

NON-BOOK INSTRUCTIONAL MATERIALS USAGE IN GHANAIAN PRIMARY SCHOOLS

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ABSTRACT

This study adopted the qualitative research approach to identify, describe and explain the underlying issues pertaining to how Ghanaian primary school teachers use non-book instructional materials to achieve the curriculum objectives outlined in the lessons they teach and whether this is significantly affected by the nature and date of teacher training. The paper defines the type of materials teachers use; the frequency, pattern, mode and extent of use; and, their impact on pupil learning. The study involved observation of classroom activities and nearly 100 lessons in 11 subjects in 50 classrooms in six primary schools within the Kumasi metropolis.

Blackboards, flash cards, real objects, charts and rulers emerged as the most regularly used teaching materials in all the schools. The blackboard was found to be the most frequently and significantly used teaching resource in all subjects and class levels. The most significant and variety of materials are utilised in Mathematics. The study reveals that classroom use of instructional materials is significantly related to the period in which a teacher was trained, the class level at which they function, the subject they teach and, the age level and maturation of their pupils.

Keywords: *primary school; teachers; instructional materials; curriculum; lessons*

INTRODUCTION

The use of non-book instructional materials (commonly known as "teaching aids" and "teaching apparatus") among Ghanaian school-teachers has developed over the years from published materials to basic "home-made" resources. As described by the head-teachers, teachers and other education officials interviewed for the study, interest in and use of non-book instructional materials (NBMs) was very effective in the 1950s and 1960s. According to them, during those years, schools had ample supply of ready-to-use instructional materials to support chalk-and-blackboard teaching. The in-

terviews also indicated that teachers' colleges emphasised the use of instructional materials by equipping trainees with skills in the use of available resources and improvising basic ones from local materials. The overall effect was that teachers were adequately trained and prepared to use instructional materials without the prompting of head-teachers and inspectors. Nonetheless, inspectors made regular visits to monitor effective use of "teaching aids" in schools (Opoku-Asare, 1987).

The use of NBMs has assumed some sophistication in some schools yet there is an apparent lack of interest in usage among teachers trained in the 1980s and '90s (Opoku-Asare, 2000). This is attributed to major changes that occurred in the

curriculum and structure of teacher education in 1979 (Handbook for Principals, 1992), which devolved responsibility for instructional materials usage from Art specialists to all subject tutors. Currently, because development and use of instructional materials is not emphasised in the pre-service education of teachers, among other things, many teachers are unable to positively influence pupil learning in Ghanaian primary schools.

Methodology

The study employed the qualitative research approach with multi-site case studies, formal and informal observation of classroom activities and 87 lessons in 11 subjects, at six different age levels, in 50 classrooms within six primary schools; and, formal and informal interviewing of 70 teachers, 12 head-teachers and several pupils. The purposive sampling technique was employed to select six schools in which there were enough instructional materials user-teachers to observe. The case study schools differed in size, type, location and catchment area, and had different levels of facilities and resources. (With respect for the confidentiality of sources and in conformity with the tradition of much qualitative research (Bogdan and Biklen, 1992), the case study schools are identified only as Schools A, B, C, D, E and F). Schools A and B represent typical public schools, Schools C and D represent the quasi-public type of school, School E represents the quasi-private type and, School F, the typical private school. The rationale was to obtain data that reflected the diverse range of schools, classroom environments and possible variations in NBMs usage.

Discussion and Analysis and of Main Findings

The following consists of the main findings from both school-based data and classroom observation in the case study schools.

Characteristics of Observed Lessons

After an initial survey of classroom procedures and teaching situations in the six schools, 87 les-

sons were selected from a large sample because the respective teachers were likely to utilise some kind of instructional materials. Some of the lessons were observed and others were discussed with the respective teachers.

The recorded lessons were in 11 subjects – Art, Agricultural Science, General Science, Life Skills, Cultural Studies, Music, Art, Handwriting, Mathematics, English, Social Studies and *Twi*. Thirty-six of the sample lessons were in Mathematics; 25 in English; nine in Social Studies; four in *Twi*; two each in Agricultural Science and General Science; five in Life Skills and one each in Cultural Studies, Music, Art and Writing. The large number of lessons observed in English and Mathematics reflect the number of periods allocated to the two subjects on the primary school timetable.

