Math		El. Sci.	L. Skills	L. Skills		Gh. Lang.	Agric.
WED			English	P.E.	Gh. Lang.		Math	Math	Soc. Stud.		Culture	Culture
THURS			Math	El. Sci.	El. Sci.		English	L. Skills	L. Skills		Agric.	Agric.
FRI			Math	English	Culture		Soc. Stud.	Soc. Stud.	Gh. Lang.		L. Skills	L. Skills

APPENDIX 4B

TIME TABLE FOR P4 - 6

	8:00 8:10	8:10 8:15	8:15 8:45	8:45 9:15	9:15 9:45	9:45 9:55	9:55 10:25	10:25 10:55	10:55 11:25	11:25 11:35	11:35 12:05	12:05 12:35
MON	A S S E M B L Y	R E G I S T R A T I O N	P.E.	Math	Math	B R E A K	El. Sci.	English	English	B R E A K	Gh. Lang.	Agric.
TUES			Math	English	English		Soc. Stud.	Culture	Gh. Lang.		L. Skills	L. Skills
WED			Math	Math	Gh. Lang.		English	Soc. Stud.	Soc. Stud.		Agric.	Agric.
THURS			P.E.	Gh. Lang.	Math		L. Skills	L. Skills	English		Culture	Culture
FRI			English	El. Sci.	El. Sci.		Math	Culture	Culture		L. Skills	L. Skills

RESEARCH REPORT ON AVAILABILITY  
& UTILIZATION OF MATERIALS  
AT MOREE PRIMARY SCHOOL

University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana

By

H.O. Quist  
M.E. Gavor  
N. Nicholas  
K.A. Dadzie  
B.A. Eshun

June 1993

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## PART ONE

### INTRODUCTION

Primary Level education is an essential prerequisite for all children of school-going age. This is underscored by Article 26 of the Universal Declaration of Human Rights (1948) which states, inter alia, that:

"Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory..." (UNESCO 1950)

But perhaps, more important is the quality of education provided at this level. It is in the light of this that following the implementation of the New Educational Reforms in Ghana since 1987 concern has come to be expressed about the quality of primary level education in Ghana. A weak foundation at the primary level would certainly have repercussive effects on secondary and tertiary education, and on the manpower resources produced. Consequently, to improve the quality of primary education, the Ministry of Education through the Ghana Education Service (G.E.S.) has provided textbooks to Primary Schools in the country. It is against this background that this research, sponsored by the Institute for International Research (IIR) and the Centre for Improving Quality of Primary Education in Ghana (CRIQPEG), aimed at improving the quality of education at the primary level in Ghana is an essential imperative. Through this research it would be possible to ascertain the extent to which the resources, where and if available, are contributing to the provision of quality education.

### SCHOOL PROFILE: MOREE METHODIST PRIMARY

Starting in 1937 at the Old Court House with no permanent buildings, the school moved later on to the premises of the Methodist Chapel. In 1939 it moved to its present site. Initially there were four (4) classrooms. In 1948 the remaining two classes, 5 and 6, were added. Located in the centre of Moree, a fishing village in the Abura-Asebu district and about 21 kilometres from the University, the school has no separate compound of its own, no water facilities on its premises, no enclosed walls and is surrounded by the residences of the inhabitants of the town.

Presently, the school has only one stream, runs on a shift basis with the District Council (D.C.) Primary School, has a large playground but has no canteen nor toilet facilities. However, hawkers sell food items nearby. The classrooms have no ceiling and big holes can be found in the roofing of Classes 5 and 6, which do not have doors and window frames, even though doorways and window spaces quite big enough have been provided. There are no bulletin/bill boards, no washbasins either inside or outside the classrooms. The chalkboards in the various classrooms, installed by the Methodist Church which built the school, are large and are in good condition.

The school which has a total population of 331 is managed by the Headteacher who is not detached, five (5) other teachers and a resource person in craft. The Headteacher who teaches Class 1 and the teachers for Classes 2,3,4 and 5 are all trained and certified teachers, with a basic qualification of Certificate 'A' 4 year. The Class 5 teacher holds the G.C.E. Ordinary Level Certificate. The resource person, who is blind, holds an NVTI (3 year) Certificate. The Headteacher is of the Principal Superintendent rank according to Ghana Education Service ranking. The teachers of Classes 3 and 5 are superintendents. The teachers have at various times attended promotion courses and have between four(4) and twenty(20) years teaching experience. The Headteacher and the teachers for Classes 3 and 5 live near the school while the rest stay at Cape Coast. Table 1 below provides the total enrolment of pupils by class as well as the gender differences in numerical terms.

**APPENDIX B**  
**MATERIALS/RESOURCES USED IN CLASS 4 (43 Pupils)**  
**AND THEIR SOURCES OF SUPPLY**

SOURCE OF SUPPLY/FOR WHOM	MATHEMATICS MATERIALS	SCIENCE MATERIALS	ENGLISH/ LANGUAGE ARTS MATERIALS	COMMENTS
<p>Provided by Govt. for: <i>Teachers</i></p> <p><i>Students</i></p>	<p>1 copy - Teacher's Handbook for P4 Mathematics.</p> <p>5 copies of Ghana Math Series Book 4. 1 book to 9 pupils.</p>	<p>1 copy Teacher's Hand Book for P4 Science.</p> <p>15 copies of Science Series Book 4. 1 book to 3 pupils.</p>	<p>1 copy of An English Course for Ghanaian Schools: Teacher's Handbook P4.</p> <p>2 copies of English Readers, Pupil Book 4. 1 book to 22 pupils.</p>	
<p>Purchased by School for: <i>Teachers</i></p>	<p>4 sheets of cardboard. 2 sheets of brown paper.</p>			
<p>Provided by Teacher</p>	<p>1 blue pen. 1 red pen.</p>			<p>Blue pen: For writing lesson notes or marking class registers. Red pen: for marking pupil exercises.</p>
<p>Provided by Parents/Guardians</p>	<p>1 copy mathematics Exercise Book for class exercises. 1 lead pencil.</p>	<p>Unruled Exercise Book for "Expression Work."</p>	<p>One Exercise Book for class exercises in English.</p>	<p>Only 10 pupils had the unruled exercise books for "Expression Work."</p>
<p>Provided by Community</p>	<p>School building. Blackboard in the classroom.</p>			
<p>Other sources: PTA</p>	<p>11 dual desks. 7 tables. 7 chairs. 1 table and 1 chair for each teacher's use in class. 7 cupboards for books.</p>			

SOURCE OF SUPPLY/FOR WHOM	MATHEMATICS MATERIALS	SCIENCE MATERIALS	ENGLISH/ LANGUAGE ARTS MATERIALS	COMMENTS
Policy for Use of Materials	Same as Appendix A.			No parent has come to borrow books on behalf of a ward. Parents are not aware of the policy.

APPENDIX C  
MATERIALS/RESOURCES USED IN CLASS 6 (32 Pupils)  
AND THEIR SOURCES OF SUPPLY

SOURCE OF SUPPLY/FOR WHOM	MATHEMATICS MATERIALS	SCIENCE MATERIALS	ENGLISH/ LANGUAGE ARTS MATERIALS	COMMENTS
<p>Provided by Govt. for: <i>Teachers</i></p> <p><i>Students</i></p>	<p>1 copy - Teacher's Handbook for P6 Mathematics.</p> <p>16 copies of Ghana Math Series Book 4. 1 book to 2 pupils.</p>	<p>1 copy Teacher's Hand Book for P6 Science.</p> <p>8 copies of Science Series Book 6. 1 book to 4 pupils.</p>	<p>1 copy of An English Course for Ghanaian Schools: Teacher's Handbook P6.</p> <p>30 copies of English Readers, Pupil Book 6. 1 book to 1 pupil.</p>	
<p>Purchased by School for: <i>Teachers</i></p>	<p>1 blue ink pen. 1 red ink pen.</p>	<p>Powder colour (red), empty tins, water, young plants (uprooted).</p>		
<p>Provided by Parents/Guardians</p>	<p>1 copy mathematics Exercise Book for class exercises. 1 lead pencil.</p>	<p>Unruled Exercise Book for "Expression Work."</p>	<p>One Exercise Book for class exercises in English.</p>	<p>Only 10 pupils had the unruled exercise books for "Expression Work."</p>
<p>Provided by Community</p>	<p>School building. Blackboard in the classroom.</p>			
<p>Other sources: PTA</p>	<p>1 cupboard.</p>			
<p>Policy for Use of Materials</p>	<p>Same as Appendix A.</p>			<p>No parent has come to borrow books on behalf of a ward. Parents are not aware of the policy.</p>

**APPENDIX D:  
THE SCHOOL TIME TABLE FOR P2, 4, AND 6**

	7:30 -	7:40	P	8:05- 8:35	8:35- 9:05	9:05- 9:35	9:35- 9:50	9:50- 10:20	10:20- 10:50	10:50- 11:20	11:20- 11:30	11:30- 12:00	12:00- 12:30
M O N	A S S E M B L Y	R E G I S T R A T I O N	2 4/6	PE Math	Math English	Math English	B R E A K	English C. Stud.	English Gh. Lang.	Gh. Lang. So. Stud.	B R E A K	LS LS	LS LS
T U E			2 4/6	Gh. Lang. PE	Math	Math		English Gh. Lang.	Science English	Science C. Stud.		C. Stud. Science	C. Stud. Science
W E D			2 4/6	C. Stud. C. Stud.	Math Gh. Lang	English Math		English English	S. Stud. S. Stud.	S. Stud. S. Stud.		LS Agric.	LS Agric.
T H U			2 4/6	PE Math	English C. Stud.	Math C. Stud.		Gh. Lang English	C. Stud. LS	C. Stud. LS		Agric. S. Stud.	Agric. English
F R I			2 4/6	Math PE	Science Math	English LS		S. Stud English	S. Stud. Gh. Lang.	C. Stud. Science		LS Agric	LS Agric

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## GROUP RESEARCH TOPIC I

### GOMOA-BROFOYEDUR R.C. PRIMARY SCHOOL: SCHOOL-COMMUNITY RELATIONS

#### Team Members:

1. J.M. Dzinyela, Leader
2. K. K. A. Anti, Member
3. F.C. Avega, Member
4. C.K. Agezo, Member

#### INTRODUCTION

For some time now, the need for a cordial relationship between the school and the community has been expressed by many educators, sociologists, psychologists, philosophers, etc. The school is regarded in many circles as a micro society within a macro society. The pupils that are taught in the schools come from the community and after the course return to the community. There is, therefore, interdependence between the school and the community, and it would be suicidal should this relationship get strained.

According to Asiedu-Akrofi (1978), schools are social institutions specially contrived to perpetuate society's values, ideas, norms and beliefs. "[A] Good school-community relationship, therefore, brings the home and the school together in meeting the needs of children. Children should be helped to grow and develop into worthy citizens through the agency of the school community and the school." (p.47). He again states that school communities will have to bear the financial burden of the schools more directly than at present as their commitment to school programmes are of paramount importance.

Musaazi (1982) states that the "relationship between the school and the community are important to the all round growth and development of both pupils and adults" (p.239). He further states "the School definitely needs to be in close relationship with the community because of the moral, financial and material support which the community gives to the school." Thus, the community's participation in school remains an integral part of the community's socio-cultural unit. The school becomes part of the community by having responsibilities to the community and by having the community fully involved in school activities.

Thompson (1981), writing on community involvement in the school, observes that the major aspect of efforts being made to link schools more closely with their communities is that of increasing the direct involvement of local people in the work of the school as teachers and resource personnel, as managers and as financiers. This implies that efforts be made to involve the community more effectively in the activities of the school in order that it may be the school of the community and not merely a school for the community.

The 1987 Education Reform Programme of Ghana makes it clear that the Provision of Basic Education is the joint responsibility of both community and the Central Government and the Government will continue to rely on and encourage efforts made by communities to provide basic infrastructures for schools. It is expected that various educational committees, church and voluntary organizations as well as private individuals will continue the vital role they have so far played in support of the provision of Basic Education.

Ozigi (1977) explains that it is most important that a school administrator should establish, develop and maintain satisfactory relations with the community in which his institution lies as he will be

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dealing with members of the public in many matters which affect the institution. He went on further to state the head of the Institution should try to be courteous to people, treating them with tact, consideration and sympathetic understanding. He again states the head should do his best to co-operate, "make some school facilities and resources available to the community for educational and social purposes" (p.48).

All these underscore the importance of the school-community relationship, hence the need to take a critical look at it.

## **PURPOSE OF THE STUDY**

Since the school belongs to the community and the children of the community are the direct beneficiaries of the school system, there was the need to find out the attitude of the community with regards to its participation in the educational process. Thus, the purpose of the study was to find out:

- (a) the kind of relationship that exists between the school and the community;
- (b) the reaction of the Community towards the Government's policy on community participation in development of the schools;
- (c) the way and means by which the school influences the community.

## **METHODOLOGY**

Interview and observation methods were used to collect relevant data on the relationship that exists between the school and the community.

### **The Sample**

The sample in the research involved 5 members of the staff of the school, including the headteacher, 6 executive members of the Parent-Teacher-Association (P.T.A.) and 12 members of the community who were randomly selected.

### **Data Collection Procedure**

Members of the research team, with the help of interview guides, interviewed the subjects in March of 1993 in connection with the kind of relationship that existed between the school and the community. For the community members, the interview was conducted in the local language, Fante, while English was used for staff members. The responses of the subjects were recorded and analyzed after the interview.

## **FINDINGS**

### **A. The Relationship that Existed Between the School and the Community**

1. The cooperative system of relationship existed between the school and the community. There was constant involvement of the community in school affairs. The relationship was characterized by the flow of information from the school to the community and vice versa in a distortion-free manner.
2. Members of the community identified themselves with the school and were willing to be influenced by it.
3. The Headteacher, in his attempt to establish, develop and maintain satisfactory relations with the community, tried to be courteous to people, treating them with tact, consideration and sympathetic understanding. He tried his best to co-operate, be frank and straight forward in his dealings with people.

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4. There existed a Parent Teacher Association (P.T.A.). Members of the P.T.A. met regularly (at least once a term) to deliberate on pressing issues of the school.

5. Open confrontation between staff and community was very minimal as misunderstandings were usually redressed through dialogue. Aggrieved parents reported unacceptable conducts of teachers to the P.T.A. executives who in turn resolved such issues in an amicable manner.

6. The people of the town shared in the joy and happiness of the pupils during sports festivals. They were happy whenever the pupils came home victorious and they were sad when the school was defeated. Some of the old pupils even gave the sportsmen moral support by being present at sports festivals to cheer them on.

#### **B. Reactions of the Community Towards Government Policy on Community Participation in Development of Schools**

1. The Parent-Teacher Association (P.T.A.) showed understanding, sympathy and commitment to the school programmes. Members of the P.T.A. paid dues which were used for:

- (a) Provision of new pieces of furniture for the staff and pupils.
- (b) Repairs of broken tables and chairs.
- (c) Renovation of the school building.
- (d) Repairs of the shutters.
- (e) Provision of wash basins.
- (f) Provision of locks for the school doors to provide security for the school equipment and materials; etc.

2. Parents showed much concern for the low academic standard of their wards as most of them could neither read nor write. They wanted their children to be better off than they were in terms of employment opportunities, prestige, good living conditions and self edification. Children should be helped to grow and develop into worthy citizens through the agency of the school.

3. Chiefs, elders and parents were invited to school sports festivals, music and cultural festivities and open days where they had the opportunity to see the different aspects of school life.

4. Resource Personnel were invited to the school to teach the children how to play the drums and dance as well as about other aspects of the local culture. Though the resource people came willingly, they were most often paid a token fee for services rendered.

#### **C. Ways and Means by which the School Influenced the Community**

1. Pupils in the school usually engaged in general cleaning of the town - i.e. sweeping the streets, market places and desilting choked gutters. This was the school's contribution towards the provision of a clean and healthy environment for the community.

2. Some teachers served on various committees. One teacher served as the local secretary to the Town Development Committee and General Secretary of the Unit Committee. Another staff member also helped in church activities – secretary to the church committee and executive member of the charismatic group. She was also the organizer of the Day Nursery in the town and it was through her initiative that the community was putting up permanent structures to house the Day Nursery Department.

3. The Headteacher allowed the use of the school's facilities as pieces of furniture were used for durbars. Churches such as the Methodist, Catholic and Calvary crusaders held rallies on the compound and used classrooms for their accommodations.

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4. The school often participated in the cultural activities of the community - Durbars and festivals.

#### **GENERAL REMARKS**

1. Although there was a cordial relationship between the school and the community, some elders were not prepared to release land to the school for farming purposes. The land belonged to individuals and not the community as a whole; thus, getting land for gardening was very difficult.

2. The government policy on the use of textbooks, especially on taking the textbooks home upon request by parents was not made public knowledge. This was because there were few books and the headteacher feared the school might not be able to meet the demand.

In conclusion, we observed a strong school-community relationship at Gomoa Brofoyedur.

#### **RECOMMENDATION**

We recommend more detailed research be conducted with a larger sample size before making specific suggestions.

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## GROUP RESEARCH TOPIC 2

### HOME BACKGROUND AND ACADEMIC PERFORMANCE: THE CASE OF GOMOA BROFOYEDUR

#### Team Members:

1. J. M. Dzinyela, Leader
2. K. K. A. Anti, Member
3. F. C. Avega, Member
4. C. K. Agezo, Member

#### INTRODUCTION

Schools, for that matter teachers, play a very significant role in the education of the child. However, the home, (i.e. parents/guardians) influences the child's education a great deal.

For some time now, the issue of the social, economic and cultural background of parents having very strong influence on the education of their children has engaged the attention of many people.

Many writers, educators, psychologists and sociologists have conducted studies to find out whether parental status, socio-economic background, cultural practices and attitudes either positively or negatively influence the education of their children.

"Research in Europe and America indicate that the lower the social class of a family, the larger the family size and that children of large-size families tend to have lower I.Q." (Agyeman, 1986, p.28-29). Also, Basil Bernstein found out in one analysis of the social class and linguistic development of children that children in large-size families show backwardness in language. (Bernstein, 1967, p.288, and Nisbet, 1967).

Bernstein explains this phenomenon comes about because in large-sized families, parents hardly pay attention to the personal development of the individual children. According to Bernstein, attention to the children is diffused. Bernstein goes on to explain the child in the middle-class home adjusts himself better to the school conditions and performs better than the lower-class child because the language he learns at home is the language employed at school. He concludes that "it is an admission that the language learnt at home in the family influences the formal education of the child in school." Agyeman observes that recent research conducted in different parts of Africa corroborate this point (Prewitt, 1974 and Bright, 1974).

Another variable that affects the formal education of the child is the socio-economic status of the family. Agyeman states the poverty of parents affects the child's chances of success in school. For example, a hungry child will have difficulty giving his full attention to the lesson in class. Also, a child whose parents cannot provide him with uniforms will feel embarrassed among his class. Agyeman further observes on the contrary, parents in the middle and upper socio-economic groups provide a congenial learning atmosphere for their children by providing them with books, toys, writing materials, and other educational facilities. This gives the children of middle class and upper-class an edge over those of lower class families (see Prewitt, 1974, and Bright, 1974).

The third variable noted to be a strong factor that affects the formal education of the child is the attitude of the family to formal education. It has been observed that families that are ill-disposed to formal education, no matter how affluent they may be, tend to be half-hearted about the schooling of their children. It is not uncommon to meet rich African fathers who refuse to send their children, especially girls, to school because they think it is a waste of funds to invest in them.

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Backed by the theoretical constructs cited above, and taking the parents' socio-economic and cultural backgrounds vis-a-vis their children's education into consideration, the Gomoa Brofoyedur team decided to make a formal study into the topic: "Home Background and Academic Performance."

## **PURPOSE OF THE STUDY**

Specifically, the study was designed to:

- (i) explore the socio-economic background of the parents and see whether that variable has any influence on the education of their children;
- (ii) explore parents' attitudes towards the education of their wards;
- (iii) find out the pupils' attitudes towards their education and future career;
- (iv) find out whether there was any relationship between the home environment and academic performance of the children.

## **METHODOLOGY**

Four pupils, made up of 2 boys and 2 girls were selected from each of the following classes: P2, P4 and P6. In each of the affected classes, the academically superior girl and boy were selected; similarly, the academically weakest boy and girl were selected. Thus, 12 children comprising of 6 boys and 6 girls were used in the study. A larger number of pupils could not be used for the study because the team was seriously constrained by lack of time.

Data were collected by means of: (i) interviews; and (ii) use of school records (eg. test results and pupils' class exercise books). The specific groups used for the data collection exercise were: (a) affected children, (b) teachers, and (c) parents/guardians of the selected children.

### **Data Collection Procedure**

Three groups, the affected pupils, their parents or guardians and the relevant teachers, were interviewed. Interview guides were used.

After the 12-day-observation-exercise, the team used three additional days (i.e. 9th, 10th and 11th March, 1993) specifically for the interviews. The affected parents/guardians were informed of the scheduled interviews through their wards. Since the entire community was made up mostly of farmers, we could only meet the parents in the late afternoons. Therefore, the parents or guardians were interviewed in late afternoon, whereas the relevant teachers and pupils were interviewed during school hours.