Altogether, 30 Class One lessons were observed across the six schools; 16 in Class Two; 15 in Class Three; ten in Class Four; eight in Class Five and nine in Class Six. Class One emerged the most observed of the year groups. More subjects were observed in Class One and cumulatively in Lower Primary (Classes One to Three) than in the Upper Primary classes. This is because most teachers who were not found using instructional materials in the preliminary stages of the study were not observed.

The disparity between the quantity of lessons observed in Class One and Lower Primary in general reflected the amount of instructional materials use reported. This suggests that anyone visiting any of the schools is more likely to observe consistent use of NBMs in Class One in particular and Lower classes in general than in the Upper classes.

Classroom use of Instructional Materials Inventory

Instructional materials observed in use in the case study schools have been categorised into two groups: 1) resources that form part of school supplies and are available in classrooms and on

the school compound. These are generally within easy reach of all teachers and are likely to be used by all of them. Typical examples are blackboards, textbooks, pupils, classroom furniture and objects in the school environment.

Resources that are located outside the school and therefore require extra effort to obtain for classroom use. These include eggs, weighing scales, cooking utensils, foodstuffs, open tins and cans, toiletries, costume, cutlery, spent matchsticks, crockery, bottle tops and other such "unorthodox" teaching and learning resources. Only those teachers who are dedicated, interested and motivated to make learning easy for their pupils would use them.

A Typical Instructional Materials

The use of plastic construction (*Unifix*) bricks in a Mathematics lesson in School F is unique as none was noticed in any of the other schools. As a teaching resource, the bricks were particularly of very small size for convenient handling by teachers and pupils who used them. Other unusual teaching resources observed were a blender and juice extractor which were used in a Life Skills lesson in School A. The blender was the only electrical appliance observed in use and that teacher was the only one to use such sophisticated gadgets. These appliances were unusual because Ghanaian primary schools normally do not own such gadgets, electricity supply is generally unstable during school hours and most classrooms do not have power points.

Users and Non-User Teachers

In this context, NBMs are defined as objects, other than books, brought into the classroom or referred to as illustrations. Non-users are classified as those teachers who normally use the blackboard, chalk and textbooks to teach their lessons. Users are teachers who use these and other objects to illustrate their lessons as part of their normal teaching schedules. Borderline users are therefore teachers who normally use the blackboard, chalk and textbooks but would occa-

sionally use other objects to illustrate their lessons or support class discussions or take their pupils out on an annual field trip. Table 1 indicates the distribution of NBMs users across the six schools and the class levels they teach.

Table 1 shows that all the Class One teachers observed supplemented the use of the black-

Table 1: Class Distribution of NBMs Users and Non-Users

Class Taught	No. of Teachers Observed	No. of Users	No. of Non-Users	% Users	% Non-Users
One	11	11	0	100	0
Two	8	5	3	63	47
Three	7	4	3	57	43
Four	8	3	5	38	62
Five	6	2	4	33	67
Six	7	3	4	33	67

board with various NBMs to teach their lessons. These teachers were already using some form of resources during the preliminary stages of the case studies and were also identified by their respective head-teachers as regular users of such resources. Although these Class One teachers do not use all the listed resources, all the Class One teachers observed employed NBMs in the sample lessons recorded in their classrooms. Notable among this category are the Class One teachers in Schools B and C and three in School E whose colleagues attested to as those who would not teach without any NBMs. This suggests that Class One teachers are more likely to have utilised some instructional materials in the non-observed lessons.

As indicated by the figures in Table 1, there are NBMs users among Class Two and Class Three teachers, some of whom were also known to be consistent users. As observed in the schools and indicated by the figures, the number of general classroom teachers who use NBMs in Lower Primary far exceeds that of Upper Primary

classes. The evidence indicates that classroom use of instructional materials is significantly related to pupils' age and maturation.

Table 1 also indicates an inverse relationship between users and non-users in relation to class levels. The degree of usage observed decreases from Class One to Class Six. The concentration of usage in Classes One and Two in particular, is significant in terms of pupils' immaturity and limited language skills. The low level usage in Upper Primary appears to reflect the volume of work teachers have to do, large class sizes and the ability of the pupils to communicate in English, the language of instruction.

Because very few teachers of Upper Primary classes were seen using some form of instructional materials as part of their normal teaching schedules during the preliminary observation period, fewer lessons in these classes are represented in the overall number of recorded lessons. Those teachers who used NBMs relied on simple blackboard drawings, textbook illustrations, text- and exercise books, pupils, classroom furniture and objects found on the school compound to illustrate their lessons. As the research was concerned with seeing positive use of NBMs and its impact on pupil learning, most non-users were not observed.

For unexplained reasons, very few NBMs users made use of the published charts available in their schools. Those who did use charts used what they themselves had produced, even in Schools C and D where all classrooms had a glamorous display of assorted published charts illustrating nearly every topic on the curriculum. This was also evident, to some extent, in Schools E and F where a few classrooms sported some charts. One explanation for this may be sentimental, an indication of teacher self-sufficiency under the circumstances and perhaps the desire for users to transmit the "do-it-yourself" message to their colleagues as the thing to do. Another reason may be that the teachers were bored

with charts or found them unsuitable for the curriculum.

Tables 2 and 3 indicate the number of NBMs user- and non-user teachers (in all six schools) in relation to the period in which they were trained and class levels they teach.

It is clear from Tables 2 and 3 that the number of user-teachers decreases in relation to the period

Table 2: User-Teachers: Class Taught and Period Trained

Class Taught	Period Trained			
	1960s	1970s	1980s	1990s
One	4	5	1	1
Two	0	3	2	0
Three	3	1	0	0
Four	2	0	1	0
Five	2	0	0	0
Six	0	0	4	0
Total	11	9	7	1

Table 3: Non-User Teachers: Class Taught and

Class Taught	Period Trained			
	1960s	1970s	1980s	1990s
One	0	0	0	0
Two	1	0	1	1
Three	1	1	1	0
Four	1	1	2	1
Five	1	1	2	0
Six	1	2	0	0
Total	5	5	6	2

in which they were trained. It is also evident from the figures that there are more users among teachers who qualified in the 1960s and 1970s than those trained in the 1980s and 1990s. This suggests that teachers trained in the early period (before the 1979 changes) are more likely to use NBMs in their lessons than those trained afterwards.

The number of users and non-users of instructional materials in all six case study schools are shown in Table 4, which also shows the distinction between teachers trained in the early "golden age" period (1960s and early 1970s) of Ghanaian education and those trained after the 1979 changes in teacher education.

Table 4: Number of teachers and period trained for all six schools

Type of Teachers	Period Trained		Total
	Before 1979	After 1979	
Users	24	4	28
Borderline	7	1	8
Non-Users	45	18	63

The figures in Table 4 indicate that only 28 (28.3%) of the 99 teachers observed in the six schools were regular users of instructional materials while 63 (63.6%) were non-users and 8 (8.2%) were borderline users. Table 4 also indicates that 24 (85.7%) of the 28 users were trained before the 1979 changes and 4 (14.3%) after that period. This evidence suggests that the college curriculum and tuition given to teacher-trainees in the 1960s and early 1970s did provide the right kind of motivation to support instructional materials usage in contrast to that of the subsequent years. This is indicative of a situation whereby incentives for providing this service waned with passing years and adversely influenced teacher habits with regards to NBMs usage.

Patterns discernible from the data collected include

1. Significant clusters of users in School B, School E and School F who were trained before 1979; and only one user in School E who was trained after 1979;
2. Only three teachers (one each in School A, School D and School E) who were trained after 1979 were NBM users. Two of them were Class One teachers;

3. A pair of Class One teachers in School A who were users and two isolated Class One teachers in Schools C and D (both trained before 1979);
4. Two other users (trained before 1979) were a Class Two teacher in School D and a Class Six teacher in School A.

The percentage of user-teachers (24) trained before 1979 was 85.7% (86.1% if the borderline category is included) and the percentage of users (4) trained after 1979 was 14.3% (13.9% if the borderline category is included). At the same time, the high number of early trained teachers who were non-users may be attributable to the decline in support for use of instructional materials in the schools over the last three decades.

Evidence of NBMs Usage

On the whole, very significant use of instructional materials was observed in lower classes and a few upper classes in all six schools. No use was observed of musical instruments, tape recorders, radio, television and other resources that operate on electricity. Classroom furniture, resources in the classroom and school environment, pupils' knowledge and experience also provide vital resources that teachers tap to illustrate and emphasise points and to supplement available teaching materials used during lessons. Resource persons are sometimes brought in to demonstrate situations and provide concrete evidence for what would otherwise be taught to pupils as abstract concepts but only in a minority of classes overall.

Table 5 describes the types of instructional materials used in the sample of recorded lessons and their frequency of occurrence in those lessons observed in the six schools. It also sums up the identifiable educational needs they seemed to fulfill in those lessons in which the teachers used them across the six schools.