Teachers interviewed included: (i) those who taught the affected pupils in the immediate past (1991/92) academic year, and (ii) those who were currently teaching the affected pupils in the 1992/93 academic year.

Interview sessions were very smooth and cordial. Children, particularly, who felt timid were encouraged to speak out. In all cases, except for the teachers, the local language (Fanti) was used. One team-member recorded the responses.

The team members also scanned through the class exercise books to observe the pupils' academic performance. We also checked on the pupils' test results. From the class registers, we noted the pattern of school attendance of the affected pupils. The data was analyzed and the findings have been discussed below.

## **FINDINGS**

### **A. Socio-economic Background of Parents**

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1. As far as formal education is concerned, a large number of the parents were completely illiterate or semi-illiterate. Some of the men had completed Middle School and only 2 of the mothers said they completed middle school education. Most of the women, in particular, started school but dropped out for various reasons.

2. Concerning career or work, almost all of those we interviewed were peasant farmers at the subsistence level. They normally cultivated cassava and maize while some occasionally grew yams, apart from cultivating vegetables. Some of the women did petty trading in addition to the farming. Because of work, three fathers resided outside the village (i.e. either in Accra or Tema).

3. With regard to family size, they were noted to be very large; the average family size recorded was seven. In the extreme cases, one woman claimed she gave birth to ten children while another relatively young woman had two children.

4. Family incomes were said to be low as most claimed they never received much from the sale of their farm produce. In some of the homes we visited, we noted the walls of the buildings had cracks and some iron-sheets used in the roofs of the buildings were old and rusty. At school, a number of the children did not have school uniforms. Their textbook user-fees were not paid in full, and this compelled the headteacher to send these pupils home to return with the fees. Some of the children also lacked vital school materials (pens, pencils, exercise books, erasers etc.) which should be supplied by parents.

5. In several cases, the spouses lived together in the same house with their children. Two of the men claimed they married two women each. In a few cases (about three women) claimed their marriages had broken up. In cases of broken marriage, the children lived with either of the parents, but the children preferred to stay with their mothers or grandmothers. In situations where parents were residing outside the village or one parent had died, the affected children lived with close relatives.

#### **B. Attitude of Parents Towards Children's Education**

1. Parents claimed they had positive attitude towards the education of their wards.

2. The educated parents as well as the relatively well-to-do ones among them, showed a considerable amount of concern with regard to the general welfare and education of their children. One father said he had some old English textbooks which he used to teach his eldest daughter in P6. Similarly some of the well-to-do parents (by village standards) claimed they bought books for use by their wards at home.

3. Nearly all the parents admitted their wards ate breakfast before leaving for school. The children were said to frequently have sufficient rest or sleep. Older siblings who had completed school or who were at higher levels on the academic ladder did assist their younger brothers and sisters at home with their studies.

4. It was also found that even though all the parents wanted their wards to succeed in their academic careers, hardly did these parents get in touch with the teachers of their wards to note the children's progress. There were a few isolated cases in which some parents came to report their wards to the headteacher because of indisciplinary acts by the affected children at home.

#### **C. Attitude of Pupils Towards Schooling and Work**

1. Our own observation showed that the pupils had positive attitudes towards their education. Most attended school regularly and often reported to school early to clean the compound and their classrooms before classes began.

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2. Some of the girls are involved in petty trading (e.g. selling kerosene, bread) to get money to buy certain school materials.
  3. During athletic training sessions, many of them, even the very young ones, showed a great deal of zeal to participate.
  4. In addition, many of them claimed they studied at home, particularly in the evenings.
  5. Concerning a future career or work, some of the boys claimed they wanted to become drivers (of commercial vehicles) or fitting-mechanics. The girls wanted to become seamstresses. Incidentally, these were the main vocations practiced in the area in which children were familiar with (apart from farming and petty trading).
  6. When parents were asked about the type of career/work they would like their wards to practice in the future, no suggestions were given. Instead, they said they as parents could not decide for their children and wanted us to ask the children themselves.

#### **D. Relationship Between Home Background and Academic Performance**

1. It was noted that the majority of the academically superior pupils incidentally came from well-to-do homes (by village standards). They had access to more facilities: textbooks, story/supplementary books, stationery items to write with, electric light, and educated brothers/sisters who assisted them in their studies or served as role models.
2. On the contrary, however, some of the houses visited were dirty with cracked walls and missing roofing sheets. In two such houses, we saw children struggling over food. Some of these children did not look healthy; they had running noses and pot-bellies projecting signs of malnutrition and anaemia. The majority of the children from poor homes had torn school uniforms and came to school without wearing shoes. In general, their academic performance was low. One child in P6 told her mother that she held the top score on the first-term examinations, but the class teacher told us that she held the last.

#### **CONCLUSION**

The findings seem to confirm the assertion that home-related-factors do influence the academic performance of children. However, it may be necessary to conduct similar studies covering a much larger population.

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**TABLE 1**  
**ENROLMENT FIGURES FOR VARIOUS CLASSES**

CLASS	MALE	FEMALE	TOTAL
1	33	27	60
2	33	33	66
3	28	28	56
4	23	26	49
5	23	26	49
6	32	19	51
TOTAL	172	159	331

The pupils who always sit in paired rows in the Classrooms and look smallish, neatly dressed and healthy, have an average age of seven (7) years for Class 1, ten (10) years for Class 3 and thirteen (13) years for Class 5. Absenteeism is a major problem and classes observed, namely, Classes 1,3 and 5 never had full class attendances of 60:-33 boys and 27 girls; 56:- 28 girls and 28 boys; and 49:- 23 boys and 26 girls, respectively during the period of observation.

It was within this school that the research team carried out its research project on 'Improving Educational Quality' in Ghana.

#### **PURPOSE OF THE STUDY**

Qualitative education is a desirable objective of any educational system. According to an interim report written in 1974, "a basic quality education is a process which can enable students to transform their potential into actuality." It was with this objective in mind that following the introduction of the New Educational Reforms in Ghana resources were provided to the schools, both primary and secondary. What is not clear, however, is whether the resources are being effectively and efficiently used to achieve the objective of providing quality education at the primary school level in Ghana today.

The purpose of this IIR - CRIQPEG sponsored research, which is geared towards Improving Educational Quality, therefore is to carry out a preliminary investigation, as a prelude to a major one, on the resources available to the school, what resources are available for teaching Mathematics, English and Science and how the resources, if available, are being used. It is also hoped that issues relating to/arising from the use of the resources would be identified for further research/investigation.

#### **METHODOLOGY AND DATA COLLECTION PROCEDURE**

(a) **Methodology:** Data was collected through direct observation, open-ended unstructured interviews of teachers, pupils and parents, and looking at school records (for example, log book and time-tables). With regard to the direct observation, data was collected using a structured checklist, observation guide, and spontaneous recording of all relevant information and activities that occurred during the lessons. This enabled the research team to capture everything that went on in the classroom. The observation guide

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and checklist were used in collecting data on pupil and teacher use of resources as well as taking an inventory of resources available.

**(b) Interviews:** Teachers and pupils were interviewed on the resources and their use of them. The objective was to cross-check and validate the observations made regarding the resources available and their use. Teachers were occasionally interviewed during the period of observation, but after the observation, a day was set aside when both teachers and pupils were interviewed. The Headteacher was also interviewed on the school's policy regarding the resources and their use in teaching Mathematics, English and Science. The interviews were held after the main observations had been completed. Parents were also interviewed on a separate day. The purpose here was to find out about their home conditions and how these promote learning. Parents responses were corresponded with those of the pupils who were interviewed on the same issues. In total, three (3) teachers, eleven (11) pupils in each Class, namely Classes 3 and 5 pupils were interviewed. In Class 3 Seven (7) parents of seven (7) pupils out of the eleven were interviewed. These had their wards amongst the eleven pupils interviewed. In Class 5 the parents of eight (8) pupils out of eleven were interviewed. Half the number of pupils interviewed formed part of the observed sampled group.

**(c) Visits:** Team leaders visited the schools in November to familiarize themselves with the place and collect data on the teachers as well as the history of the school. A preliminary visit spanning three (3) days was then undertaken in December 1992 by the team. The objective was to undertake a pilot study of the school as well as test the observation instruments and the data collection procedure. This was followed by twelve (12) visits paid to the school in February and March 1993. At most four (4) visits were paid in a particular week. However, the average number of visits per week was three (3) from either Monday to Wednesday or Wednesday to Friday. Observations were done in pairs on each day. Each researcher spent sixteen (16) hours in a class and forty-eight (48) hours in all three (3) Classes. It was necessary to spend twelve (12) days in the school and four (4) hours in each Class so as to make ineffective all pretences and make-ups on the part of the teachers and the pupils. The team leader did six (6) extra days of observation because he had to pair up with one team member at a time especially after the departure of the original team leader.

**(d) Validity and Reliability of Data:** Validity (credibility) of the data was guaranteed through the long period of observation undertaken, namely twelve (12) days. It was also guaranteed in the long hours spent in the school, that is, four(4) hours a day per class on each day of visit and the unannounced visits undertaken. The same procedures guarantees the reliability (dependability) of the data. In analysing the data team members also reached agreement on all the issues regarding what was observed. In addition, a process of data and methodological triangulation was put in place focusing on the purpose of the study. This involved the three main data collection procedures already identified. This was necessary, for as Denzin (1978, p.28) notes "no single method ever adequately solves the problem of rival causal factors .... Because each method reveals different aspects of empirical reality, multiple methods of observations must be employed."

**(e) Problems:** The major problem encountered by the team in the observation had to do with its sampled group which changed membership rather too often. The number of the pupils also fluctuated and sitting positions also changed at almost each observation session. The second problem encountered related to the use of the local vernacular - Fanti - in interviewing both pupils and then pupils, who could not readily and fluently express themselves in English. Some Fanti words had no exact English equivalents and vice versa.

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### FINDINGS RELATING TO RESOURCES AND THEIR USE

The data gathered was collated and analysed descriptively in the first instance. The collation and analyses involved tabulation of relevant statistical data as well as descriptive profiles of the observations made in relation to the resources available for the teaching of Mathematics, English and Science and how they were used.

#### (a) Observations by Grade, Gender and Subject:

Observations were made by grade (Class), subject and gender. In Table 2 below total observations by grade (Class) and Subject are graphically presented.

TABLE 2  
TOTAL OBSERVATIONS BY GRADE (CLASS) AND SUBJECT

CLASS	SUBJECT			
	MATHEMATICS	ENGLISH	SCIENCE	TOTAL
1	6	8	3	17
2	7	4	2	13
3	7	7	-	14

A small sample of pupils were also observed. Table 3 below presents the total samples observed by grade (class), subject and gender.

TABLE 3  
SAMPLED NUMBER OF PUPILS BY GRADE, SUBJECT AND GENDER.

CLASS	SUBJECT AND GENDER		
	MATHEMATICS/ENGLISH/SCIENCE		
	MALE	FEMALE	TOTAL
1	9	6	15
3	8	2	10
5	3	5	8

#### (b) Resources Provided to the School

Resources available to the school have been shown picturesquely as follows:

**TABLE 4**  
**RESOURCES AVAILABLE TO SCHOOL**

MATERIALS/ EQUIPMENT	PRESENT IN CLASSROOM		
	CLASS 1	CLASS 2	CLASS 3
CHALK	White chalk and a few coloured chalk		
CHALKBOARD	1 part of wall	1 part of wall	1 part of wall
SLATES	-	-	-
INSTRUCTIONAL CHARTS/POSTERS	-	-	-
NON- INSTRUCTIONAL POSTERS	A picture showing 3 persons	-	-
TEACHER'S TEXT/GUIDES	All subjects have teacher's guides/texts but only one each (per subject) for lower and upper primaries		
CHILDREN'S TEXTS/ WORKBOOKS	-	-	-
MATHS/SCIENCE EQUIPMENT	No science equipment. One plastic chalkboard sets square, protractor and ferule.		
MATHS/SCIENCE/ ENGLISH TEXTBOOKS	25/-/26	30/-/8	18/20/21
PLAY EQUIPMENT	-	-	-
CHILDREN'S STORYBOOKS	Library books are supplied to pupils in classes 4-6 on a fortnightly basis by the Central Region Library Board at a fee of C200.00 per annum		
ARTS AND CRAFT MATERIALS	-	-	-
CHILD-SIZE SHELVES	-	-	-
CHILDREN'S OWN PRODUCTS ON DISPLAY	-	Crayon colourings on wall	-
OTHER: (a) CUPBOARDS	1	3 (only one belonged to school)	-
(b) HEAD'S FURNITURE	1 table and 3 chairs		

MATERIALS/ EQUIPMENT	PRESENT IN CLASSROOM		
	CLASS 1	CLASS 2	CLASS 3
(c) TEACHER'S FURNITURE	1 table and a chair each		
(d) HEAD'S OFFICE	Two cups, a dummy clock, an old globe, a table and 2 or 3 chairs		
(e) A PLAYGROUND WITH TWO NETBALL POSTS			

The type of textbooks available are as follows:

- a. English for Primary Schools. Pupils' Book 1, 3 and 5. G.E. S., Ghana.
- b. Mathematics for Primary Schools. Pupils Books 1, 3 and 5. G.E.S., Ghana.
- c. Ghana Science Series. G.E.S. Ghana.

An interview with the Headteacher revealed that the textbooks were provided by the Government through the Ministry of Education and the District Education Office. The District Education Office sited at Abura Dunkwa, the district capital, distributed the textbooks and other school materials/resources. Pupils' exercise books were purchased by their parents. These were bought from the District Education Office by the Head for the pupils who in turn purchased them. The chalkboard was installed by the Methodist Church which built the school. Parents (members of the P.T.A.) provide their wards with tables and chairs which the pupils take home after school hours.

Even though chalk is supplied by the District Education Office alongside other materials such as registers, it was indicated that these materials are delivered to the school towards the close of the school year. Teachers have to buy their own chalk and use exercise books as registers. It is the school's policy that textbooks should not be taken home. Pupils' exercise books are also kept in the school for fear they might misplace them. This is all the more so since not all pupils have exercise books for the subjects taught. Consequently, pupils are not given homework. Instead, they do class exercises. From Table 4 it is obvious that apart from furniture, the only other resources available to the school were the textbooks and the chalk which were, in any case, insufficient.

**(c) Resources Available for Teaching Mathematics, English and Science**

Tables 5, 6 and 7 present the quantity of textbooks available to the Classes observed, namely Classes 1, 3 and 5 for the teaching of Mathematics, English and Science.

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**TABLE 5**  
**RESOURCES AVAILABLE FOR TEACHING MATHEMATICS, ENGLISH AND SCIENCE IN CLASS 1**

SUBJECT	Textbooks-Quantity Needed	Textbooks-Quantity Available	Textbooks-Quantity Used	Textbooks-Quantity Not Used	Total Enrollment	Textbook:Pupil Ratio
MATHEMATICS	60	25	ALL USED-SHARED	-	60	1:2.4
ENGLISH	60	26	ALL USED-SHARED	-	60	1:2.1
SCIENCE	60	-	-	-	60	-

**TABLE 6**  
**RESOURCES AVAILABLE FOR TEACHING MATHEMATICS, ENGLISH AND SCIENCE IN CLASS 3**

SUBJECT	Textbooks-Quantity Needed	Textbooks-Quantity Available	Textbooks-Quantity Used	Textbooks-Quantity Not Used	Total Enrollment	Textbook:Pupil Ratio
MATHEMATICS	70	30	NIL	30	56	1:1.8
ENGLISH	70	8	NIL	8	56	1:7
SCIENCE	70	-	-	-	56	-

**TABLE 7**  
**RESOURCES AVAILABLE FOR TEACHING MATHEMATICS, ENGLISH AND SCIENCE IN CLASS 5**

SUBJECT	Textbooks-Quantity Needed	Textbooks-Quantity Available	Textbooks-Quantity Used	Textbooks-Quantity Not Used	Total Enrollment	Textbook:Pupil Ratio
MATHEMATICS	49	18	-	18	49	1:2.7
ENGLISH	49	12	-	-	49	1:4.1
SCIENCE	49	20	-	20	49	1:2.5

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Tables 5, 6 and 7 show clearly that the books available were insufficient since no single student could have a book to himself/herself. At least two pupils shared a book or at most four pupils shared a book. The average ratio however seems to be 1:3.

Apart from the textbooks other resources available for the teaching of the three subjects in all the three classes are chalkboard, a plastic chalkboard sets square, protractor and ferule. Almost all the pupils had exercise books for the three subjects in which they did class exercises (except in Class 5 where they had exercise books for only Mathematics and English). It was also observed that all the classes used counters (sapordilla seeds or pieces of sticks during Mathematics/Arithmetic lessons, particularly in Class 1. In Class 1, pupils on one occasion used the surfaces of their tables as substitutes for slates. Resources for Science, whenever it was taught, were improvised or purchased by the teacher and the pupils. This was the case in a class where it was taught twice.

From the observations it was clear that the school lacked resources for the teaching of the three subjects and this tended to affect teaching in the classrooms.

#### **(d) Use of Resources**

This was examined from two angles; the teachers' use of resources and the pupils' use of resources. Also considered was the place of teacher-pupil, pupil-teacher and pupil-pupil interaction with regard to the use of resources as well as the instructional strategies employed by the teacher in the use of the resources is considered.

#### **1. IN TEACHING MATHEMATICS**

**(a) The Chalkboard:** The chalkboard was the main resource in all the three classes. Teachers always copied examples of arithmetic/mathematical problems on the chalkboard to help pupils solve or they invited pupils directly to the chalkboard to work. The examples were also used in the teaching-learning activity. For example, in a lesson in Class 1, the teacher went through the following on the chalkboard with pupils:

Teacher asks: What sign in this?

Pupil responds: Subtraction Sign.

Teacher asks: What sign is this?

Pupil responds: Addition sign.

Teacher asks: What numeral is this?

Pupil responds: Numeral 6

Teacher asks: Who can work this? Numeral 4 plus Numeral 3. (writes it on the board).

In using the chalkboard in this way (as was the case in Classes 3 and 5 as well) the main instructional technique used by all the teachers was the question-and-answer technique.

The pupils' attention was drawn to, and focused on the chalkboard during the teaching-learning process. Pupils were also called to the chalkboard to point at something, repeat numerals or answer questions. In all three classes pupils copied arithmetic/mathematical problems to be solved as class exercises from the chalkboard into their exercise books. For example, in a lesson in Class 5, the teacher wrote the following on the board for pupils to copy into their exercise books and solve:

$$\begin{array}{l} 1. 2 \times [2+5] = n \quad 3,978 \\ 2. 4 \times [3+6] = Y \quad \underline{+ 756} \end{array}$$

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One major problem relating to the use of the chalkboard was the haphazard manner in which items were put on the board, especially in Class 1. In Class 3, exercises on the board were often mixed up with sketch work.

**(b) Textbooks:** These were not used in Classes 3 and 5 throughout the period of observation. Tables 5, 6 and 7 have already shown the insufficiency of these resources. It was only in Class 1 where the teacher occasionally used the textbooks. She showed relevant pages of the textbook to pupils by holding the book high in the air, but close to the students for them to see examples of sets. In addition, the textbooks were used by all the teachers in writing their lesson notes.

**(c) Counters:** Pupils in Class 1 used sapordilla seeds as counters in working arithmetic problems, and those in Classes 3 and 5 used pieces of sticks. Occasionally, the Class teacher used the textbooks as counters which, because of an insufficient supply, were not available for each student. As a result, pupils who did not have them usually sat passively or chatted whilst the others worked.

**(d) Other Resources:** The teacher of Class 3 made use of the plastic chalkboard sets square and ferule on two occasions, when she taught "Congruent Line Segments" and "Introducing Angles." The teacher used them in drawing and measuring as well as drawing and determining the angles of two lines that met at a point. Pupils were also called to the chalkboard to measure lines and determine angles. For example, in the lesson on "Congruent Line Segments" the following ensued:

Teacher: I want somebody to go and measure it and tell us the answer. Let's get our hands ready.  
If only he gets it correct we will clap for him.  
Pupil: (Goes to the board and measures using the ferule. He puts the ferule against the line.)  
Teacher: Ask them; who can say it?  
Pupil: Who can say it?

In these particular lessons the teacher's instructional strategies included the question-and-answer technique, dialogue and demonstration (These strategies were also typical of the teachers in Classes 1 and 5 during their mathematics lessons). She also used two books of equal and unequal length to show cases of congruent and incongruent line segments.

Pupils were given class exercises which they worked in their exercise books. During such times all three teachers circulated but only occasionally did they stop by particular pupils to look over what they did. Particularly in Class 5, pupils spent a greater part of the time doing class exercises. The teacher usually spent about 5-10 minutes explaining the problem/topic and left pupils for the greater part to do class exercises. Then he used the last few minutes to correct the mistakes of pupils. Pupil-pupil interaction was more chatting and socializing than helping one another learn, except in Class 3 where the teacher allowed for pupil evaluation of the teacher, hence pupil-teacher interactions.