Table 5: Instructional materials and purpose served in observed lessons

NBM Type	Concept development	Concept reinforcement	Skills development	Motivation	Frequency of occurrence
Charts	•	•	•	•	17
Colour pencils		•			2
Cooking utensils		•		•	1
Counters	•	•	•	•	9
Crayons	•				3
Cutlery		•			2
Diagrams	•	•	•	•	28
Drums	•			•	3
Eggs	•	•			2
Field trip		•		•	2
Flute	•		•		2
Foodstuffs		•		•	6
Football	•	•			2
Fruits	•	•		•	7
Furniture			•		1
Improvised clocks	•	•			1
Improvised costume		•		•	1
Maps	•				1
Money	•	•	•	•	1
Packaging	•	•		•	4
Paper & plastic templates	•	•			6
Pencils	•	•			2
Photographs		•			1
Pupils	•	•			18
Plastic & glass containers	•	•	•		8
Rulers	•		•	•	13
School environment	•	•			4
Textbook illustrations		•		•	23
Tins & cans	•	•	•	•	2
Toiletries		•		•	1
Twine & string	•	•	•		2
Unifix bricks	•	•	•	•	3
Water	•	•	•	•	1
Watch	•	•	•	•	1
Weighing scale	•	•	•	•	5
Word & number cards		•	•	•	12

The attribution of these purposes was made by the observer and is not based on what the teachers actually said they achieved with the materials. Since this sophisticated concept of teaching was not discussed with any of the teachers, it is not clear whether these identified objectives are intended outcomes they seek to attain in their lessons when they use such materials. Whether these teachers would exhibit the same dexterity and standard with typically unfamiliar and more sophisticated resources is another issue of further research interest.

Patterns of Usage

The timing of NBMs usage observed in the sample lessons seems to depend on the purpose for which the teacher employs them, the type and variety available to them. No standard pattern of NBMs usage was observed across the six schools as usage occurred at different stages in different lessons in the various classes.

Charts are normally pinned on the blackboard and discussed on their own or with diagrams in the course of the lesson and during lesson reviews. Sample charts and graphs needed to develop concepts are normally drawn on the blackboard before the lesson, used to develop the lesson, referred to in the course of the lesson and copied by the pupils towards the end of the lessons. Diagrams are drawn at the beginning of the lesson, as the lesson progresses and also in the course of the lesson. Reference is always made to the particular diagrams and instructional materials used in lessons during recapitulation towards the end of the lesson. Teacher demonstrations on the blackboard and with other resources normally come before pupils' practice exercises.

Pointers are used by both teachers and pupils during blackboard work and during the use of charts as the lesson progresses. Pointers are also used during recapitulation of spelling and pronunciation towards the end of the lesson. Teachers use blackboard rulers to draw lines at

the beginning of lessons and foot rules in the course of lessons. Word and number cards (flash cards) are introduced early in the course of lessons, arranged in singles, words up or blank side up on the ledge of the blackboard, mixed up in an envelope or open box and then used in the course of the lesson.

Variation of NBMs Use with Subjects

Of the 11 subjects in which sample lessons were recorded, very significant NBMs usage was observed in Mathematics, English, Life Skills and Social Studies, bearing in mind that lessons which featured NBMs were in the minority. In Mathematics, a total of 25 assorted materials were utilised, in singles and various combinations and 17 different ones were used exclusively in Mathematics. A total of 17 different instructional materials were used in English, nine and eight different resources were used in Life Skills and Social Studies respectively. On the whole, the frequently used instructional resources were the blackboard, charts, diagrams in white and coloured chalk, word cards, fruits, rulers, textbook illustrations, classroom furniture and pupils, across the six schools. The use of foodstuffs, toiletries, blender and juice extractor were used only in Life Skills; word cards only in English, and crockery, cutlery and cooking utensils in Social Studies.

While the blackboard was used in all 11 subjects, much use was recorded in Mathematics and English. Charts were used in Mathematics, English, Cultural Studies, Life Skills, Social Studies and *Twi* but mostly in Mathematics. Diagrams were used in Mathematics and English only but most use was recorded in Mathematics. Fruits were used in Mathematics, Life Skills and Social Studies but more use was recorded in Mathematics. Pupils were used as illustrations in Mathematics and English only but more use was observed in Mathematics.

Rulers were used in English and Mathematics only but nearly in every Mathematics lesson.