## 2. IN TEACHING ENGLISH

**(a) The Chalkboard:** The chalkboard was yet again the main resource. Teachers in all the three classes copied examples of sentences at times uncompleted ones, for instance in Class 5, from the textbooks onto the board. Pupils attention was drawn to and focused on the chalkboard during the teaching-learning process. Pupils were called to the chalkboard and through the question-and-answer technique looked at the chalkboard and answered questions. They occasionally went to the chalkboard to point to some words, complete an incomplete sentence, and especially in Class 5, underline correct words in passages

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or write on the board. In a lesson in Class 1, the teacher called a pupil to the board and the following ensued:

Teacher: Draw on the board. She is drawing.  
Pupil : Draws on the board.  
Teacher: Write on the board.  
Pupil : (Goes to the board and writes on the board)

Pupils also read from the chalkboard either in unison or individually. For example, in Class 1 individuals led the rest of the class to read from the chalkboard. In Class 3, pupils read through conversation passages on the chalkboard using dialogue and role-playing. The following excerpt from a lesson is an example:

Mamee Mansa: Sasu, isn't it time for school? It's now twenty past eight.  
Sasu: Yes, it is, mummy. I'm late for school today.  
Mamee Mansa: Hurry up. Put on your shirt and shorts and go to school.  
Sasu: Mummy, please, have you seen my pen? I can't find it.

**(b) Textbook:** Apart from Class 1 where textbooks were used by the pupils, the remaining two classes never used any English textbook throughout the period of observation. Teachers in all three classes, however, used the textbooks in preparing their lesson notes. In Class 1 pupils occasionally used the textbook in groups of two, three or four. They looked into the books and described pictures. For example, the following ensued between teacher and pupils:

Teacher: Now look at the picture. We are going to talk about this picture. How many men are there in the picture.  
Pupil: There are three men.  
Teacher: How many boys are there in the picture.  
Pupil: There are two boys.

Some pupils were occasionally called forward to read from the textbook to the class or lead the rest of the class in reading from the textbook. During reading periods the teacher made pupils repeat wrongly pronounced words several times over. Pupils also did class exercises into their exercise books. This was particularly the case in Class 5 where little time was spent on real teaching.

One other striking phenomenon that was observed was the place of the local vernacular, Fanti, while the classes were in session—even during English lessons. Fanti sounds and alphabets were used in helping pupils to spell and pronounce difficult English words. Pupils were also allowed to explain themselves in Fanti, even in Class 5. Pupils chatted among themselves at the least opportunity.

### 3. IN TEACHING SCIENCE.

In Class 5, no Science lesson was taught throughout the period of observation. In Class 1, although the teacher taught Science on three (3) occasions, no use was made of resources like textbooks and science equipment. It has already been indicated that the school did not have these. On one occasion, however, the teacher used the human body (that of the pupils and hers) as a resource. This was when she taught "Parts of the Human Body." The following interaction ensued between the teacher and the pupils:

Teacher: This is my head. (Holds her head with both hands).  
These are my hands (touches one another).

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This is my nose (holds her nose).  
This is my head (all touch their individual heads).  
Pupils: This is my head (all touch their individual heads).  
Teacher: These are my foot (touches her legs) Show me your foot.  
Pupils: These are my foot (also touch their legs).

Apart from this she rarely improvised teaching materials. She used mainly the question-and answer technique in helping pupils to identify the parts of the human body.

Throughout the period of observation the Class 3 teacher taught Science on only 2 occasions. The first lesson dealt with "Sinking and Floating" whilst the second touched on "Keeping Healthy: Cleaning of the Teeth." Even though the school had no resources both teacher and pupils purchased and improvised materials for the lesson. Through the question-and-answer technique the teacher took the class through an identification process aimed at getting pupils to mention the names of the items to be used in the lesson. This was the case in both lessons. One item after the other was picked up, shown to the class and then the pupils were asked to mention the names of the items.

The teacher wrote the items/materials needed for the lesson on the chalkboard. After pupils were able to mention the names of the items the teacher directed their attention to the chalkboard, pointed at the items whilst the pupils mentioned the names. This was the case in both lessons.

In the lesson on "Sinking and Floating," the teacher divided the class into four(4) groups, provided each group with a basin full of water and those items that could sink and those that could float. After putting an item in the water as a demonstration, the teacher instructed the groups to put the remaining items they had into the water. Individuals in the groups put the items into the water.

In the second lesson on cleaning of the teeth, the teacher distributed teeth-cleaning materials like chewing sponges and sticks, plantain stalks and grounded charcoal, toothbrushes and paste to the pupil. After demonstrating on her own mouth to the pupils how to clean their teeth with plantain stalk and grounded charcoal she asked the pupils to use the items she had given them to clean their teeth.

When pupils finished cleaning their teeth with the materials she distributed pieces of bread to all of them. Pupils ate the bread. The teacher then circulated asking pupils to bare their teeth. All pupils bared their teeth and those who had bread particles stuck in the gaps of their teeth were picked out. The teacher then asked these pupils to go round the class so that the others would see the bread particles in the gaps of the teeth. Both teacher and pupils therefore demonstrated and undertook group activity. This done, it was possible for the teacher to explain to pupils why they always had to clean their teeth. Pupil-teacher interaction was encouraged particularly in Class 3 where pupils asked the teacher questions for clarification after the lesson had been taught.

#### **SAMPLED GROUP**

In all three classes, attention was focused on a small group of pupils. The frequencies relating to their use of resources are recorded below:

S1: Pupils went to the chalkboard and solved problems. This was observed on two (2) occasions in Class 1 and two (2) occasions in Class 5 during separate English lessons. It was also observed on five (5) occasions in Class 3 during two separate Mathematics lessons.

S1(a): Pupils read from the chalkboard at times. This was observed on five (5) occasions in three

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- separate English lessons and three times in three separate lessons in Class 3 in English. It was also observed on one occasion each in a Mathematics and Science lesson in Class 1.
- S2: Pupils used counters in working arithmetic problems. This was observed in three (3) lessons out of six (6) in Class 1, two(2) lessons out of 7 in Class 3 and one (1) lesson in Class 5.
- S2(a): Pupils used other ad hoc materials at times. This was observed in the only two (2) Science lessons taught in Class 3.
- S3: Pupils copied unworked examples from the chalkboard into their exercise books and then worked on them. This was observed in all the seven English and seven Mathematics lessons in Class 5. It was also observed in three (3) out of the six (6) Mathematics lessons and in two (2) out of the eight (8) English lessons in class 1 as well as in four (4) of the Mathematics lessons in Class 3.
- S4: Pupils used the textbooks by reading from them. This was observed in four (4) English Lessons and in one Mathematics lesson in Class 1.
- S4(a): Pupils used the textbooks by looking into them and answering questions. This was observed in four (4) English lessons, one (1) Science lesson and one (1) Mathematics lesson Class 1. In science it was the teacher's text that was made available to pupils to look at.
- S5: Pupils' interaction with one another was merely chatting. This was observed in all the groups in all the classes. In Class 5, however, the first four (4) girls in the group talked to one another about class exercises they did as well as the new lesson introduced on the chalkboard.
- S5(a): Pupils rarely engaged in dialogue with the teacher. Interaction was mainly teacher-pupil oriented. In Classes 1 and 3, the same pupils were called twice in the same lesson to answer questions.
- S6: Pupils engaged in group activities and demonstrations in their use of resources. This was observed in Class 1 on one (1) occasion when the teacher distributed English textbooks among groups of two/three children to read. It was particularly observed in Class 3 during the only two (2) Science lessons observed.
- S7: Pupils chatted more often in their free time. This was observed in all the three (3) classes, especially in Class Four among the first four (4) girls.

A major problem encountered in the observation of the three groups, however, was changeability in membership and constancy in total number.

#### **ISSUES ARISING FROM RESEARCH**

Several issues emerged from the research and these had to do with Time Allocation in teaching and the use of the Time Table, the Teaching of Science, Effective and Efficient Use of Resources, the place of Ghanaian Language in teaching Mathematics, English and Science. The issues and their effect on the teaching-learning situation are worthy of investigation.

##### **(a) Use of Time Table and Time Allocation in Teaching**

It was observed that teachers did not follow the time table in teaching, whether it was in Mathematics, English or Science. Even though there were eight (8) subjects on the time table for each day, teachers in the three Classes observed taught between two and four subjects a day (refer to Tables 8,9 and 10 in appendix). The teachers in Classes 1 and 5 taught four (4) subjects a day including Mathematics and English. In Class 3 any time the teacher taught Science she taught only two subjects a day. Some subjects on the time table such as Physical Education and Agriculture were not taught at all throughout the period of observation.

Aside from that, teachers usually spent between forty-five minutes to two and half (2 1/2) hours in

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teaching. Anytime the Class 3 teacher taught Science she spent about two and a half hours, even though the time allotted on the time table is only thirty minutes. An interview with teachers in the three classes revealed that the time table was too loaded and not practically feasible especially if the objective was to promote effective learning. The teachers were of the opinion that the duration for a subject should be between forty-five minutes and one hour. Ironically they spent more than an hour at times.

An interview with the Headteacher who is the Class 1 teacher revealed that the subjects emphasised by the school were English, Mathematics, Ghanaian Language, Life skills, Social and Cultural Studies. The rest, she observed, were occasionally taught. In regard to Agriculture, the Headteacher revealed that attempts in establishing a school farm which could be used in teaching agriculture had never materialized due to pupils' lack of interest in it. However, she mooted the idea of the school taking to aquatic farming in future.

The question of teachers following the time tables and therefore as much as possible sticking to allocated periods is a very essential one that needs to be explored. Indeed, an investigation into the effects of non-adherence to school time tables and times allocated for teaching and their effects on pupils academic performance and the quality of education is an essential prerequisite.

#### **(b) The Teaching of Science**

Another important issue arising from the observation is the teaching of Science. From the observations several questions arise which need further investigation. For example how much importance is attached to Science as a subject and hence its teaching at the Primary School level. Secondly, investigation needs to be conducted into the resources that could be used in teaching Science effectively, and taking the environment and the location of Primary Schools into consideration.

These questions arise because it was observed that Science was not taught at all in Class 5 and rarely taught in Classes 1 and 3. When interviewed as to why he did not teach Science, the Class 5 teacher complained about the lack of resources for teaching Science in the school. The Class 3 teacher also complained about the fact that she always had to use her own money to purchase things like water, soap, charcoal etc. anytime she wanted to teach Science. Even though the Class 5 teacher never taught science he indicated that he does teach science and anytime he does he takes the pupils out to observe the environment.

#### **(c) Efficient and Effective Use of Resources**

Following the observations made there is the need to define "efficiency" and "effectiveness" insofar as they relate to the use of resources in the teaching-learning process. This calls for an investigation to establish what constitutes "efficiency" and "effectiveness" in providing quality education through the use of resources. There is also the need to investigate into how resources, no matter how little, could be effectively and efficiently utilized so that pupils benefit maximally from it. Furthermore, there is also the need to find out how improvisation could be made essential, especially in teaching Mathematics and Science.

These issues have arisen because of the way the little resources available eg. textbooks were used in the teaching-learning process. Even though in Class 1, Mathematics and English textbooks were occasionally used, they were not used frequently nor were they used effectively by both the teacher and the pupils. In Class 3 and 5 they were not used at all. An interview with the Class 3 teacher indicated that pupils could not understand what had been written in the books, and, secondly, that the text was too small;

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hence her decision not to use them. The Class 5 teacher noted that the number of textbooks was insufficient.

Regarding the use of seeds and small sticks as counters it was observed that these did not even go round the whole class. Half the pupils in all the classes never had counters whenever they were being used.

**(d) The Place of Ghanaian Language in the Teaching of Mathematics, English and Science**

In all the three classes the local vernacular -Fanti- was extensively used in helping pupils to understand words, and spell and pronounce English words that were difficult. This was especially the case in Class 3. Pupils always provided their answers in Fanti and gave explanations in Fanti. Throughout the period of observation no pupil whether in Class 1,3 or 5 was able to fully explain an issue in English.

This observation raises an issue worthy of empirical investigation, namely the influence of the Ghanaian language on the pupils spoken or written English, the influence of the Ghanaian language on the pupils' understanding of Scientific and Mathematical concepts and obstacles imposed by the use of the Ghanaian Language in teaching to the child's acquisition of quality education. These issues assume significance when consideration is given to the fact that the final examination that the pupils will take whether it is the Basic Education Certificate Examination (BECE) or the Senior Secondary Certificate Examination (SSCE) will all be done in English.

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## PART TWO

### FURTHER ANALYSES

The data has been further analysed by coding, categorization, describing the usage/type of the resources and finding the frequency by class and subject. For purposes of validity and reliability evidence has been used in backing the findings. This evidence emanates from what was directly observed, the interviews conducted and some records that were examined. Almost all of the evidence was reconfirmed by the Headteacher and the teachers concerned during another visit. The only observation that proved sensitive and could not be readily confirmed related to the critical incident.

#### 1. (M) MATHEMATICS MATERIAL UTILIZATION

- M The chalkboard is the instructional tool most frequently used by teachers. This was the case in all the twenty (20) Mathematics lessons observed (i.e. 6 in Class 1, 7 in Class 3 and 7 in Class 5). Interviews with the teachers confirmed that they rely solely on the chalkboard since the textbooks are inadequate. This was reconfirmed in another visit.
- M1a. All three classes had cement chalkboards. This was confirmed by the teachers.
- M1b. Slate chalkboards are rare. Indeed, no class was observed using them not even in Class 1 where the team expected to see some at least. This finding was confirmed by direct observation and also by the fact that in Class 1 pupils in one lesson used the surfaces of their desks as slate chalkboard. An interview with the Headteacher also confirmed that pupils did not have any. She indicated that a parent donated sixty (60) pieces to the school but all had been stolen. She indicated that the government is supposed to supply them.
- M2. Chalkboards may be used by pupils to complete exercises in front of the class. Those exercises are typically placed on the board by the teacher. This was observed in three (3) out of six (6) lessons in Class 1, two (2) out of seven (7) lessons in Class 3 and three (3) out of seven (7) lessons in Class 5.
- M2a. Pupils copy exercises directly from the chalkboard into their exercises books and work on them in class. This was observed in three (3) out of the six (6) lessons in Class 1, four (4) out of the seven (7) lessons in Class 3 and in all seven lessons in Class 5.
- M2b. Ad hoc materials are used more by pupils than by teachers. This was observed in all three classes, three (3) out of six (6) lessons in Class 1, two (2) out of seven (7) lessons in Class 3 and one out of seven (7) in Class 5. The materials typically come from the home environment and these were sapordilla seeds used in Class 1 and pieces of stick used in Classes 3 and 5. This was confirmed by the teachers in an interview.
- M3a. Counters are the most frequently used ad-hoc materials in P1 - P3. This observation was the case in Class 1. It was used in three (3) out of six (6) lessons. In Class 3, however, it was used only twice out of seven (7) lessons. This was confirmed by the teachers.
- M3b. Ad hoc materials are rarely used beyond P3. This observation was valid because the pieces of sticks normally used were used only once out of seven (7) lessons in Class 5.
- M4. The pupils' typical use of textbooks occurs in conjunction with other materials (exercise books or ad hoc). This was not observed in Classes 3 and 5. However, in Class 1 pupils in two (2) out of six (6) lessons used textbooks but this was not in conjunction with ad hoc materials. Teachers in all three classes did not assign exercises that required the use of textbooks.
- M5. Teachers integrate textbooks into direct instruction (eg. extracting problems or exercises from texts). This was observed in all six (6), seven (7) and seven (7) lessons in Classes 1, 3 and 5 respectively. Total frequency use here was therefore twenty (20). An interview with the teachers confirmed this and the reason they gave was the inadequacy of the textbooks. This was

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- reconfirmed in another visit made to the school.
- M6. Pupils use multiplication tables in solving mathematics problems. This was only observed once in Class 5 among two boys and a girl.

## **2. (E) ENGLISH MATERIALS UTILIZATION**

- E1. Teachers use textbooks as instructional aids: they asked pupils to look into books and invited choral responses from pupils. This was observed in four (4) out of eight (8) lessons in Class 1 only.
- E1a. Teachers copied examples of exercises from the book to the chalkboard. This was observed in two (2) lessons out of eight (8) in Class 1, in all the four (4) and seven (7) lessons in Classes 3 and 5 respectively.
- E2. Pupils may use the text in the following ways:
- E2a. Searching for answers to an assignment. This was observed in four (4) out of eight (8) English lessons in Class 1 only.
- E2b. Reading from the text. This was observed in four (4) out of eight (8) English lessons in Class 1 only.
- E2c. Reading silently. This was observed briefly in four (4) out of eight (8) lessons in Class 1. The silent reading usually lasted for about 10 minutes.
- E3. Exercise books were used more for copying or vocabulary drill than for expressive writing. This was not totally the case. In all seven (7) lessons in Class 5 class exercises were done into the exercise book after the worked examples and unworked examples had been copied into the books. In Class 3 three (3) lessons out of four (4) followed the same pattern already indicated. In Class 1 this was not observed. The exercises did not involve expressive writing particularly as would be the case in a creative composition work. This finding was mainly through direct observation and was confirmed by the teachers in a separate interview.
- E4. When pupils do not have materials, the teacher permits idleness (may disturb other class members). This was observed in all three classes where some pupils had no exercise books or textbooks.
- E5. The chalkboard is the most frequently used instructional tool.
- E5a. Teachers always used the board in teaching by writing exercises on it for the pupils to work on. This was observed in all the seven (7) lessons in Class 5 only.
- E5b. Teachers used the chalkboard directly in teaching. This was observed in all the seven (7) lessons in Class 5, all the four (4) lessons in Class 3 and in five (5) lessons out of eight (8) in Class 1.

The findings strongly point to the fact that the most common way of teaching English was for teachers to copy examples of teaching materials into the board (See E1 (a)). It is also apparent that pupils mostly did unworked examples into their exercise books from the chalkboard (See E3). This was reconfirmed in another visit.

## **3. (S) SCIENCE MATERIALS UTILIZATION**

- S1. Science books are seldom used, regardless of pupil/text ratio. Even though Class 5 had the textbooks these were not used throughout the period of observation mainly because Science was not taught. The remaining two classes did not have textbooks.
- S2. Teachers lack the knowledge base or the necessary guides to teach science. The latter seemed to be the case since the Class 5 teacher, who it was observed never taught Science throughout the period of observation, revealed in an interview that he did not teach Science because there were no materials/resources for teaching it. Interestingly, however, he indicated in an interview that

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- he has twenty (20) Science textbooks. In Class 3, however, the teacher showed that she knew what she wanted to teach on the two (2) occasions she taught science.
- S3. Those few teachers observed teaching science demonstrated some interest and creativity in presenting the lessons. This was observed in Class 1 but especially in Class 3 when the teacher taught "Sinking and Floating" and "Keeping Healthy: Cleaning the Teeth."
  - S3a. Teachers improvise and provide teaching materials by themselves. These come from the environment. This was observed in two (2) lessons in Class 3 which were the only ones taught.
  - S3b. Pupils may provide some of the teaching materials. This was observed in the only two Science lessons in Class 3.
  - S4. The chalkboard is the most frequently used instructional tool. This was not the case in the Science lessons observed unlike it was in the English and Mathematics lessons observed in all the classes. In Class 3 the teacher used the chalkboard only for listing the materials to be used in teaching and demonstrating. In Class 1 the teacher barely wrote on the board. This was reconfirmed by the teachers.

It can be concluded from these findings that Science was not taught mainly because teachers do not have the textbooks, the necessary guides, and also lack other resources.

#### 4. (OT) OTHERS: TIME TABLE

- OT1. The time tables designed by the Ministry and the Ghana Education Service were seldom followed. This was the case on all twelve days of observation in all the classes. Deviations occurred in the following ways:
  - OT1a. Instructional time is weighted towards English and Math--Science is taught less than scheduled. In the twelve days of observation in the school more English and Maths lessons were observed than Science in all the three classes. (Refer to Table 2). An examination of the time tables for the classes (Appendices A, B, C) revealed that whereas English and Mathematics were provided for every day of the week, in all the three Classes, Science could be taught only twice a week (In the case of Classes 1 and 3 on Mondays and Fridays for thirty (30) minutes each). In Class 5 Science has been scheduled for one hour on Tuesdays. In Classes 1 and 3 three hours and thirty minutes a week were devoted to teaching Mathematics, and four hours and thirty minutes a week to English. In Class 5 three hours and thirty minutes a week were devoted to teaching mathematics whiles four hours and thirty minutes a week were allocated to English. Thus for every minute spent on teaching Science in Classes 1 and 3, three and a half minutes were spent on teaching Mathematics. Again for every minute spent on teaching science, four-and-a-half minutes were spent teaching English.

The teacher in Class 3 either only taught science the whole day spanning two and a half hours or science and another subject like English for the whole day. This was the case on the two occasions she taught science. The instructional time for English, Mathematics and Science on the days on which Science was taught in Class 1, for instance are shown in Table 8 below:

**TABLE 8**  
**INSTRUCTIONAL TIME IN CLASS 1**

SUBJECT INSTRUCTIONAL TIME			
DATE	16/2/93	22/2/95	15/3/93
Mathematics	50 minutes	39 minutes	Not taught
Science	10 minutes	24 minutes	34 minutes
English	45 minutes	30 minutes	41 minutes

To further validate this finding the Headteacher in an interview disclosed that the school lays emphasis on the teaching of five (5) subjects including English and Mathematics. The others were Cultural and Social Studies, and Ghanaian Languages. Indeed, she indicated that it was the school's policy to teach English and Mathematics everyday. She indicated that Science was occasionally taught. This statement confirmed what was observed--the few Science lessons.

- OT1b. Teachers may extend instructional time (especially English and Math) without extending the amount of material covered (eg. there were lots of repetition and the lesson was delivered at a slow pace). In some cases, class exercise periods were extended. This was observed in all the Classes and in all the lessons. A cross-examination with the time table indicated that teachers went beyond the stipulated time and that seemed to be the norm. In an interview with the teachers they indicted that the thirty (30) minutes allocated on the time-table was insufficient. They were of the opinion that at least forty-five (45) minutes should be spent on a subject. They argued that the pupils need time to absorb what was being taught, do their class exercises and correct their mistakes. They felt that the time table was overloaded and advocated for at least three subjects or at most four subjects a day.
- OT1c. Teachers chose not to teach some subjects such as Agriculture and Physical Education (P.E.) This was the case in all the three Classes even though the team visited the school on days when they should have been taught.  
When interviewed as to why Agriculture was not taught the Headteacher disclosed that being a fishing community, pupils did not take interest in farming. This was confirmed by the other teachers. The Head indicated that attempts to establish a school farm had been futile due to the indifference of the pupils and the destructive activities of the villagers. However, she intimated that attempts may rather be made at undertaking aquatic farming.
- OT1d. Much of the time is idle and no subjects are taught. Children play, sleep or amuse themselves in other ways. This applied to all the three Classes throughout the period of observation. Whenever the school was on a morning session the first forty-five (45) minutes to one hour was usually used in settling down. The same applied whenever the school was on an afternoon shift.
- OT2. Whatever subject was being taught during a time period usually precluded the introduction of another discipline, even though pupils may have completed an assignment or are otherwise idle. This was observed in all the lessons in Classes 1 and 3. In Class 5 however, the teacher throughout the observation always introduced the new lesson by writing teaching content material on one side of the board whilst pupils continued with their exercises whether on mathematics or English or any other subject that had been taught.
- OT3. Very few of the curriculum lessons are covered each day. This was evident from the twelve days of observation. Out of eight (8) subjects on the curriculum only three or four were taught each

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day and these almost always included Mathematics and English. (refer to Table 2). Furthermore, evidence on why this was the case is presented in OTI(b).

#### **5. (OP) PUPIL-TEACHER INTERACTION**

- OP1. Pupils do not query the teacher. This was the case in Class 1. In Class 3 however, the teacher encouraged pupils in all her lessons to ask questions for clarification after she has taught. In Class 5 opportunity was provided to pupils during the correction stage in both Mathematics and English to pose questions if they did not understand the lesson. There was one instance when a boy told the teacher in Fanti after he had completed one incomplete sentence and set them to work that he did not understand the assignment. This was in an English lesson.
- OP2. Pupils are not instructed to work together. This was the general situation except in Class 3 in one Science lesson, "Sinking and Floating" when the teacher divided the class into four groups and distributed materials to them to demonstrate the lesson.
- OP3. Dialogue between the pupil and the teacher were rare. In Class 1 pupils throughout the period of observation did not enter into dialogue with their teacher. In Class 3 however, the teacher at times encouraged dialogue especially after teaching a lesson. It was, however, more marked in her science lessons. In Class 5 there was some form of dialogue between the teacher and the pupils when corrections were being done in relation to Mathematics and English assignments.
- OP4. Teachers tend to ask questions that produce a "product" response where there is no interaction between teacher and student. This was especially the case in Class 1 even though it was also a very common feature in the lessons in Classes 3 and 5. Pupil-pupil interaction may be for sharing materials or non-instructional purposes. This was especially the case in Classes 1 and 3. In Class 5, however, it was observed that pupil-pupil interaction in some cases was for instructional purposes. Four girls in the sampled group observed and sitting in front were always observed talking to one another and pointing fingers at the board knowingly whenever the teacher copied teaching material relating to another lesson on the board. This was observed in all the seven English and seven mathematics lessons.

It can be concluded that pupil-teacher interaction was more one-way than two-way, because in most cases teachers' questions elicited "product" responses.

#### **6. (OL) LANGUAGE**

- OL1. The Fanti language was used in explaining Science and Mathematics concepts as well as in explaining and helping pupils spell English words. This was observed in all the lessons. (refer to Table 2).
- OL1b. Fanti alphabets and sounds may be used in explaining and helping pupils to spell English words. This was only observed in all the lessons taught in Class 3, namely, seven (7) Mathematics lessons, four (4) English lessons and two (2) Science lessons.

#### **7. (OCI) CRITICAL INCIDENT**

- OCI1. Pupils are at times intimidated through the use of the cane. This was observed in all the lessons in Classes 1 and 3.
- OCI1a. Teachers use the cane on pupils at times in checking misconduct and inattentiveness in class. This was observed in all the lessons in Class 1 and 3.
- OCI2. Teachers allowed other (eg. villagers) to come into their classroom and use the cane on pupils. This was observed in one instance in Class 1.  
(The parent who entered the class a few minutes after the lesson had commenced approached a

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### **The Instrument**

The instruments designed for use included: a semi-structural, short check-list on the inventory and use of materials in the classroom, and open-ended interviews of pupils, parents, teachers and other community members who were involved with the school.

### **Data Collection Procedure**

Three sets of visits were made by team members for the collection of the data:

#### **(i) Visit to the School by the Team Leader**

In November 1992, the Team Leader made an initial three day visit to the school. During this visit, he familiarized himself with the school environment and developed a rapport with the Headteacher and the rest of the faculty. By doing so, he gained the approval and cooperation of the teachers for the research activity to be carried out in the school.

#### **(ii) Visit to the School by the Team Members**

Between the 8th and 11th of December, 1992, the Team Leader took the team members to the school. The purpose of this preliminary visit was to allow the team members to become introduced and familiarized with the environment. The team also used the three-day working-visit to collect information on the school profile.

#### **(iii) Data Collection Visit**

Between February and early March of 1993, the team spent twelve working days in the classrooms collecting data on: available facilities; their sources of supply; and how they were used by both teachers and pupils.

The four-member team divided themselves into two sub-groups, each of which remained in a close working relationship throughout the period. For four continuous working days, each sub-group spent an entire day in a classroom collecting data on resource usage.

During this process, team members sat at the back of the classroom facing the chalkboard and the teacher. Each of the pair sat in separate areas of the room. Between two and four pupils (both male and female) were selected by each member and their activities followed throughout the lessons. Data collection involved watching, listening, and describing what went on in the classroom with regard to the teaching of the three core subjects: Mathematics, English and Science.

### **Seminar**

After the collection and analysis of the data, a seminar was held in May of 1993 at which time the Brofoyedur Team and five other teams discussed their findings.

## **SCHOOL PROFILE**

### **Location**

The school is located in the village of Gomoa Brofoyedur on the Winneba-Agona Swedru road in the Gomoa District of the Central Region in Ghana. It is about three (3) kilometres from Agona Swedru. The environment is rural in nature but has pipe borne water and electric supplies. The school is located on the western outskirts of the village and is surrounded by few houses.

### **History**

Gomoa Brofoyedur Roman Catholic Primary School was established in 1944 by the Catholic Church and has been under the management of the Apam District Education Office. It is a coeducational institution and a single stream day primary with a six classroom block, an office and a store.

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## INTRODUCTION

Every nation in the modern world lays emphasis on a sound educational system for the development of her human resources or manpower which is a vital prerequisite for its socio-economic development. Various educational reports in Ghana acknowledge the importance of education as the main key to national development and progress.

The 1951 Accelerated Development Plan for Education recommended universal primary education. The 1961 Education Act also stressed equal educational opportunities for the citizens. The Report of the Education Commission on Basic Education (August 1986) strongly recommended an equal opportunity to basic education, making it possible for pupils to develop their individual talents.

The Government has recently (1987) embarked on a comprehensive programme of educational reforms designed to change the structure of the educational system, to increase equality of opportunity and accessibility, to ensure adequate provision of school resources and to ensure that physical facilities are maintained and rehabilitated.

As a follow up to the Jomtien Declaration on Basic Education For All, the Government of Ghana immediately set up an Inter-Sectoral Task Force to coordinate the writing of a comprehensive education plan to enable Ghana to achieve the objective of Basic Education for all by the year 2000.

All these point to the level of recognition given to education by the Ghana Government. One relevant question one can ask relates to what happens at the school level with regard to achieving the objectives of the Government. A study of this nature can reveal the situation as it exists in the schools and make possible recommendations for improvement.

## PURPOSE OF STUDY

The general purpose of the project was to find ways and means of Improving the Quality of Primary Education in Ghana. Specifically, our concentration was on the provision and utilization of resources in the schools. The purpose was therefore to find out:

- (a) Availability of resources for instruction in English, Mathematics and Science in the schools;
- (b) The quantity of such materials vis-a-vis the class enrollment in the schools;
- (c) The use to which such resources are put by both teachers and pupils;
- (d) The sources of those resources/materials (ie. whether they were supplied by the government, purchased by the school, produced/provided by teachers, Parent-Teacher Association (P.T.A.), by Community members, or by pupils themselves);
- (e) Policies for the use of such materials/resources.

## METHODOLOGY

The Brofoyedur Research Team, together with other research teams who were to carry out similar studies in five other schools in the Central Region, met in January 1993 and agreed to use qualitative methods of data collection. The descriptive method/anthropological classroom observation method was adopted.

### The Sample

At the meeting with other research teams, Brofoyedur was selected, through purposive sampling, to be one of the four rural schools (along with two urban schools) in which the study was to be conducted. It was agreed that the Brofoyedur Team should collect data on the provision and use of resources in primary classes 2, 4 and 6.

SOURCE OF SUPPLY/FOR WHOM	MATHEMATICS MATERIALS	SCIENCE MATERIALS	ENGLISH/ LANGUAGE ARTS MATERIALS	COMMENTS
Provided by Community	School building. Blackboard in the classroom.			The school block needs renovation.
Other sources: PTA  Pupils	16 long tables (one suitable for two pupils). 1 table and 1 chair for each teacher's use in class. 6 locks, one for each door.  Bottle tops and short sticks as counters. (about 100 sticks per pupil)			Two of the pupils' tables had been sent out for repairs. Tables and chairs were inadequate for pupil use.
Policy for Use of Materials	The life span of each textbook is 5 years (from the date of issue to school). Textbooks could be issued to pupils on request, with an undertaking by parents to see to the care and general safety of the books. Books severely damaged or found missing must be replaced by the defaulters.			In P2, only one parent had so far come to borrow books for his ward's use.

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APPENDIX A  
MATERIALS/RESOURCES USED IN CLASS 2 (37 Pupils)  
AND THEIR SOURCES OF SUPPLY

SOURCE OF SUPPLY/FOR WHOM	MATHEMATICS MATERIALS	SCIENCE MATERIALS	ENGLISH/ LANGUAGE ARTS MATERIALS	COMMENTS
<p>Provided by Govt. for: <i>Teachers</i></p> <p><i>Students</i></p>	<p>1 copy - Teacher's Handbook for P2 Mathematics. 5 big lesson Note Books for Teacher's Lessons. 2 Class Registers supplied in 92/93 academic year. Boxes of white and colored chalk.</p> <p>24 copies of Ghana Math Series Book 2. 1 book to 2 pupils.</p>	<p>1 copy Teacher's Guide</p> <p>34 copies of Science Series Book 2. 1 book to 1.1 pupils.</p>	<p>1 copy Teacher's Guide. 3 packets Flash cards.</p> <p>10 copies of English Readers, Pupil Book 2. 1 book to 3.7 pupils.</p>	<p>Teacher often made use of the Teacher's Handbook in teaching Math and other subjects. Both white &amp; colored chalk were unable to last the remainder of the year.</p> <p>Govt. supplied only two class registers in the 92/93 academic year. School had to buy the remaining four for all the six classes.</p>
<p>Purchased by School for: <i>Teachers</i></p>	<p>1 lesson Note Book for P2 teacher only. 4 class registers. 4 sheets of cardboard for each teacher. 2 sheets brown paper.</p>			<p>Govt. supply of 5 lesson Note Books inadequate for 6 teachers. School bought an additional Note Book to supplement.</p>
<p>Provided by Teacher</p>	<p>1 blue pen for writing lesson notes and 1 red pen for making pupils' exercises.</p>			
<p>Provided by Parents/Guardians</p>	<p>1 copy mathematics Exercise Book for class exercises. 1 lead pencil.</p>	<p>Unruled Exercise Book for "Expression Work."</p>	<p>One Exercise Book for class exercises in English.</p>	<p>Only 10 pupils had the unruled exercise books for "Expression Work."</p>

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**OTHER: HOMEWORK**

OH1. In all classes, pupils were not given written homework to do though class assignments were given. Pupils were, however, asked to seek information from parents and to bring materials for cultural studies.

**OTHER: FURNITURE**

OF1a. There was an inadequate supply of furniture for use by pupils. In P2 there were 16 long tables (one table ideal for 2 pupils) for use by 37 pupils. In P4 there were 11 dual desks and 7 long tables for use by 43 pupils. In P6 there were eleven dual desks for use by 32 pupils. In a few cases, desks designed for 2 pupils were used by 3 pupils.

OF1b. Furniture for teachers' use was adequate; each teacher had a writing table and a chair. The headteacher had a table and chair in his office.

OF1c. Each class had a cupboard for the safekeep of books.

**OTHER: CLASSROOM**

OC1. The school had six classes and each class had its own classroom.

OC2. The classrooms were spacious for the various class sizes.

**OTHER: ATTENDANCE**

OA1. Teachers were generally regular at school except for the P4 teacher who was a nursing mother.

OA2. Pupils' school attendance was erratic as they:

a) were asked to go and collect school fees;

b) accompanied parents to the farm.

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interviewed, she explained that some of the parents could not afford to buy the exercise books for their wards.

- M3b. After both teachers and pupils discussed examples on the chalkboard, pupils were given exercises to work in their class exercise books. Teachers spent class hours marking pupils' exercises. It was observed that pupils were not given any homework.

**Counters:**

- M4. The most frequently used ad hoc material in P2 was counters which included bottle tops, sticks and empty match boxes. Ad hoc materials were rarely used beyond P2.

**E. ENGLISH MATERIAL UTILIZATION**

**Chalkboard:**

- E1a. The most frequently used instructional material was the chalkboard. In P2, simple sentences constructed during reading lessons were written onto the chalkboard by the teacher. In P4, questions from the textbooks were copied onto the chalkboard to guide the pupils in writing an essay. A passage from the textbook was also written on the chalkboard for pupils to read. In P6, key words from the textbooks were written on the chalkboard and explained to the pupils.
- E1b. Pupils were called upon to read simple sentences from the chalkboard. In P2, in the absence of the teacher, there was chorus reading from the chalkboard which was by the class prefect.

**Textbooks:**

- E2a. In P2 and P4, the textbook/pupil ratio was very low, but it was adequate in P6.: In P2, the ratio was 1:4, and in P4 it was 1:22; in P6 it was almost 1:1 -- there were thirty English Readers for use by thirty-two pupils.
- E2b. Teachers used textbooks as instructional aids. In P6, key words from textbooks were written onto the chalkboard and model reading from the textbook was also done by the teacher. The teacher also asked questions on the passages read from the textbook. In P4, the teacher copied a passage from the textbook onto the chalkboard. In P2, passages were copied onto the chalkboard by the teacher for pupils to read.
- E2c. Pupils used textbooks sparingly. In P6, pupils read aloud from textbooks in two separate lessons and answered questions based on what they had read. On the other hand, textbooks were not directly used by pupils in P2 and P4. The textbooks were not sufficient in these classes. In P2 there were ten copies of English Reader for use by thirty-seven pupils while in P4, only two copies of the English Reader were available for use by forty-three pupils.

**Exercise Books:**

- E3a. All the pupils in P2, P4 and P6 had exercise books for their English exercises.
- E3b. In P6, pupils worked on grammar, comprehension and composition exercises. Pupils in P4 completed comprehension and composition exercises. The P2 pupils also completed some exercises. Members of the research team went through the exercises books and found the teachers had been giving pupils class assignments.

**Flashcards:**

- E4. Three packs of flashcards supplied to P2 were never used as they remained neatly packed in the cupboard.

**Pupils as Resource Material:**

- E5. In P2, the teacher called pupils to the front of the class to role play, especially during oral English lessons.

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## S. SCIENCE MATERIALS UTILIZATION

- S1a. The teachers made good use of the chalkboard during the Science lessons. In P6 for example, the teacher wrote down unfamiliar words connected with the topic listed on the chalkboard. He also used the chalkboard for illustrations; for example, he drew two diagrams, one showing how raw food is transported to the leaves to be manufactured and the other showed how the synthesized food is transported to the various parts of the plant. The P2 teacher drew a diagram of a plant illustrating its various parts—root, stem and leaf as well as built a chalkboard summary of the lesson taught.
- S1b. Pupils in P6 did not have the opportunity to use the chalkboard while pupils in P2 did. They drew plants on the chalkboard and labelled the parts (roots, stems, leaves).

### Textbook:

- S2a. In P2, the textbook was adequate as each child had access to a book but in P4 and P6, the textbooks were not adequate. The textbook-pupil ratio in P2 was 1:1; in P4 it was 1:3; and in P6 it was 1:4.
- S2b. The P6 teacher read from pupils' textbook, drawing attention to diagrams which illustrated various states of water and explained the processes of evaporation. He again drew sketches from the textbook onto the chalkboard. The P2 teacher never used the textbook in teaching.
- S2c. In one of the lessons in P6, pupils observed pictures of various states of water from the textbook. They answered questions based on what they had observed from the textbook.

### Exercise Books:

- S3. In P2, only ten out of thirty-seven pupils had exercise books for expression work, so the teacher had to borrow slates from P.1 to engage the other pupils.

### Ad Hoc Materials:

- S4a. In almost all the lessons, teaching/learning aids were used. It was only in one lesson that although the teaching/learning aids were brought, they were not used for demonstration.
- S4b. Pupils in both classes (P2 and P6) were asked to bring teaching/learning aids for the lessons; for example, in P2 pupils brought young plants.

### OTHER: TIME-TABLE

- OT1a. Teachers often used instructional time to mark pupils' exercises while pupils looked on unengaged or amused themselves in other ways.
- OT1b. More instructional time was devoted to the teaching of English and Mathematics.
- OT1c. Life skills and P.E. were seldom taught, while Agriculture and Music were never taught.
- OT1d. No time limit was set for pupils to work on their exercises; thus, they could finish their assignments at anytime.
- OT1e. Teachers extended instructional time (especially English and Mathematics) without extending the amount of material covered (e.g. lots of repetition at a slow pace).
- OT1f. Instructional time was used in training pupils for sporting activities.
- OT1g. Much more time was spent at morning assemblies than needed. Fingernails, school uniforms etc. were inspected at school assemblies.
- OT1h. A lot more time than was allocated was spent for breaks.

### OTHER: WALL PICTURES AND DIAGRAMS

- OW1a. Wall pictures, charts, diagrams for use in teaching were virtually non-existent in the classrooms.
- OW1b. There were no charts, diagrams, or pictures on the walls. These teaching/learning aids were never used by teachers in any teaching/learning situation.
- OW1c. The school inventory for 1992/93 indicated that teachers were supplied with four pieces of cardboard each to prepare teaching/learning aids; however, this had not been carried out.

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**Classrooms:**

- OC1. Adequate classrooms were available;  
OC2. Classrooms were spacious for the class sizes.

**Class Attendance:**

- OA1. Attendance by teachers was generally consistent;  
OA2. School attendance by pupils was erratic.

**ANALYSIS**

A total of eight observations were to be made by the two groups in each class/grade for each of the three subjects: Mathematics, English, Science. The totals shown in Table 1 are the number of observations made within the twelve-day period. Each total is less than 8 because in some instances the teachers did not follow the time-table or they were absent. The analysis that follows was based on the number of observations indicated in the table.

**TABLE 1**  
**NUMBER OF OBSERVATIONS MADE IN EACH CLASS**

Class	MATHEMATICS			ENGLISH			SCIENCE		
	GRP 1	GRP 2	TOTAL	GRP 1	GRP 2	TOTAL	GRP 1	GRP 2	TOTAL
P2	3	2	5	4	1	5	1	1	2
P4	2	2	4	1	2	3	-	-	-
P6	4	3	7	4	3	7	1	1	2

**M. MATHEMATICS MATERIALS UTILIZATION****Chalkboard:**

- M1a. The teachers used the chalkboard extensively as an instructional tool for writing lessons, problem solving, the listing of pupil responses and the drawing of diagrams. In P2, for example, the teacher drew diagrams to illustrate the concept of tens and units.
- M1b. Pupils worked through examples on the chalkboard as well as observed and read examples placed on the chalkboard by teachers.

**Textbooks:**

- M2a. In P2 and p.6, the textbook/pupil ratio was low; it was 1:5 in P2 and 1:2 in P6. However, it was even lower in P4 where the ratio was 1:8.6.
- M2b. Teachers used textbooks as their main source from which to draw examples and assignments. They often wrote exercises and worked out selected examples on the chalkboard from textbooks.
- M2c. In P4 the textbook/pupil ratio was so low that the teacher had to copy exercises and selected examples from the textbook onto the chalkboard. According to class inventory, there were five textbooks for forty-three pupils. According to the teacher, the textbooks were not adequate and therefore not distributed to pupils.
- M2d. Because of their inadequacy, textbooks were not allowed to be taken home.

**Exercise Books:**

- M3a. The majority of pupils had exercise books. In P2 and P6 all the pupils had exercise books for mathematics; in P4, about 75% of the pupils had exercise books. When the P4 teacher was

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## FURTHER ANALYSIS

### CODING

#### M. MATHEMATICS MATERIAL UTILIZATION

- M1a. The chalkboard was extensively used by teachers;
- M1b. The chalkboard was used sparingly by pupils;
- M2a. Textbook/Pupil ratio was low in P2 and P6 and even lower in P4;
- M2b. Textbooks served as the main source for the selection of chalkboard examples and class assignments;
- M2c. Textbooks were not directly used by pupils;
- M2d. Textbooks were not distributed to pupils for use at home;
- M3a. Exercise books for class assignments were available for the majority of pupils;
- M3b. Exercise books were used by pupils for class assignments;
- M4. Counters were frequently used ad hoc materials in P2.

#### E. ENGLISH LANGUAGE MATERIAL UTILIZATION

- E1a. The chalkboard was the frequently used instructional material;
- E1b. The chalkboard was used sparingly by pupils;
- E2a. Textbook/Pupils ratio was adequate in P6 but extremely low in P2 and P4;
- E2c. Textbooks were infrequently used directly by pupils;
- E3a. Exercise books for class assignments were available to pupils;
- E3b. Exercise books were used by pupils for class assignments;
- E4. Flashcards supplied to one class were not used;
- E5. Children themselves were used as resource material.

#### S. SCIENCE MATERIAL UTILIZATION

- S1a. The chalkboard was the frequently used instructional material;
- S1b. The chalkboard was used sparingly by pupils;
- S2a. Textbook/Pupil ratio was adequate in P2 but low in P4 and P6;
- S2b. The textbook was used by one of the teachers;
- S2c. Textbooks were used sparingly by pupils in one class;
- S3a. Exercise books for "Expression Work" were inadequate in one class;
- S4a. Ad hoc teaching aids were adequately provided by teachers;
- S4b. Ad hoc teaching/learning aids were adequately provided by children.

#### O. OTHER MATERIAL/RESOURCE UTILIZATION

##### Time-Table:

- OT1. The School Time-Tables were seldom followed, leading to deviations.

##### Wall Pictures:

- OW1a. Wall-pictures, charts and diagrams were virtually non-existent in the classrooms.
- OW1b. Wall-pictures and charts were not used by teachers in the classrooms.
- OW1c. Cardboard (for making teaching/learning aids) was supplied to the teachers.

##### Homework:

- OH1. Homework was generally not given to pupils.

##### Furniture:

- OF1a. Furniture for use by pupils was inadequate;
- OF1b. Furniture for teachers was adequate;
- OF1c. Cupboards were available for the safekeep of books.

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9. The Junior Secondary School (J.S.S.) Headmaster in the village borrowed P4 vernacular textbooks for use by J.S.S. 1 pupils. One could guess the academic standard of the J.S.S.1 pupils was below normal.

10. The teachers had little or no knowledge of first aid. One morning during a zonal cross-country (athletic) competition a female competitor became too weak to continue. She diverted her course and came to the school for help as she felt like she was going to faint. Members of teaching staff did not know what to do; a member of our research team gave the needed first aid and she was later driven home. It is therefore suggested that teachers are given basic first aid knowledge and training.

11. Most of the pupils interviewed had no interest of reaching higher aspirations. Most girls wanted to become seamstresses; most boys wanted to become drivers; others were still unsure.

12. At the time of interviewing, the youth who had completed basic education and now lived as peasant farmers were unaware of their future prospects after basic education. Career guidance would help to alleviate this scenario.

13. A few parents who belonged to the higher-socio-economic class, according to village standards, preferred to send their children to Preparatory Schools at Swedru, the nearest urban centre. They did not believe Brofoyedur Primary School could provide the type of education they wanted for their children.

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water was brought into the classroom in a plastic container. While delivering the lesson, however, the teacher never referred to the water; instead, he remained focused on the use of the chalkboard.

During one of the lessons, only 10 out of 37 pupils had copies of exercise books for "Expression Work." The P2 teacher therefore went to P1 to borrow slates for his pupils to use.

In P6, the teacher brought in a tin of red powder, empty tins, water, and young uprooted plants to conduct an experiment. He also used the chalkboard to sketch some diagrams from the pupils' Science textbooks. The textbooks, however, were not given out to the pupils directly to observe the sketches.

There was a shortage of tables and chairs; this problem was very evident in P4 with an enrollment of 43 and in P6 with an enrollment of 32.

### ISSUES THAT EMERGED AND THEIR IMPLICATIONS

1. Resources for both pupils and teachers were in short supply. Inadequacy and non-availability of some of these resources adversely affect the teaching and learning process.
2. There were no charts, wall-maps, diagrams etc. in the classrooms. Teachers therefore were unable to use these aids in teaching. We therefore suggest that the use of teaching/learning aids should be encouraged. Also, a system must be developed in which the Teacher Training Colleges make follow-up visits to their teachers who are in the field teaching to determine their effectiveness and in turn use the findings for improving their programmes.
3. Teachers concentrated on the teaching of English, Mathematics and occasionally Cultural Studies. Science was rarely taught, and subjects such as Physical Education, Agriculture, and Music were disregarded. We suggest that supervision be intensified to ensure all subjects are given the attention they deserve.
4. No homework assignments were given to children. With regard to in-class exercises, no time limit was given; children submitted their exercise books when they completed the work. Thus, other subjects were not taught for the rest of the day.
5. Teachers wasted time by using teaching periods to mark class exercises while the children had nothing to keep them busy. Normally, the previous day's exercises were marked before any new written exercises were begun. It is suggested that teachers mark pupils' exercises after the school closes for the day.
6. Classes were disrupted as teaching hours were used for training pupils in sporting activities even though it was suggested that afternoons be used for such activities.
7. The Headteacher and his Assistant do not reside in the village; they commute to the school everyday. This made it difficult for them to know their pupils' backgrounds. It was a common occurrence for many parents to come to hold long meetings with the Headteacher, thus disrupting many of his lessons. Commuting was also difficult during rainy seasons; their attendance was affected.
8. The majority of the parents were uninformed as to the Government's policy of loaning relevant textbooks for use by their wards at home. As a result, the children were behind in their academic work. Parents should be informed and encouraged to undertake the responsibility for the safekeep of books loaned to their wards.

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## ENGLISH

The table above indicates that as far as the English Language is concerned, a total of 5 lessons were taught in P2; 3 lessons were taught in P4; and 7 lessons taught in P6.

In P2, the teacher did not distribute the English course books to the pupils because of the teaching strategy used. Instead, on two occasions, during on-going mathematics lessons, the teacher gave out copies of the P2 English Course Books to those pupils, who had completed their class assignments in Mathematics. These pupils involved opened their textbooks to the relevant pages their teacher assigned. They glanced through them briefly to observe pictures but soon lost interest. The class as a whole never had a reading lesson during the observation period.

The English lessons taught by the P2 teacher were all work. The teacher concentrated on the use of the chalkboard and sometimes invited individual pupils to come and role play.

The P4 teacher taught three lessons in English during which she concentrated on the use of the chalkboard. On one occasion, while teaching an English Composition topic, the teacher used the pupils' English Course Book 4 from which she copied four sentences from the book on the chalkboard. Even though the pupils copied these sentences, they did not have the opportunity to use the textbooks themselves.

The P6 teacher used the textbooks a great deal. For example, in treating the topic "Travelling By Air," the teacher encouraged his pupils to make use of their English Course books. During both English reading and comprehension lessons, the teacher allowed the pupils to use their textbooks. In addition, since our arrival there, he allowed the pupils to take their English Course Books home in the evenings.

It needs to be stressed that both the P2 and P4 teachers did not allow their pupils to use their English Course Books. In addition, we saw flash cards in the P2 cupboard. They had maintained their neat appearance; in other words, they were not being utilized.

## MATHEMATICS

In P2 we noted that Mathematics was taught five times; in P4 it was taught four times; and seven times in P6.

Regarding the use of pupils' Mathematics course books, the consistent pattern evident in the three classes was that teachers often selected topics or examples from the books for discussion and copied exercises on the chalkboard for their pupils to work through.

The teachers always worked through examples on the chalkboard for the pupils. Later, they invited a few children to come forward to work similar examples on the chalkboard. After this exercise, the teachers put exercises for the day on the chalkboard, and the children used their writing materials to work through the exercises in their class exercise books.

In P2, the pupils themselves provided counters in the form of short sticks, old empty matchboxes, and bottle tops. These counters were extensively used by the pupils during their Mathematics lessons.

On two occasions, the P6 teacher used Pupils' Book 5 to select sums for his pupils. What was evident was that the pupils never had the opportunity to use the Mathematics course books directly.

## SCIENCE

Science was not given equal priority in comparison to Math and English. In both P2 and P6, Science was taught only on two occasions in each class and was never taught in P4.

In P2, one of the Science lessons taught dealt with the uses of water. At the beginning of the lesson,

- (a) 15 copies of Science for Primary Schools, Pupils' Book 4 for use by 43 pupils. This is in the textbook-pupil ratio of 1:2.9 (supplied by Government);
- (b) 1 copy of Science for Primary schools, Teachers' Handbook 4 (supplied by Government);
- (c) Unruled exercise books for expression work (provided by parents/guardians);
- (d) Pens, Pencils, Rulers (provided by parents/guardians).

**PRIMARY 6**

- (a) 8 copies of Science for Primary schools, Pupils' Book 6 for use by 32 pupils. This is in the textbook-pupil ratio of 1:4 (supplied by government);
- (b) 1 copy of Science for Primary schools, Teachers' Handbook 6 (supplied by Government);
- (c) Notebooks -- 15 children had notebooks into which notes were written (provided by parents/guardians);
- (d) Unruled Exercise Books for Expression Work (provided by parents/guardians).

**OTHER**

The following resources were available for the whole school:

- (a) The Government supplied the following to the teachers: 5 Lesson Notebooks for the writing of lesson notes and 2 Class Registers.
- (b) The School provided/purchased the following for use by teachers: 1 Lesson Notebook, 4 Class Registers, 2 sheets of brown paper (to cover lesson notebooks and class registers) and 4 sheets of cardboard (for making teaching/learning aids).
- (c) The Parent Teacher Association (P.T.A.) also provided dual desks, tables and chairs for both teachers and pupils, cupboards & padlocks.
- (d) The Community provided the school building.
- (e) Teachers provided pens (blue & red) for lesson note preparation and marking of exercises and time tables.

[See Appendices A-C.]

**UTILIZATION OF MATERIALS BY TEACHERS AND PUPILS**

Concerning the use of the resources by the teachers and the pupils, the general pattern was that whereas some of the materials were utilized, some were grossly under-utilized.

The table below shows the number of times English, Mathematics and Science were taught in the classes. The team did its observations during a twelve-day period. The maximum number of times a class could be observed by the two sub-groups was eight.

**TABLE 2  
NUMBER OF OBSERVATIONS BY GRADE AND SUBJECT**

Class	ENGLISH			MATHEMATICS			SCIENCE		
	GRP 1	GRP 2	TOTAL	GRP 1	GRP 2	TOTAL	GRP 1	GRP 2	TOTAL
P2	4	1	5	3	2	5	1	1	2
P4	1	2	3	2	2	4	-	-	-
P6	4	3	7	4	3	7	1	1	2

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- (e) Wall chalkboard (provided by the community).

**PRIMARY 6**

- (a) 30 copies of an English Course for Ghanaian schools, Pupils' Book 6 for use by 32 pupils. This is in the book/pupil ratio of 1:1 (supplied by the Government);
- (b) 1 copy of an English Course for Ghanaian schools, Teachers' Handbook 6 (supplied by Government);
- (c) Boxes of white & coloured chalk (supplied by Government);
- (d) Exercise Books -- each child had a large exercise book (no.1) for English exercises, i.e. Composition, Grammar, Comprehension and Dictation (provided by parents/guardians);
- (e) Wall chalkboard (provided by the community).

**MATHEMATICS**

The following resources were available for the teaching of Mathematics:

**PRIMARY 2**

- (a) 24 copies of Ghana Mathematics Series, Pupils' Book 2, for use by 37 pupils. This is in the book/pupil ratio of 1:1.5 (supplied by Government);
- (b) 1 copy of Ghana Mathematics series, Teachers' Handbook 2. (supplied by Government);
- (c) Exercise Books -- only some children had exercise books for Mathematics (provided by parents/guardians);
- (d) Pencils (provided by parents/guardians);
- (e) Counters (bottle tops, short sticks, empty match boxes) -- (provided by the children themselves).

**PRIMARY 4**

- (a) 5 copies of Ghana Mathematics Series, Pupils' Book 4, for use by 43 pupils. This is in the book-pupil ratio of 1:8.6 (supplied by Government);
- (b) 1 copy of Ghana Mathematics series, Teachers' Handbook 4 (supplied by Government);
- (c) Exercise Books -- some children had exercise books for exercises in Mathematics (provided by parents/guardians);
- (d) Pens, pencils, rulers, erasers -- not all the pupils had these materials. In this class, 4 pupils had rulers. (provided by parents/guardians).

**PRIMARY 6**

- (a) 16 copies of Ghana Mathematics Series, Pupils' Book 6, for use by 32 pupils. This is in the textbook-pupil ratio of 1:2 (supplied by Government);
- (b) 1 copy of Ghana Mathematics series, Teachers' Handbook 6 (supplied by Government);
- (c) Exercise Books -- some pupils had exercise books for exercises in Mathematics (provided by parents/guardians);
- (d) Pens, Pencils, Rulers -- pupils had no rulers (provided by parents/guardians).

**SCIENCE**

The following resources were available for the teaching of Science:

**PRIMARY 2**

- (a) 34 copies of Science for Primary Schools, Pupils' Book 2, for use by 37 pupils. This is in the textbook-pupil ratio of 1:1.09 (supplied by government);
- (b) 1 copy of Science for Primary Schools, Teachers' Handbook 2 (supplied by Government);
- (c) Unruled Exercise Books -- ten out of thirty-seven children had unruled exercise books for expression work (provided by parents/guardians).

**PRIMARY 4**

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**Toilet**

There were no toilet facilities in the school; pupils had to use the public one located about ten minutes away from the main street.

**School Farm**

The school had neither a farm nor a garden even though it is located in a typical farming area. The teacher in charge of agriculture, when contacted, stated that no landowner was prepared to release land to the school.

**Canteen**

The school had no purposely built canteen to sell food to the pupils. Other food vendors are located in three different areas around the school complex.

**Water**

There was a water-tap on the compound. Three plastic buckets filled with water were placed on the veranda for use by the children. Three cups were used by the pupils in drinking the water from the plastic buckets.

**First Aid Kit**

There was no first aid kit in the school.

**Lessons**

According to the school time-table, lessons were to begin at 8 a.m. and end at 12.30 p.m. Each class was supposed to have eight periods of 30 minutes a day with two breaks of fifteen and ten minutes each. However, from experience, this daily programme was not strictly adhered to.

**RESOURCES AVAILABLE FOR ENGLISH , MATHEMATICS AND SCIENCE INSTRUCTION AND THEIR SOURCES OF SUPPLY****ENGLISH**

The following resources were available for the teaching of English:

**PRIMARY 2**

- (a) 10 Copies of an English course for Ghanaian Schools, Pupils' Book 2, for use by 37 pupils. This is in the book-pupil ratio of 1:3.7 (supplied by Government);
- (b) 1 Copy of an English course for Ghanaian schools, Teacher's Handbook 2 (supplied by Government);
- (c) 3 packets of flash cards for the teaching of the English Language (supplied by Government);
- (d) Boxes of white & coloured chalks (supplied by Government);
- (e) Exercise Books - each child had an exercise book for English exercises (provided by parents/guardians);
- (f) Wall chalkboard (provided by the community).

**PRIMARY 4**

- (a) 2 Copies of an English Course for Ghanaian Schools, Pupils' Book 4, for use by 43 pupils. This is in the book/pupil ratio of 1:21.5 (supplied by Government);
- (b) 1 copy of an English Course for Ghanaian Schools, Teacher's Handbook 4 (supplied by Government);
- (c) Boxes of white & coloured chalk (supplied by Government);
- (d) Exercise Books - each child had an exercise book for English exercises, i.e. Dictation, Composition, Grammar and Comprehension (provided by parents/guardians);

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### Pupil Statistics and Particulars

There were six classes and a total pupil population of 211, made up of 112 boys and 99 girls. Their ages ranged from 6 to 15 years. The breakdown of pupil enrollment according to classes and gender is as follows:

**TABLE 1**  
**ENROLLMENT OF PUPILS**

CLASS	BOYS	GIRLS	TOTAL
P1	20	13	33
P2	16	21	37
P3	20	15	35
P4	18	25	43
P5	20	11	31
P6	18	14	31
TOTAL	112	99	211

The high dropout rate, especially at the Upper Primary level, was due to the following factors:

- (a) Teenage pregnancy;
- (b) Poor parental care;
- (c) Cost: Most children pay their own school fees;
- (d) Most of the pupils who completed basic education did not continue their studies; they eventually became peasant farmers.

### Teacher Statistics and Particulars

There were six teachers on the staff -- three males and three females. Five of the teachers had the basic teachers' qualification-Certificate 'A', while the sixth held a School Certificate. One teacher is assigned to each class.

The Headteacher, the oldest on the staff and a Principal Superintendent with 30 years' teaching experience, had been on Brofoyedur staff for the past 22 years. The Assistant Headteacher is a Senior Superintendent. Both the Headteacher and his Assistant do not reside in the village. The Headteacher commutes daily from Agona Swedru, a distance of 3 kilometres, while the Assistant does the same from his home-town which is about 5 kilometres away.

### School Building

The school building was of landcrete and roofed with corrugated iron sheets. Parts of the roof leaked whenever it rained as the rooms had no ceilings. The building had various cracks and crevices; but posed no danger to the children. The building had two verandas - one in the front and another in the back. All the classrooms had cement blackboards embossed on the walls. The classrooms, offices and store had door and window shutters which were locked with padlocks at the close of the workday.

### Compound

The compound was large enough for a population of 211 pupils to circulate. Partially covered with grass, the compound sloped towards the south and it is evident that some areas have been eroded by rain. There was no properly laid football field or track for sports; however, these facilities can be found on eastern side of town across the main street at the public sports field.

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AREA OF SPECIAL INTEREST

THE PUPIL'S HOME ENVIRONMENT AND ITS INFLUENCE ON HIS/HER  
ACADEMIC PERFORMANCE

TEAM MEMBERSHIP

H.O. QUIST - TEAM LEADER  
MODESTA GAVOR - TEAM MEMBER  
NICHOLAS PRAH - TEAM MEMBER  
K. DADZIE - TEAM MEMBER

APPENDIX 'C'

TIME TABLE - CLASS 3												
DAYS OF THE WEEK	7:30	7:40	7:45 8:15	8:15 8:45	8:45 9:15	9:15 9:25	9:25 9:55	9:55 10:25	10:25 10:55	10:55 11:05	11:05 11:55	11:55 12:05
	12:25	2:40	12:40 1:10	1:10 1:40	1:40 2:10	2:10 2:20	2:20 2:50	2:50 3:20	3:20 3:50	3:50 4:00	4:00 4:30	4:30 5:00
MON	A S S E M B L Y	R E G I S T R A T I O N	Cultur. Studies	P.E.	Maths	B R E A K	Ghan. Lang.	English	English	B R E A K	Life Skills	Life Skills
TUES			Maths	Science	Science		Agric.	Cultur. Studies	Social Studies		Social Studies	English
WED			Maths	Maths	English		Ghan. Lang.	Life Skills	Science		Social Studies	Cultur. Studies
THUR			P.E.	English	Maths		Agric.	Cultur. Studies	Ghan. Lang.		English	Ghan. Lang.
FRI			Agric.	Agric.	Maths		English	Maths	English		English	Ghan. Lang.

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APPENDIX 'B'

TIME TABLE - CLASS 3												
DAYS OF THE WEEK	7:30	7:40	7:45 8:15	8:15 8:45	8:45 9:15	9:15 9:25	9:25 9:55	9:55 10:25	10:25 10:55	10:55 11:05	11:05 11:55	11:55 12:05
	12:25	2:40	12:40 1:10	1:10 1:40	1:40 2:10	2:10 2:20	2:20 2:50	2:50 3:20	3:20 3:50	3:50 4:00	4:00 4:30	4:30 5:00
MON	A S S E M B L Y	R E G I S T R A T I O N	P.E.	Maths	English	B  R  E  A  K	Agric.	Ghan. Lang.	Life Skills	B  R  E  A  K	Science	Cultur. Studies
TUES			P.E.	Maths	Maths		English	Social Studies	Life Skills		Ghan. Lang.	Cultur. Studies
WED			Cultur. Studies	Maths	P.E.		Ghan. Lang.	English	English		Ghan. Lang.	Ghan. Lang.
THUR			P.E.	Agric.	English		Maths	Maths	Cultur. Studies		Cultur. Studies	English
FRI			Maths	Life Skills	English		Cultur. Studies	English	Science		Social Studies	English

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APPENDIX 'A'

TIME TABLE - CLASS 1												
DAYS OF THE WEEK	7:30	7:40	7:45 8:15	8:15 8:45	8:45 9:15	9:15 9:25	9:25 9:55	9:55 10:25	10:25 10:55	10:55 11:05	11:05 11:55	11:55 12:05
	12:25	2:40	12:40 1:10	1:10 1:40	1:40 2:10	2:10 2:20	2:20 2:50	2:50 3:20	3:20 3:50	3:50 4:00	4:00 4:30	4:30 5:00
MON	A S S E M B L Y	R E G I S T R A T I O N	P.E.	Maths	English	B R E A K	Agric.	Ghan. Lang.	Life Skills	B R E A K	Science	Cultur. Studies
TUES			P.E.	Maths	Maths		English	Social Studies	Life Skills		Ghan. Lang.	Cultur. Studies
WED			Cultur. Studies	Maths	P.E.		Ghan. Lang.	English	English		Ghan. Lang.	Ghan. Lang.
THUR			P.E.	Agric.	English		Maths	Maths	Cultur. Studies		Cultur. Studies	English
FRI			Maths	Life Skills	English		Cultur. Studies	English	Science		Social Studies	English

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group of pupils who were reading from the text with a cane. He persistently used the cane on the pupil (a girl) who could not read until the girl started crying but not loud enough for the teacher to hear. When the parent was leaving he bid farewell to the teacher who thanked him in the local vernacular apparently showing approval at his presence and help). This incident particularly lends support to OCT1. This observation proved sensitive and could not be readily confirmed by the teacher.

### CONCLUSION

From the analyses of the findings so far it is apparent that whereas some practices can be said to be predominant, others occurred occasionally and showed no signs of consistency. The findings also raise issues for further investigation.

It is clear that the chalkboard is the main instructional tool, obviously a substitute for textbooks which were either inadequate, for example in English and Mathematics, or unavailable as was the case with science in Classes 1 and 3. Generally, the school has very little in terms of resources for teaching of English, Mathematics and Science.

Another finding which was also a common feature was the giving of class assignments in lieu of homework, thus lengthening instructional time and off-setting the time-table. In consequence of this some subjects such as Agriculture and Physical Education (P.E.) are totally neglected. In addition only three (3) or four (4) subjects out of eight(8) are taught a day.

The local vernacular, Fanti, was used extensively in all lessons in all the three classes. More also interaction was mainly teacher-pupil oriented, with pupil-pupil interaction bordering more on non-instructional than instructional issues.

The findings, no doubt, underscore the need for further future research on such issues as, improvisation as a tool in improving educational quality; the effects of the use of the local vernacular, Fanti, on the provision of quality education; and non-adherence to the time-table and its impact on the provision of quality education.

**RESEARCH REPORT ON AVAILABILITY  
& UTILIZATION OF MATERIALS  
AT BROFOYEDUR PRIMARY SCHOOL**

**University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana**

**By**

**J.M. Dzinyela  
K.K.K. Anti  
F.C. Avegah  
C.K. Agezo**

**June 1993**

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## RESEARCH TEAM'S AREA OF SPECIAL INTEREST

**Topic: THE PUPIL'S HOME ENVIRONMENT AND ITS INFLUENCE ON HIS/HER ACADEMIC PERFORMANCE.**

### INTRODUCTION

It is generally agreed among psychologists and other specialists in education that the home environment exerts a degree of influence on the academic performance of pupils/students.

It is this consensus and view point that urged the team to investigate this aspect. Further impetus for the study was provided by the preliminary visit undertaken to the school in November/December.

### PURPOSE OF THE STUDY

The purpose of the study was to find out the conditions that prevail in the pupils' homes and which either favour or militate against the students' studies and how these ultimately affect performance in school. Specifically attention would be focused on resources available in the home environment and parental contribution to the academic progress of the pupils.

### METHODOLOGY

The approach was two-way; namely direct observation of pupils in the classroom and interview of both pupils and parents, and teachers.

The total sample size comprised twenty-two pupils from both Classes 3 and out of each class eleven (11) pupils were selected. Thus out of the total class enrolment of sixty (60) in Class 3 - 33 boys and 27 girls, eleven (11) were selected. Again out of 49 pupils - 23 boys and 26 girls, eleven (11) were chosen. However seven (7) pupils out of the eleven (11) in Class 3 had their parents interviewed while nine (9) out of eleven (11) in Class 5 had their parents interviewed. The sample selected from Class was made up of five (5) girls and six(6) boys while that for Class comprised eight(8) boys and three (3) girls. As much as possible the Team kept to the sample originally observed in the main study.

### FINDINGS

The findings have been presented in a coded and categorized form and these have been supported by evidences.

#### **(P) Parents' Education**

- P1 Both parents of pupils are mostly illiterates This applied to five (5) out of the seven (7) parents of Class 3 pupils interviewed. It also applied to five (5) out of the nine (9) parents of Class 5 pupils interviewed.
- P1(a) Both parents of pupils were educated. This applied to one of the pupils in Class 3 and four (4) in Class 5. These parents had the Middle School Leaving Certificate (M.S.L.C.). In Class 3 however, there was a case where one parent was educated up to Middle Form 4.
- P2 Parents encouraged their wards to learn. This applied to all the pupils and parents interviewed.
- P3 Parents bought books for their children to study. This applied to all the parents interviewed.

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**(PS) PUPILS' STUDY**

- PS1 Pupils study at home. This applied to all the pupils. In Class 3 pupils indicated in the interview that they study often. One indicated that he had no friends and did not play around. The parents confirmed that they never saw him in the company of friends.
- PS(a) Pupils do not study often. This applied to all the pupils interviewed. Parents indicated that their wards often go out to play with their friends. Two pupils in Class 3 however indicated that they study often and this was confirmed by their parents.
- PS3 Pupils often received assistance from their parents in their studies. In Class 3 only one parent out of seven (7) indicated that their wards sought their assistance. Both parents were educated up to Middle Form 4. In Class 5, three (3) parents out of nine (9) indicated that their wards sought assistance from them.
- PS4 Pupils study more with their friends. This applied to all the pupils except one in Class 3 who indicated that he had no friends but rather studied with his elder brother. ( See PS1)
- PS5 Pupils home environment was often noisy. All the pupils admitted this. Parents also confirmed this.

**(NP) NOTES PREPARATION**

- NP1 Pupils did not prepare or copy down notes during lessons in class. This applied to all the pupils in all classes.
- NP2 Absence of notes for studies at home resulted in unorganised learning practices. The interview revealed this about all the pupils. Even though they indicated that they studied what was taught at school pupils could not answer the question as to exactly what they studied and whether it was related to what they were taught. Parents were also not sure whether it was related to what they were taught. Parents were also not sure whether what pupils studied at home was what they were really taught.

**CONCLUSION**

The analysis from the observations and interviews so far indicates that most parents did not directly assist in the studies of their children and this was mainly because they were illiterate and also did not know what their children studied. Secondly, since pupils wrote down nothing during lessons their lessons/studies lacked organization. In addition the noisy environment and their tendency to play quite often also serves as a distraction. Moreover pupils have little resources at home for studies. These, no doubt, exerted a negative impact on the pupils academic progress.

On the contrary there was the case in Class 3 where a boy whose parents were both educated to Middle Form 4 gave him assistance in his studies. Consequently he did well in class exercises and studies as well as in the end of term examinations.

It is clear that when the home environment is conducive to studying, it helps the students perform better academically.

The team hopes to pursue this issue further and on a bigger scale.

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**RESEARCH REPORT ON AVAILABILITY  
& UTILIZATION OF MATERIALS  
AT SWEDRU PRIMARY SCHOOL**

**University of Cape Coast  
Centre for Research on Improving Quality  
of Primary Education in Ghana**

**By**

**J.A. Frimpong  
E.A. Gyamera  
J.K. Eminah  
H.G.K. Kugbey**

**June 1993**

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**PART 1**

**A DESCRIPTIVE PROFILE OF AGONA DISTRICT COUNCIL PRIMARY SCHOOL 'C' AGONA SWEDRU**

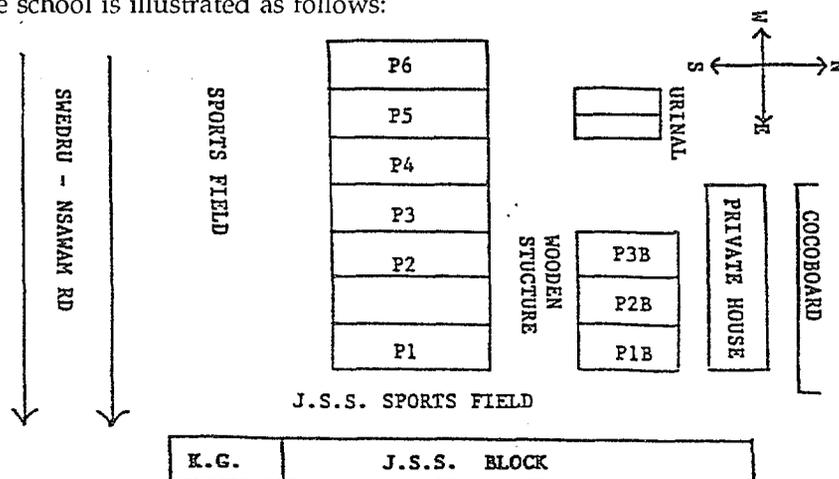
**1. Location of the School:**

The Agona District Council (ADC) Primary 'C' School is situated on the Swedru-Nsawam road in Swedru and is located about 3 kilometres east of the town. The school borders the road with the hospital to the west and Safo Village to the east of it. To the south of the school, across the road is the Swedru Technical and Vocational Training Institute (TVTI) and bordering it to the north is a Cocobod Workshop.

Agona Swedru is a commercial town with a population of about 31,226 as of 1984. It is situated 100 kilometres from Cape Coast going east towards Accra. From Cape Coast one travels 90 kilometres parallel to the coast to Winneba Junction and then turns left and travels 10 kilometres north to Swedru (See the map attached).

**2. The School Environment:**

The ADC Primary School 'C' was built by the government in 1961. It has a school block of 7 rooms: The plan of the school is illustrated as follows:



One of the rooms is partitioned and used as the Headteacher's office and the store room, while the six other rooms are used as classrooms. Each classroom has an area of 7.1m x 6m.

To the north of the main block of classrooms is a wooden structure of three rooms which were put up in 1992 for classes 1B, 2B and 3B. The wooden structures are not fully finished but have been roofed with palm fronds. The floors are concret and are as spacious as those of the rooms in the main block.

To the west of the wooden structure is the urinal. This is partitioned into two for boys and girls.

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A long wall and barbed wire separate the Cocobod workshop from the school compound. To the extreme western end of the school is a private poultry farm. To the eastern end is the Junior Secondary School (J.S.S.). To the south of the J.S.S. classroom block is a kindergarten.

Between the Primary School main block and the J.S.S. building is the sports field and a volleyball pit for the J.S.S. pupils. The area between the Primary block and the main road is the sports/games field for the Primary School. It is used as the football field for both the J.S.S. and the Primary School.

A group of trees located between the J.S.S. building and the Cocobod Workshop serve as the "Canteen" for the two schools. Women sit under the trees to sell different types of food items to the pupils. There did not seem to be any supervision for the preparation and sale of food to pupils.

The school compound has very few trees. However, the side of the Primary classroom block which faces the main road is lined with flowering plants. There is one mango tree in front of the classroom block. The drainage system of the school is good. There is no water logging or soil erosion. There is only one standing tap between the Primary School and the J.S.S. A plastic container for drinking water is placed under the mango tree in front of the school.

### 3. The Catchment Areas of the School

The ADC Primary School C, draws its pupils from the five catchment areas or communities, each with its own peculiarities.

**Bebianiha Community:** This is a heterogeneous community which is comprised of Gomoa, Agona, Twi, and Ga people. This heterogeneity has not shown any negative influence on the school. Most of the business people are not natives of Swedru. For instance, the chairman of the Parent-Teacher Association (PTA) is from the Brong-Ahafo Region. The community is basically illiterate. The school is actually situated in the Behianiha Community.

**Yariwa Zongo Community:** The inhabitants of this community are mostly Fantes and Kotokolis. The latter ethnic group migrated from northern Togo to that place. These are largely illiterates who engage in petty trading and odd jobs.

**Kotokoli Zongo Community:** The inhabitants of this community are also mostly Kotokolis. Most of them are Moslems. The Islamic or Quaranic Schools known as Magranta exist in this community and some of the pupils in ADC primary school attend these schools as well. The people, also mostly illiterates, engage in petty trading, farming and other manual jobs.

**Brahabekum Community:** The community is situated about 10 kilometres away from the school. Its inhabitants are mostly Ewes who have migrated from the Volta Region of Ghana. They are predominantly fishermen. A few engage in other activities such as farming and "akpeteshie" (gin) distillery. There is a Primary School in the village but some parents prefer sending their children to ADC Primary 'C' because they think that the quality of education in this school is better.

**Swedru Secondary School Community:** Most of the members of this community are the children and spouses of the staff of the Secondary school.

### 4. Population of the School:

(a) **Pupils:** The number of pupils enrolled in the school is 438. This number is disaggregated by gender and class as shown in the table below.

CLASS	BOYS	GIRLS	TOTAL
1 A	30	19	49
1 B	29	21	50
2 A	17	21	38
2 B	17	22	39
3 A	23	27	50
3 B	24	19	43
4	30	21	51
5	27	27	54
6	45	24	69
TOTAL	241	197	438

On the average the ratio of boys to girls in this school is 1:1. Classes 1-3 are double streamed while the rest are single. The average class size is 49.

**(b) Population of Teaching Staff:** (See Appendix 1)

The school is staffed by ten professionally trained teachers. Nine are certificate 'A' teachers and one has a Diploma in Ghanaian Languages in addition to certificate 'A'. Six are of the Senior Superintendent Grade. Teaching experience ranges from two years to twenty years. The ages of the teachers range from 28 years to 48 years. With the exception of two of the teachers, the rest have attended different training institutions. All the colleges they attended are among the best in the country. Ethnically, the teaching staff is heterogeneous; none of them is from Agona Swedru. One of the teachers is a Nigerian woman who has spent most of her life in Ghana. Out of the ten members of staff only two of the teachers are male, the rest are female.

Nine of the teachers have been assigned classes for teaching. The Headteacher is exempt from teaching classes because he heads the Primary School, the J.S.S. and the Kindergarten. He supervises teaching in both schools and from time to time stands in for a teacher who is absent from school. The ratio of male to female teachers is 1:9.

**5. School Organisation:**

The school is organised into six classes for the purpose of teaching. Each class is assigned to a teacher.

**(a) Time Table:** The time table for ADC Primary School 'C' is as shown in Appendices ii and iii. The time table is planned for lower and upper Primary classes. Registration is supposed to start at 8:15 a.m. but invariably it does not start until about 9.00 a.m. The morning assembly is supposed to start at 8.00 a.m. but this too, starts late. Lateness on the part of both pupils and teachers is rampant. On Thursday there is school worship. This normally takes at least 45 minutes. One of the teachers gives a sermon and leads the songs. The pupils make voluntary

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contributions 'House by House' to the school.

Drums are used to signal a change of lessons but this is scarcely done according to the schedule.

**(b) House and Prefect System:** Apart from the organisation of the school class by class for teaching purpose, the school is also organised by "House" bases for the purpose of sporting and other out of class activities. Nkrumah and Mensah Sarbah are names of two of the houses in the school.

We observed the Houses at work only during the Thursday worship where each House has to make some collection.

The prefectorial system operates in the school. There is the school prefect, sports prefect, class prefect etc.

**(c) Duty Roster:** There is a duty roster which indicates week by week the teacher and the prefect on duty.

## PURPOSE OF THE STUDY

The purpose of the study of ADC Primary School 'C' is to:

- (a) portray the school as it is. That is to describe the profile of the school in such a way that all the issues arising from the educational practice that goes on in it can be easily identified.
- (b) describe the interactions that go on in classes P1, P3 and P5 with respect to
  - i. the pupils' use of materials.
  - ii. the teachers' use of materials.
  - iii. The teachers' techniques in involving pupils in instructional activities.
  - iv. the pupils' and teachers' use of language.
- (c) investigate the availability and quantity of materials for the teaching and learning of English, Mathematics and Science.
- (d) investigate the sources and quantity of the available materials.
- (e) investigate how these materials are used by both the teachers and pupils in the teaching-learning situation.
- (f) examine the implications of the findings of this study in improving the quality of learning and teaching in the primary school classrooms.

## METHODOLOGY

To understand classroom behaviours and to collect data that would provide the group with rich description of the actions of the teachers and students, a case study approach was adopted. A case study is an indepth study of a limited time period. For our purpose, it was a thorough study of classroom interactions between teacher, pupils and materials.

Two main techniques used for data collection were (a) observations of the classes (b) interviews with the teachers, pupils, parents, and the district officers in Swedru district.

**Observations:** Various observation techniques were discussed and tested after which the group decided to use a combination of the narrative approach and the observation guide for the observation.

The classes observed in the school were P1, P3, and P5. In total there were fifteen days of visits. Three days were used for familiarization and twelve days were spent on classroom observation.

Some of the visits were interrupted by sporting or cultural activities in the district. Consequently the researchers observed classes in the last week of the term.

The four members in the team were grouped in pairs. Each pair observed a class for a day. After the day's work, the pair discussed the outcome of the observation to sort out discrepancies and then to plan the next line of action for the following day's work. This was done to ensure reliability in the observation data collected. Each of the classes involved was visited four times by each team, giving a total of eight visits in a class.

Below is the summary of the observations made in the subjects concerned.

Class	ENGLISH			MATHEMATICS			SCIENCE		
	GP.A	GP.B	TOTAL	GP.A	GP.B	TOTAL	GP.A	GP.B	TOTAL
1	3	2	5	4	3	7	1	2	3
2	3	3	6	4	4	8	2	1	3
3	3	4	7	3	4	7	-	2	2

In total, forty-eight (48) lessons were observed: 23 lessons by the first pair (group A) and 25 lessons by the second pair (group B).

In addition to the observations, an inventory of textbooks was taken in English, Maths and Science in each class. Below is a table for the inventory.

CLASS	No. on Roll	No. of Math Txtbks	Ratio of Pupil to Txtbk	No. of Science Txtbks	Ratio of Pupil to Txtbk	No. of Eng. Txtbks	Ratio of Pupil to Txtbk
1A	Boys 30 Girls 19 Total 49	34 1Tr. Hndbk	1:0.7	34 1 Tr. Hndbk	1:0.7	36 1 Tr. Hndbk	1:0.07
3A	Boys 23 Girls 27 Total 50	34 1 Tr. Hndbk	1:0.7	34 1 Tr. Hndbk	1:0.7	24 1 Tr. Hndbk	1:0.5
5A	Boys 27 Girls 27 Total 54	63 1 Tr. Hndbk	1:1.2	37	1:0.7	24	1:0.4

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**Interviews:** Formal interviews of the pupils, teachers parents and the district education officers took place during the last week of the observation. The interviews were open-ended or unstructured and were mainly intended to find the reasons for some of the methods or actions observed in classes.

In total, forty (40) pupils (twenty girls and twenty boys), three (3) female teachers, eight (8) parents and the four education officers from the district office were interviewed.

In addition to the formal interviews, there were also informal discussions with teachers. The informal discussions with the teachers provided some information about their work in class.

## RESULTS AND ANALYSIS OF CLASSROOM OBSERVATION

### CLASS ONE (P1A)

#### MATHEMATICS

##### A. Teacher Use of Materials:

- (i) The teacher used chalk to write examples and class exercises on the chalkboard.
- (ii) The teacher copied examples and exercises from a textbook on the chalkboard.
- (iii) The teacher asked the pupils to identify various numerals on flash cards.
- (iv) The teacher used pencils, tables, pens, toy cars and books to demonstrate the concept of sets.

##### B. Pupil Use of Materials:

- (i) The pupils identified objects in different sets in their textbooks.
- (ii) The pupils used chalk to do some exercises on the chalkboard.
- (iii) The pupils identified numerals on flash-cards.
- (iv) The pupils used bottle tops, pieces of wood, stones, match sticks and seeds as counters.
- (v) The pupils did exercises with pencils in their exercise books and those who had no exercise books did the exercises on slates using chalks.

##### C. Other Interactions:

- (i) Teacher to pupil interactions: These were mainly questions put to the pupils.
- (ii) Pupil to teacher interactions: These were mainly the pupils' responses to the teacher's questions.
- (iii) Pupil to pupil interactions: These consisted of requests for pens and erasers and assistance with exercises.
- (iv) When the pupils were not using any instructional materials they listened passively to the teacher.

##### D. Assignments:

No assignments were given.

#### ENGLISH

##### A. Teacher Use of Materials

- 
- (i) The teacher wrote key words and exercises on the chalkboard.
  - (ii) The teacher copied examples and exercises on the chalkboard from a textbook.
  - (iii) The teacher asked the pupils to pronounce and spell certain words on flash cards/word cards.

**B. Pupil Use of Materials:**

- (i) The pupils looked at pictures on specified pages of their textbooks and mentioned the names of the people in the picture and described the actions being performed by each of the people in the picture.
- (ii) The pupils pronounced and then spelled words written on word cards.
- (iii) The pupils pointed to specific words written on the chalkboard with a pointer.
- (iv) The pupils did exercises in their exercise books using pencils.

**C. Other Interactions**

- (i) Teacher to pupil interactions: These were mainly questions put to pupils or instructions to individuals or the class.
- (ii) Pupil to teacher interactions: These consisted of the pupils' responses to questions asked by the teacher.
- (iii) Pupil to pupil interactions: The pupils talked to each other about the pictures in their textbooks.
- (iv) When the pupils were not using any instructional materials they passively to the teacher.

**D. Assignments:**

No assignments were given.

**SCIENCE**

**A. Teacher Use of Materials:**

- (i) The teacher wrote the core points of the lesson on the chalkboard.
- (ii) The teacher discussed the pictures on specified pages of the Science textbooks with the pupils.

**B. Pupil Use of Materials:**

- (i) The pupils looked at pictures on specified pages of their textbooks and talked about them.
- (ii) The pupils demonstrated some of the uses of water by washing a handkerchief, a doll, dirty clothes and a dirty saucepan.
- (iii) The pupils looked in the mirror to see their reflections.

**C. Other Interactions:**

- (i) Teacher to pupil interactions: The teacher asked the class questions and gave instructions to the class or to individual pupils.
- (ii) Pupil to teacher interactions: The pupils responded to questions asked by the teacher.
- (iii) Pupil to pupil interactions: The pupils talked to each other about the pictures in their textbooks.
- (iv) When the pupils were not using instructional materials they listened passively to the teacher.

**D. Assignments:**

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No assignments were given.

*CLASS THREE (P3A)*

**MATHEMATICS**

**A. Teacher Use of Materials**

- (i) The teacher copied examples and exercises on the chalkboard from the class textbook.
- (ii) The teacher wrote the examples and exercises out of the textbook on the board.
- (iii) The teacher divided oranges into parts to illustrate the concept of fractions.
- (iv) The teacher showed coins of different denominations to the pupils.

**B. Pupil Use of Materials:**

- (i) The pupils solved problems on the chalkboard.
- (ii) The pupils did exercises in their exercise books using pens, rulers, pencils and erasers.

**C. Other Interactions:**

- (i) Teacher to pupil interactions: These consisted mainly of the questions asked by the teacher. Sometimes individuals pupils were called to the chalkboard to work out some problems. Sometimes the teacher praised some of the pupils whose responses were accepted.
- (ii) Pupil to teacher interactions: These consisted mainly of responses to the teacher's questions or instructions she had issued.
- (iii) Pupil to pupil interactions: These took the form of requests for pencils, rulers and erasers when these materials were required for exercise. Sometimes the pupils talked to each other and helped each other with the exercise.
- (iv) When the pupils were not using any instructional materials they either sat idly or listened passively to the teacher.

**D. Assignments:**

No assignments were given.

**ENGLISH LANGUAGE**

**A. Teacher Use Materials**

- (i) The teacher wrote key words of passages, examples and class exercises on the chalkboard.
- (ii) The teacher selected passages for reading, class exercises and examples from an English textbook.
- (iii) The teacher read passages from a textbook to the pupils.

**B. Pupil Use of Materials**

- (i) The pupils wrote sentences on the chalkboard.
- (ii) The pupils read passages from textbooks.
- (iii) The pupils read words and sentences written on the chalkboard.
- (iv) The pupils did exercises in their exercise books using pencils.

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**C. Other Interactions:**

- (i) Teacher to pupil interactions: These consisted mainly of questions the teacher put to the pupils. Sometimes she asked individuals pupils or the class to pronounce key words on the chalkboard or to form sentences with specific words written on the chalkboard.
- (ii) Pupil to teacher interactions: These took the form of pupils' responses to questions asked by the teacher or instructions given by the teacher to individuals or the class.
- (iii) Pupil to pupil interactions: Apart from speaking to one another occasionally in undertones, the pupils asked their friends for help with exercises.
- (iv) When the pupils were not using any instructional materials they listened passively to the teacher and occasionally played with an object of interest that was at hand.

**D. Assignments:**

No assignments were given.

SCIENCE

**A. Teacher Use of Materials**

- (i) The teacher wrote key points on the chalkboard.
- (ii) The teacher selected materials/examples from a textbook.
- (iii) The teacher showed pictures out of a textbook to the pupils.
- (iv) The teacher often referred to her lesson notes and copied core points of the lesson on the chalkboard.

**B. Pupil Use of Materials**

- (i) The pupils looked at pictures in a textbook
- (ii) The pupils drew various objects and animals in their Expression Workbook using pencils and crayons.

**C. Other Interactions:**

- (i) Teacher to pupil interactions: These consisted mainly of questions asked by the teacher. Occasionally she praised individual pupils who gave correct responses.
- (ii) Pupil to teacher interactions: These consisted of pupil responses to the teacher's questions.
- (iii) Pupil to pupil interactions: These took the form of requests for pencils, crayons, coloured pencils and erasers during Expression Work.
- (iv) When the pupils were not using any institutional materials they listened passively to the teacher.

**D. Assignments:**

No assignments were given to the pupils.

*CLASS FIVE (P5)*

MATHEMATICS

**A. Teacher Use of Materials**

- 
- (i) The teacher wrote examples and class exercise on the chalkboard.
  - (ii) The examples and exercises were selected from the Mathematics textbook and her lesson notes.
  - (iii) The teacher used a chalkboard ruler to draw lines on the chalkboard.

**B. Pupil Use of Materials**

- (i) The pupils worked problems on the chalkboard.
- (ii) The pupils did exercises in their Mathematics exercise books.
- (iii) The exercises were taken from their textbooks.

**C. Other Interactions:**

- (i) Teacher to pupils interactions: These consisted mainly of questions asked by the teacher. Occasionally pupils who gave correct responses were praised while those who gave wrong responses or were found to be inattentive were reprimanded by the teacher.
- (ii) Pupil to teacher interactions: These consisted of the pupils responses to the teacher's questions or instructions.
- (iii) Pupil to pupil interactions: These consisted of requests for pens, pencils erases and rulers when these materials were required for exercises.
- (iv) When the pupils were not using any instructional materials they either listened passively to the teacher or spoke to each other.

**D. Assignment:**

No assignments were given to the pupils.

ENGLISH

**A. Teacher Use of Materials:**

- (i) The teacher wrote exercises and key words of comprehension passages on the chalkboard.
- (ii) The teacher selected comprehension passages and exercises from the class English textbook.
- (iii) The teacher read passages from the English textbook.
- (iv) The teacher asked the pupils to pronounce and spell words written on word card.

**B. Pupil Use of Materials:**

- (i) The pupils pronounced and spelled words written on the chalkboard and on word cards.
- (ii) The pupils read passages from their English textbooks.
- (iii) The pupils did exercises in their exercise books from the chalkboards.

**C. Other Interactions:**

- (i) Teacher to pupil interactions: These took the form of questions asked by the teacher or instructions to be carried out by the pupils. Occasionally the teacher praised pupils who gave correct responses.
- (ii) Pupil to teacher interactions: These consisted mainly of the pupils' responses to the teacher's questions and instructions.
- (iii) Pupil to pupil interactions: Pupils who shared tables sometimes worked together using one textbook for their exercises. They also discussed problems together.
- (iv) When the pupils were not using any instructional materials they either sat down quietly or listened passively to the teacher. Some pupils who shared tables engaged in conversation

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when not working.

**D. Assignments:**

No assignments were given to the pupils.

**SCIENCE**

**A. Teacher Use of Materials:**

- (i) The teacher wrote the key points in the lesson on the chalkboard.
- (ii) The teacher read portions of a Science textbook to the class.
- (iii) The teacher used a flashlight in a dark room to illustrate reflection.
- (iv) The teacher gave expression work out of a Science textbook.

**B. Pupil Use of Materials:**

- (i) The pupils observed their reflections on shining surfaces eg. mirror, spoons, milk tins, water etc.
- (ii) The pupils constructed an electrical circuit using dry cell batteries flashlight bulbs and wires.
- (iii) The pupils experimented with aluminium plates, iron nails, steel, wool, pieces of wood and cotton threads to find out good conductors and non-conductors.
- (iv) The pupils copied notes from the cupboard into their exercise books.
- (v) The pupils copied diagrams from their Science textbooks into their Expression workbooks.

**C. Other Interactions:**

- (i) Teacher to pupil interactions: These were mainly questions asked by the teacher or instructions given by the teacher to be carried out by the pupils. Occasionally pupils who disturbed the class were reprimanded by the teacher.
- (ii) Pupil to teacher interaction: Pupils answered teacher's questions and carried out her instructions.
- (iii) Pupil to pupil interactions: Pupils worked together in groups during practical activities. They talked to each other as they performed their activities. The pupils also asked for pencils and erasers from their friends when they were asked to draw diagrams from their Science textbooks.
- (iv) When the pupils were not using any instructional materials they either listened to the teacher passively for instructions or sat down playing or talking to one another.

**D. Assignments:**

No assignments were given.

**ATTENDANCE**

Attendance in the various classes was irregular.

*Class One:* The number on the roll was 49 but the average attendance per day was about 30. On the whole the boys were absent more often than the girls.

*Class Three:* The number on the roll was 50 but the average attendance per day was about 35. There were absentees in all the lessons observed. The boys were absent more often

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than the girls.  
*Class Five:* The number on the roll was 54 but the average attendance was 41. Like the other two classes, the girls in class five attended class more regularly than the boys.

### USE OF TIME

The allotted times for the various activities and subjects on the time table were not adhered to. Assembly, for instance, is supposed to be conducted at 8.00 a.m. but this took place much later and was often prolonged. This led to classes beginning sometimes about 40 minutes behind schedule.

Apart from the fact that subjects were not taught as scheduled, the durations of lessons were not adhered to either. Most of the lessons observed lasted longer than the scheduled periods while in a few others the opposite was the case.

A good number of the lessons observed were taught for an hour or more instead of the usual 30 minutes allotted for the subjects. In one particular case, however, the lesson lasted for only 15 minutes and in another instance the lesson ended after 20 minutes. Usually not more than three lessons were taught the whole day.

### INTERVIEWS WITH PUPILS

In total, 40 pupils were interviewed--20 boys and 20 girls. The children were randomly selected from each of the 3 classes observed. Ten from class 1, sixteen from class 3 and fourteen from class 5. All of them have siblings whose numbers range from one to ten. In age, they range from five to sixteen, averaging to 9.8 years.

Below is a summary of the main ideas or views expressed by the children during the interviews. Numbers written in parentheses next to each statement indicate the number of pupils who made such responses.

#### *Parents/Guardian*

1. The child is staying with
  - (a) parents (25)
  - (b) a parent (4)
  - (c) a relation (11)
2. The child has parents
  - (a) living together (35)
  - (b) not living together but married (3)
  - (c) divorced (2)
  - (d) father deceased (1)
  - (e) mother deceased (-)

#### *Payment of School Fees*

3. Payment of school fees is done by
  - (a) father (11)
  - (b) mother (17)
  - (c) other relations (11)
  - (d) oneself (1)

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*Facilities for studies at home*

4. The child

- (a) learns at home (15)
- (b) does not learn at home (25)
- (c) does not have learning facilities at home (35)
- (d) has textbooks to use at home (15)
- (e) has no textbooks to use at home (25)

*Use of children at home*

5. The child

- (a) does household chores before going to school (40)
- (b) sells/hawks before going to school (5)

6. The child

- (i) reads/learns after school (21)
- (ii) sells/hawks/engages in some commercial activities after school (15)
- (iii) does nothing but plays after school(10)

*Reasons for absenteeism*

7. The child does not go to school because of

- (a) ill health (36)
- (b) inability of parent/guardian to pay fee and, therefore, sacked from school (4)

*Reasons for attending ADC Primary School*

8. The child attends ADC Primary 'C' because

- (a) school is near their homes (28)
- (b) other siblings attend the school (5)
- (c) parent(s)/guardian sent him/her to the school (10)
- (d) of the high quality of teaching in the school (31)

*Education of Parents*

9. The child's parents are:

- a. literate (12)
  - i. completed elementary school (4)
  - ii. completed teacher training college (8)
- b. illiterate (32)

*Parents Occupation*

10. The occupation of the child's parent(s) is

<b>Father</b>	<b>Mother</b>
Carpenter (5)	Nurse (2)
Goldsmith (1)	Teacher (3)
Teacher (5)	Baker (2)
Driver (11)	Petty trader (28)
Watchman (4)	Housewife (1)
Farmer (8)	Farmer (4)
Automechanic (4)	
Clerical worker (2)	

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*Provision of Exercise books*

11. The child has exercise books for
  - (a) all the subjects being taught (31)
  - (b) some of the subjects being taught(9)

*Reasons for Lateness to school*

12. The child is late to school because
  - (a) he/she sells in the morning (2)
  - (b) goes for water from a far place when taps are not running (3)
  - (c) he/she has been sent by parent or guardian (3)
  - (d) he/she comes from a far away place (8)
  - (e) No reason (24)

In general the following issues emerged from the interviews with pupils:

- a. The main occupation of their mothers is petty trading while some of their fathers are either artisans or drivers.
- b. Most of their parents stay together as husbands and wives. However, more than a third of the children are either staying with single parents or a relation who may be a sister, uncle or a grandmother;
- c. More than 75 percent of their parents are illiterate;
- d. Mothers share more in the responsibility of paying school fees than fathers;
- e. Three quarters of the children attend ADC Primary 'C' because of its nearness to their homes and the comparatively high quality of teaching in the school;
- f. Most children perform domestic chores before going to school in the mornings, even though none of them engages in commercial activities before going to school. More than 30 percent of them sell various items belonging to their parents after school.
- g. A little over 50 percent of the children claim to have textbooks at home. However, about the same number do not study at home because they have no books.
- h. About 30 percent of the children do not have exercise books for all the subjects taught at school.
- i. In most cases children do not come to school when they are sick.

## INTERVIEWS WITH TEACHERS

Six teachers, including the three observed were interviewed. Five of them were females and one a male. All of them were professionally trained and have teaching experience ranging from 2 to 20 years.

The interview sessions were generally informal and the information sought was purely in connection with their teaching activities and factors that hinder or foster those activities.

Below is a summary of their views:

*Teachers' inability to adhere to the time table.*

1. Most of the teachers attributed their inability to complete teaching the subjects to the following factors:
  - (a) The subjects for each day are too many.
  - (b) The pupils are slow to understand what is taught because of English Language difficulty.

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- (c) More attention is given to the weak pupils in the basic subjects during the first term.

*Teachers' Complaints:*

2. Parents are generally apathetic towards the school and the work of their children.
  - (a) They do not prepare their children for school early enough to avoid lateness.
  - (b) They do not pay their children's fees regularly.
  - (c) They do not promptly buy the basic learning materials like pens, pencils, exercisebooks and others for their children.
  - (d) They hardly visit the school and their attendance at P.T.A. meetings is also very irregular.
  - (e) Some children are sent to school without money for breakfast or lunch.
3. Pupils come to school late or are frequently absent due to:
  - (a) the distances they travel to school.
  - (b) the trading or farming activities children are engaged in at home.
  - (c) laziness on the part of the children.
4. Inadequate supply of textbooks by the government to the school.
  - (a) The lower primary classes have no wall charts or flip charts that accompany their readers.
5. There is a lack of funds to purchase materials for teaching aids.
6. The lack of facilities in the individual homes of most of the pupils to facilitate their studies at home affects the pupils' performance in school.
7. Pupils do not study at home because most of them are occupied in selling things in the evenings and doing odd jobs to supplement the family income.
8. A teacher complains that transportation to school is very expensive because of the distance between the school and home.

## INTERVIEWS WITH PARENTS

In total nine parents, including the chairman of the Parent Teacher Association (PTA), were interviewed. Five of the parents interviewed were men and four were women. All the women interviewed were petty traders while the men were either farmers, artisans, drivers or clerical workers. The PTA chairman worked with the Cocoa Marketing Board as a book-keeper but has now retired. All the parents have large family sizes ranging from four to fifteen children in a family. Some of the children are from previous marriages while others are from multiple wives.

1. The majority of the parents complain of financial problems and for that reason are unable to pay their children's fees regularly or provide their school needs promptly. Consequently they allow their children to hawk in the market or in the streets to get income to support the children's education.
2. They also complain about the government's policy of not allowing the children to take home their textbooks, and add that that policy is a contributory factor to their children's inability to study at home.
3. Most of the parents claim that it is the responsibility of the government to provide accommodation and learning materials for the school.
4. A number of them acknowledge the importance of education for their children but are unable to support it fully because of financial constraints.
5. All of them appreciate the quality of teaching at ADC Primary 'C' school however, one of the

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parents is not happy with the disproportionate number of female teachers and suggests that the proportion of female teachers to male teachers in the school should balance.

6. The following reasons accounts for the inability of most of them to participate in P.T.A. meetings:
  - (a) short notices
  - (b) unsuitability of meeting times.
  - (c) inability to pay their P.T.A. dues regularly.

The chairman of the P.T.A realizes that majority of the parents are poor and cannot provide good classroom block for the school. He acknowledges the parent's contributions towards the provision of furniture for their children but feels that some of them need to be educated on the importance of education and the necessity to support their children. This problem, according to him, is being tackled through P.T.A. education.

He also supports the claim that the ADC Primary 'C' school is one of the best in the town and adds that the headteacher is a good administrator. To him the existence of an attached day nursery to the school is also a contributory factor to the high academic performance of the school.

#### **INTERVIEW WITH THE DISTRICT EDUCATION OFFICERS**

The District Director of Education, his deputy director, one assistant director and one inspector of schools in the district were interviewed about the provision and supervision of teachers and materials in the schools to ensure quality teaching.

The following findings came out of the interviews:

1. The ADC Primary 'C' school is among the top three public schools in the district. The school excels in academic performance and in sports.
2. The headteacher in the school is considered efficient and hardworking.
3. There is not enough classroom accommodation for the growing number of pupils in the school.
4. The government policy requires that the community provides classroom buildings but the members of the community are unable to meet this demand adequately because of poverty.
5. The P.T.A. dues of C1,000.00 and sports fee of C400.00 fixed by the District Assembly appears too high for the parents to pay promptly.
6. The government supplies textbooks based on the statistics provided by the school.
7. PREP supplements school supplies with chalk and books.
8. In-service courses are run for teachers. In 1992, for example, in-service training in the teaching of Life Skills, English and Mathematics was run for teachers in the district, including ADC Primary 'C' school teachers.
9. Two inspections are made annually. At the time of the observation, the first inspection for the year was occurring.
10. Inspectors of schools inspect the school environment curriculum enrichment programmes, classroom teaching, the use of the syllabi, textbooks, exercise books and other teaching materials. Their reports help the director to consider appropriate strategies for improving teaching and learning and school administration in the district.

#### **ISSUES AND POSSIBLE INFERENCES**

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From the classroom observations made, interviews with pupils, teachers, parents, P.T.A. Chairman, District Education Officers and the District Administrative Officer about the ADC Primary 'C' and the quality of teaching-learning activities in the school, the following issues and some possible inferences emerge.

- Issue 1. The walls of the classrooms are not painted and only a few of the classrooms have cupboards.  
*Possible Inferences:*
- The District Council has neglected the maintenance of the school building.
  - Parents do not pay their P.T.A. dues which are used to maintain the school buildings.
  - The community is poor.
- Issue 2. The walls of the classrooms are bare. There are no wall charts, diagrams or maps displayed.  
*Possible Inferences:*
- Teachers are not given enough materials to prepare charts and diagrams.
  - Refresher courses have been given to teachers on the importance and preparation of A-V materials.
  - The classrooms are not secured.
- Issue 3. There is displayed in the headteacher's office, an organisational chart of the school, staff profile and schedules of work, master time-table for all classes, a duty roster etc.  
*Possible Inferences:*
- The headteacher appears to be a good administrator.
  - The headteacher has attended courses on school administration.
  - The headteacher is organised.
- Issue 4. The headteacher and teachers greet each other in the morning with a smile. They talk together amicably.  
*Possible Inferences:*
- The teachers and the headteacher want the pupils to inculcate the habit of friendliness.
  - The teachers are aware that good work takes place in a friendly atmosphere.
  - Most of the teachers live in the same community.
- Issue 5. Pupils contribute voluntarily to the school weekly devotion collections.  
*Possible Inferences:*
- The pupils know that the money will be used properly for the benefit of the school.
  - Pupils attend churches where collections are made and have formed the habit of doing so.
  - The competitive spirit in pupils is high. They want their houses to be recognised as the best contributor.
- Issue 6. Parents, teachers and education officers regard the headteacher as hardworking.  
*Possible Inferences:*
- The previous headteacher did not impress them.
  - Standards in the school have improved during his time.
  - The headteacher is friendly with them.

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- Issue 7: One teacher teaches with a cane in the hand.  
*Possible Inferences:*
- The teacher has disciplinary problems in the class.
  - The teacher has acquired the habit of using a stick as a pointer.
  - The teacher has acquired a limited number of approaches for dealing with classroom management.
- Issue 8: Another class teacher mixes freely and plays with the children.  
*Possible Inferences:*
- The teacher has young children at home.
  - The teacher wants to adopt the play-way approach which she has been taught at a course.
  - The teacher likes children.
- Issue 9: Most teachers have little interactions with pupils during lessons. Most of the activities are teacher-centered.  
*Possible Inferences:*
- Teachers have limited approaches to teaching. Teacher lectures to be easier to teach.
  - There are limited teaching materials for effective teacher-pupil interactions.
  - The class sizes are too large for effective interaction.
- Issue 10: Pupils' use of materials in classes is limited. Most lessons end with no individual exercises.  
*Possible Inferences:*
- Pupils do not have sufficient materials to work with. eg. pens, pencils, exercise books.
  - Teachers find it easier to give information than to correct pupils' exercises.
  - Pupils find it difficult to express themselves in writing. They have language difficulty.
- Issue 11: When written exercises are given, a good number of pupils do not participate.  
*Possible Inferences:*
- There are not enough textbooks.
  - Most pupils do not have exercise books, pens or pencils to work with.
  - Most pupils cannot write meaningfully in English.
- Issue 12: Teachers teach all lessons in a combination of Fante (vernacular) and English.  
*Possible Inferences:*
- The teachers are more comfortable with using the vernacular.
  - Pupils have limited vocabulary in English.
  - Translating English into vernacular has become a habit with the teachers.
- Issue 13: Teachers do not give homework to pupils at the end of a lesson.  
*Possible Inferences:*
- Pupils have inadequate facilities to study at home.
  - Pupils have no homework exercise books and no textbooks at home.
  - Teachers consider it as an extra bother to mark homework exercises.
- Issue 14: Teachers do not follow the school time table.  
*Possible Inferences:*
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- a. Most pupils come to class late.
  - b. Teachers spend too much time on one lesson.
  - c. There are interruptions during lessons.

Issue 15: Only a few lessons are taught a day.

*Possible Inferences:*

- a. Some teachers do not consider some subjects as important or interesting as others.
- b. The number of subjects scheduled into one day are too numerous.

Issue 16: Science lessons are rarely taught.

*Possible Inferences:*

- a. Teachers have little exposure to Science teaching methods.
- b. The teachers' knowledge base in Science is inadequate.
- c. Materials for teaching Science are not available.

Issue 17: The teachers' questions are more often directed to girls than to boys.

*Possible Inferences:*

- a. The teachers, being predominantly female, are inclined to support their gender.
- b. The girls are more responsive than boys.

Issue 18: More boys than girls are usually absent from school.

*Possible Inferences:*

- a. Some boys fend for themselves and therefore sell things during market days.
- b. The boys do not fear punishment.
- c. More boys than girls assist their parents in farm activities.

Issue 19: Most parents do not pay school fees regularly and do not provide their children with school materials.

*Possible Inferences:*

- a. Most parents are poor.
- b. Most parents are illiterates and do not place high value on schooling.
- c. Some parents think that the school belongs to government.

Issue 20: The school is graded high by users (parents and pupils) and supervisors (Education Officers and P.T.A.)

*Possible Inferences:*

- a. The school achieves high standards in sporting competitions.
- b. The academic record of the school is impressive.
- c. The headteacher is friendly to the parents, pupils and supervisors.

## CONCLUSIONS AND RECOMMENDATIONS

The information given is the result of a base line study, which was mainly done through direct observation, interviews and verbatim reporting. Each of the inferences made needs to be tested with additional observation during the second phase of the study. Therefore, the inferences are not yet researchable hypotheses. They do, however, provide the basis for the research hypotheses and for further research activities.

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## PART TWO

### FURTHER ANALYSIS

#### M. MATHEMATICS MATERIAL AVAILABILITY AND UTILIZATION

- M1. Teacher use of chalkboard: The chalkboard is the most frequently used material to teach Mathematics in all classes.
- M1a. Examples are written and worked out on the board for pupils to follow.
- M1b. Exercises are copied on the board for pupils to work in their exercise books. This is more frequent in classes 3 and 5 than in class 1.
- M2. Pupil use of chalkboard: Individual pupils are often asked to work examples on the chalkboard for the teacher and other pupils to see. This practice is frequent in all classes.
- M2a. Pupils often do their written class exercises from problems placed on the board. Except in Classes 1 and 3 where few pupils without exercise books use slates to complete their exercises, most of the pupils do their written work in exercise books.
- M3. Teacher use of textbooks:  
The teachers often copy examples from the class textbooks onto the chalkboard. Exercises are also frequently taken from class textbooks.
- M3a. Sometimes teachers refer to their note books for additional exercises.
- M3b. A Teacher's Mathematics Handbook is available in all classes.
- M4. Pupil use of textbooks: Notwithstanding their availability, pupils rarely use Mathematics textbooks directly to work exercises. Except in class 1 where pupils are sometimes asked to refer to pictures, symbols and sets of objects from their Mathematics textbooks, the other classes do their exercises from the chalkboard.
- M4a. Availability of Mathematics textbooks: all classes are provided with textbooks from the government supply. The following ratios of pupils to Mathematics books exist: P1, 1:0.7; P3, 1:0.7; P5, 1:1.2 .
- M5. Writing Materials: Exercise books, pens, pencils, are available. Except chalk, chalkboard ruler and protractor which are provided by the school through the government supply system, the rest of the materials used by pupils are supplied by parents.
- M5a. Teachers use chalkboard ruler and protractor to draw lines and angles on the chalkboard; however, this is not frequent.
- M5b. Exercise books, pens and pencils are frequently used by pupils to work exercises. In P1 and P3 pencils are frequently used by pupils and in P5 the use of pens to write exercises is common. Pupils without exercise books sit idle when classwork is being done while those without pencils, pens or rulers borrow these from other classes or wait until others have finished their work. In P1 those without exercise books use chalk and slates.
- M6. Use of Ad hoc materials:  
Adhoc materials such as bottle tops, sticks, pebbles, seeds etc. are frequently used as counters by P1 and P3 pupils. In P1, flash cards (number cards) are used by pupils for number recognition.
- M6a. In a few instances, other ad hoc materials like oranges and coins are used by teachers to illustrate fractions.

#### E. ENGLISH MATERIAL AVAILABILITY AND UTILIZATION

- E1. Teacher use of chalkboard:  
The chalkboard is most frequently used by teachers for language teaching. Passages, key words and exercises are written on the chalkboard for pupils to read or do the exercises.

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- E2. Pupil use of chalkboard:  
Pupils read passages and words from the chalkboard.
- E2a. Pupils copy passages from the chalkboard into their exercise books and answer comprehension questions also from the board. This is more frequent in P5. In P1 and P3, words placed on the chalkboard are mainly for pronunciation and spelling drills.
- E2b. Pupils are invited individually to write words and sentences on the chalkboard.
- E3. Teacher use of textbooks:  
Teachers read passages from the English readers (textbooks) for pupils to listen to.
- E3a. Teachers frequently select words and passages from textbook for pupils to read.
- E3b. Teachers frequently select words and passages from textbook for pupils to read.
- E3b. Teacher's Handbook in English is found in P1 and P3, but it is not available in P5.
- E4. Pupil use of textbooks:  
Pupils read words and sentences directly from textbooks. In P5 pupils read passages from the English readers but comprehension exercises are often read from the chalkboard.
- E4a. The ratio of pupils to Reading books available are as follows P1, 1:0.7; P3, 1:0.5 ; P5. 1:0.4
- E5. Writing materials:  
Exercise books, pens and pencils are the most frequent materials for English language written exercises. Pupils complete sentences copy words and (in the case of P5) answer comprehension questions in their exercise books.
- E5a. Oral English is rarely emphasised.
- E6. Use of Ad hoc Materials:  
Pupils use word and sentence cards (flash cards) to identify words, spell and pronounce words and read sentences.
- E6a. Most of these cards are teacher made but some are supplied along with class English Readers. For example, the Primary one Reader "English for Primary Schools, Pupils Book One" is accompanied with word cards.
- S. *SCIENCE MATERIAL AVAILABILITY AND UTILIZATION*
- S1. Teacher use of chalkboard:  
Teachers use the chalkboard frequently but briefly to write core points in a lesson.
- S2. Pupils read and copy notes placed on the board by the teacher. This practice was observed once in P5.
- S3. Teacher use of Textbooks:  
Teachers ask pupils to look at pictures from specified pages in the Science textbook (pupils' copies) and lead a discussion on the pictures (P1).
- S3a. Relevant information on a specific topic are read to the class by the teacher from the pupils Science textbooks.
- S3b. Teachers rarely refer to Teachers Handbook but occasionally use teacher's lesson notes for further information.
- S3c. Expression work taken out of the Science textbook are give to pupils by teachers. (observed once in P3 and once in P5).
- S4. Pupils use of textbooks:  
Pupils direct use of textbook is not frequent, except in P1 where pupils look at pictures in textbook and talk about the activities. The other classes use their Science books for expression work only.
- S4a. Expression work consists of diagrams from textbooks copied into pupils' Science exercise books.
- S4b. There are not enough Science textbooks for the students to use them by themselves; instead
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- the pupil use them in pairs.
- S5. Teacher use of ad hoc materials:  
Teachers frequently demonstrated and experimented with ad hoc materials such as flash lights, mirror, water, dry cell batteries, flashlight bulbs, pieces of wire, scrap metals, wood, wool etc.
- S6. Pupils use of ad hoc materials:  
Pupils bring ad hoc materials to school from their homes for Science experiments and practical demonstrations. Materials include items stated in S5.
- S6a. Pupils use the materials in various ways:  
S6a1. To conduct experiments (Eg. conductors and non-conductors completing circuits).  
S6a2. To demonstrate (Eg. uses of water; how reflections are produced etc.).
- I. GENERAL INTERACTIONS IN CLASS
- I1. Teacher-Pupil interactions: Teachers give direct instructions to pupils. Questions and orders are frequently directed to the whole class and sometimes to individuals.
- I2. Pupils often give choral responses to teacher's questions or orders. Occasionally some individuals make efforts to give independent answers.
- I2a. Pupils rarely ask the teachers questions.
- I3. When pupils do seat-work, teachers move around to give assistance to individuals. However, this form of interaction was not very frequent.
- I4. Teachers mark pupils' exercises instantly and ask them to do their corrections.
- I4a. Teachers praise good responses by pupils and also reprimand poor efforts: occasionally few lashes are given to pupils who misbehave.
- I5. Pupil-Pupil interactions:  
Pupils rarely discuss issues among themselves when teachers are delivering lessons. The most frequent individual or group interactions among pupils occur when pupils share textbooks. Group work take place mostly in Science lessons.
- I6. Pupils typically move in class to borrow materials, such as pens, pencils, rulers erasers etc. from others.
- I6a. Occasionally the brighter ones assist the weak pupils with their exercises.
- I7. Silence and confusion:  
There are regular moments of silence and confusion in class when some pupils will be playing with objects in hand, with one another conversing or quarrelling among themselves; and others sleeping on their tables. These moments often occur when
- I7a. The teacher is briefly out of class:  
I7b. The pupils are not using any instructional materials;  
I7c. The pupils are made to listen passively to the teacher's lengthy talk.
- O. OTHERS
- OL. *Use of Language:*  
OL1. Pupils' standard of expression in the English language is low. They also have a low level of vocabulary.  
OL2. Teachers tend to mix the vernacular (Fante) with English in teaching subjects.  
OL3. Pupils ask less questions and contribute less in a lesson because of language difficulties.
- OT. *Use of Time (Time table):*  
OT1. The official time tables in the classes are not regularly followed. The irregularities appear in
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- the following ways:
- OT1a. Lessons do not start on time (often thirty minutes or more late).
  - OT1b. More time is spent on the teaching of some subjects and Mathematics.
  - OT1c. Some subjects such as Social Studies, Life Skills, Cultural Studies, P.E. are less frequently taught and when taught are given very little time and emphasis.
  - OT1d. Teachers use class time to mark class exercises.
  - OT1e. Lessons are frequently interrupted with movement of teachers in and out of class. (eg. to collect materials from the cupboard or from pupils or to talk to another teacher or to a visitor).
  - OT2. One of an average of six subjects a day provided on the official time table not more than three subjects are taught everyday.
- OA. *Attendance at School:*
- OA1. Attendance of teachers to school was regular and largely punctual.
  - OA2. Pupils attendance in all of the classes was irregular.
  - OA3. A good number of pupils do not come to school punctually.
  - OA4. Others appear and leave the class before the end of the day either to collect school fees or to buy materials.
- OH *Homework (Assignment):* Pupils were not given homework assignments.

## CONCLUSION

The further analysis in Part II are the outcomes of the baseline studies reported in detail in Part I of this study.

A coding system based on suggestions made by a team of international researchers (Jane Schubert, Abigail Harris and Don Adams) was adopted to facilitate easy conclusions in the qualitative research technique applied in this study.

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**Appendix i**  
**PROFILE OF TEACHING STAFF AT ADC PRIMARY SCHOOL 'C' (SWEDRU)**

No.	QUALIFICATION	DATE OF BIRTH	HOME TOWN	COLLEGE ATTENDED	CLASS TEACH	SCHOOL RESPONSIBILITIES
1	2-Yr Post Sec. Cert 'A' Snr. Supt.	██████	Abodom	Akropong-P.T.C.	Head Teacher	General Administration
2	4-Yr. Cert. A.	██████	Ibadan	Nsaba Presby Training College	Primary 1A	Treasurer
3	4-Yr. Cert. A.	██████	Elmina	St. Louis Training College, Kumasi	Primary 1B	Staff Secretary
4	Diploma in Akan	██████	Abura-Gyaba Krom	Ajumako Training College	Primary 2A	Guidance and Counselling
5	4-Yr. Cert. A.	██████	Ankamu	Ola Training College	Primary 2B	Sanitation
6	4-Yr. Cert. A.	██████	Accra	Nsaba Presby Training College	Primary 3A	Agriculture
7	4-Yr. Cert. A.	██████	Winneba	Abetifi Training College	Primary 3B	Sports
8	4-Yr. Cert. A.	██████	Saltpond	Offinso Training College	Primary 4	Culture
9	4-Yr. Cert. A.	██████	Abodom	Kibi Training College	Primary 5	Academic Board
10.	4-Yr. Cert. A.	██████	Amanokrom	Dzodze Training College	Primary 6	Asst. Headmaster

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**Appendix ii**  
**TIME-TABLE (LOWER PRIMARY)**

	P	8:15 8:45	8:45 9:15	9:15 9:45	9:45 9:55	9:55 10:25	10:25 10:55	10:55 11:25	11:25 11:35	11:35 12:05	12:05 12:35
MON.	1	Math	Soc. Studies		B R E A K	Life Skills	Eng.		B R E A K	Fante	
	2	Math	English			Cul. Stud.	Soc. Stud.			Fante	Life Skills
	3	Eng.	Math			Cul. Stud.	Soc. Stud.			Life Skills	
TUES.	1	Fante	Math	Eng.		Eng.	Science			Life Skills	
	2	PE	Math	Eng.		Cul. Stud.	Science			Agric.	
	3	PE	Math	Fante		Cul. Stud.	Science			Life Skills	
WED.	1	PE	Eng.	Math		Fante	Cul. Stud.	Life Skills		Cult. Studies	
	2	Math	Fante			Eng.	Cult. Studies			Life Skills	
	3	Math	Fante			Cultural Studies				Agric.	
THURS.	1	Cul. Stud.	PE	Math		Math	Soc. Studies			Cul. Stud.	Fante
	2	PE	Math	Life Skills		Cul. Stud.	English			Agric.	
	3	PE	Math	Cul. Stud.		Life Skills	English			Science	
FRI.	1	Eng	Math		Agric.	Science		Soc. Studies			
	2	Soc. Stud.	English		Cul. Stud.	Fante		Science			
	3	Soc. Stud.	English		Life Skills	Soc. Stud.	Fante	Agric.			

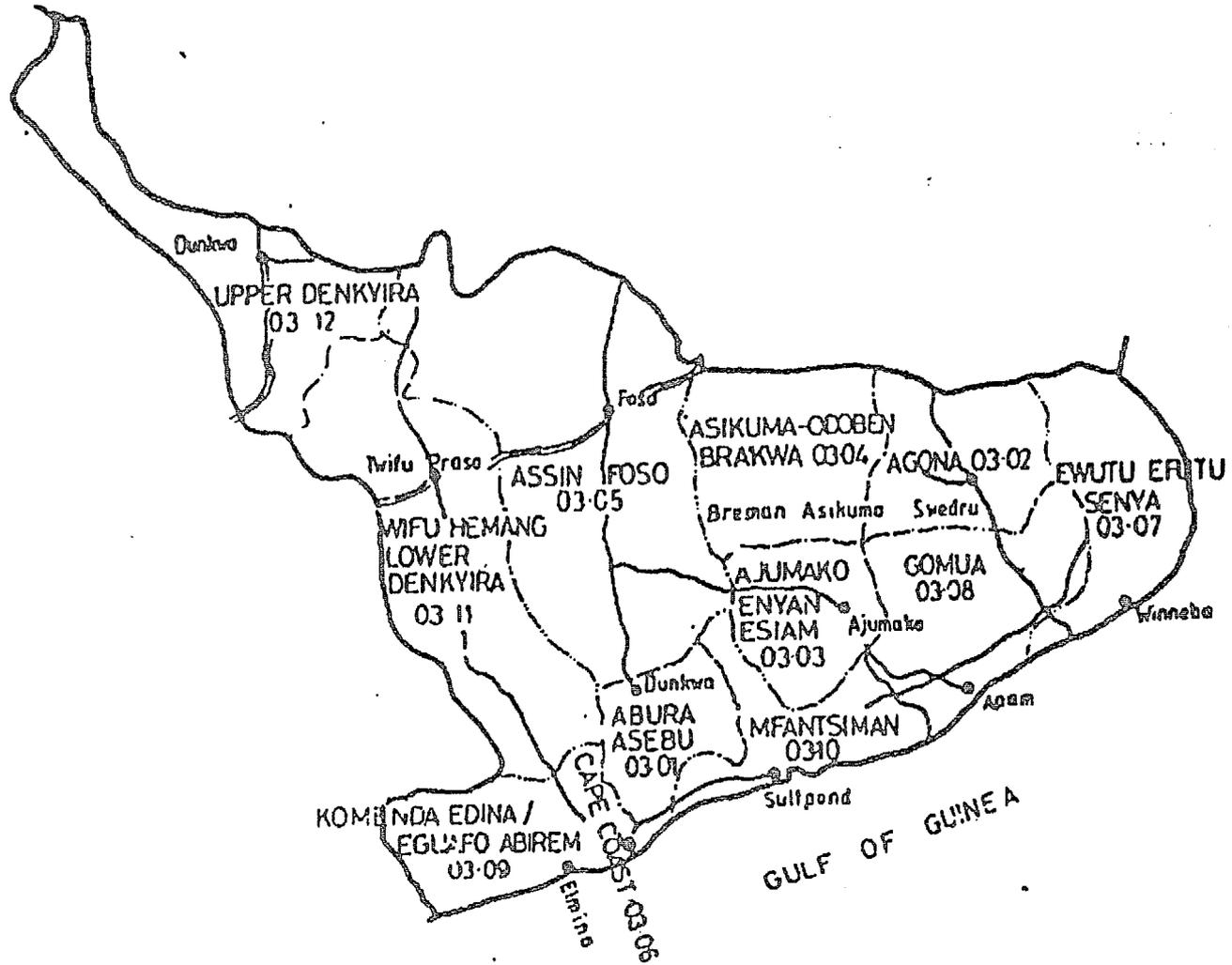
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Appendix iii  
**AGONA SWEDRU ADC PRIMARY SCHOOL 'C' TIME TABLE**  
**UPPER PRIMARY TIME TABLE**

DAYS	CLASS	8:10	8:15 8:45	8:45 9:15	9:15 9:45	9:45 9:55	9:55 10:25	10:25 10:55	10:55 11:25	11:25 11:35	11:35 12:05	12:05 12:35
MON	4	R E G I S T R A T I O N	Maths	Life Skills	Fante	B R E A K	English	English	Science	B R E A K	Science	Cultur.
	5		Maths	Fante	Fante		English	English	Soc. Studies		Science	Soc. Studies
	6		P.E.	Maths	English		Cultur.	Fante	Agric.		Life Skills	Life Skills
TUES	4		Cultur.	Maths	Maths		English	Soc. Studies	Soc. Studies		Agric.	Agric.
	5		P.E.	Maths	Science		Science	Life Skills	English		Fante	Agric.
	6			Maths	English		Cultur.	Science	Science		Fante	Life Skills
WED	4		P.E.	Maths	Science		Cultur.	English	Life Skills		Fante	Cultur.
	5		Life Skills	Maths	Science		Soc. Studies	English	Fante		Cultur.	Cultur.
	6		Maths	English	Fante		Science	Life Skills	Life Skills		Agric.	Agric.
THUR	4		Maths	English	Soc. Studies		Life Skills	Fante	Fante		Agric.	Agric.
	5		P.E.	Fante	Maths		Soc. Studies	Science	Science		Agric.	Fante
	6		Cultur.	Cultur.	Maths		English	Science	Science		Soc. Studies	Agric.
FRI	4	P.E.	Fante	Maths	English	Cultur.	Science	Life Skills	Cultur.			
	5	English	Cultur.	Maths	Science	Life Skills	Life Skills	Agric.	Agric.			
	6	P.E.	Maths	English	Soc. Studies	Fante	Science	Cultur.	Fante			

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MAP OF  
CENTRAL REGION  
03-00 (BY DISTRICT)



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