“Counters” (bottle tops, pebbles, etc. used to facilitate counting) were used in Mathematics only. The use of word cards occurred in English lessons only while pointers were used in English, Mathematics, Life Skills and Social Studies although more use was recorded in English. The evidence here indicates that there is greater use and considerable variety of instructional materials in the teaching of Mathematics than the other subjects on the Ghanaian primary school curriculum. The blackboard emerged as the single most significantly utilised teaching resource in all subjects across the six schools.

Variation of NBMs Use with Age of Pupils

The use of the blackboard was seen at all class levels but more use was recorded in Class One in particular and the Lower classes in general. The implication here is that all teachers make use of the blackboard as a teaching resource in their classrooms. This high incidence of blackboard usage in Lower Primary is explained by its use for the drawing of diagrams, reproducing information from charts and textbooks, teachers and pupils working sums and writing on it and as a surface for pinning charts, templates and other resources used to illustrate lessons.

The use of textbook illustrations was almost equal at all class levels. Rulers were used in all classes but more usage was recorded in Class One and Lower Primary lessons. Word and number cards, counters and books were used in Lower Primary only. Diagrams were used in all classes but more in Class One and the Lower classes. More use of charts and “pupil illustrations” was recorded in Class One alone and Lower Primary classes in general. No use of dictionaries was observed in any of the schools. No traditional games were used in any lesson in the six schools. It is evident here that Class One in particular and Lower Primary classes in general, see the greatest use and variation of instructional materials. The implication is that teachers of six to nine-year-old pupils are more likely to utilise instructional materials to teach their les-

sons than their counterparts in Upper Primary.

Factors Affecting NBMs Usage

Judging from the evidence gathered through the school study, the quantity, quality and variety of conventional instructional materials found in School F far exceeded that of the other five schools. In spite of this comparative advantage, this school was where the least number and variation of NBMs were actually used in the lessons observed. It is also where one is likely to find some instructional materials usage in all classrooms and across the curriculum but on a relatively smaller scale in comparison to School E and perhaps, limited also to one or two of the same type. In direct contrast is School E where the most practical lessons were recorded and the widest variation of “unorthodox” instructional materials was seen in use throughout the period of observation, although this was mainly at the Lower Primary level.

On the whole, the probability of seeing some instructional materials usage in the first year class of Schools A, B and C is very high but less in School D. There is also a greater chance of seeing some use in the top class of School A than similar classes in the other five schools. From all indications, anyone visiting a Lower Primary classroom in any of the six schools is more likely to observe the use of some form of NBMs across the curriculum and in particular, lessons that involve concept and skills development. Anyone visiting a first year classroom is also more likely to see NBMs usage in nearly all lessons but much more so in School E than in any of the other five schools. It is important to say, however, that the research was concerned with seeing positive use of NBMs and their benefit to pupils hence the selective observation in classrooms where it was possible to see some use, in all the case study schools.

Impact of NBMs on Pupil Participation and Learning

Except for one instance in the use of a chart in

School E. there was nothing significant in the evidence presented in the case study reports to suggest that where instructional materials of any kind were used in a lesson, they were a disincentive to pupil learning. On the contrary, there is every indication that in those lessons, the pupils got more involved in the activities that the teachers initiated, they were more lively throughout their use, more enthusiastic, participated actively in the lessons and benefited from the topics taught.

Although not all the teachers observed used NBMs effectively, where these basic and often "unorthodox" materials were used, the teachers not only saved themselves from verbosity but also engendered a congenial classroom atmosphere that motivated their pupils to participate more actively in their lessons. From all indications, pupils taught with instructional materials absorbed more knowledge from the demonstrations they saw and the exercises they did with the resources and appeared to understand what was taught faster than was the case in classrooms where the teachers taught by the lecture method.

It was evident that instructional materials available in all six schools were grossly under-utilised by classroom teachers in the case study schools. The fact that some teachers were not making use of these resources indicates apathy, sheer reluctance and a lack of goodwill towards their pupils. This can be attributed to lack of rapport between the heads and teachers, fear of accountability problems on an inspector's visit, budgetary constraints, lack of support for good classroom practice and unprofessional handling of supplies and facilities on the part of head-teachers. Since the head-teacher oversees school supplies, teachers had to ask for what they required in their classroom.

SUMMARY

Analysis of the evidence presented, though on a minor scale, appears to confirm the widely-held

notion that classroom use of NBMs impacts positively on pupil learning. Moreover, nearly all the teachers interviewed acknowledged that their pupils would benefit from the use of such materials, whether or not they actually used them. However, unlike the practice reported in more developed countries (Commonwealth, 1974), instructional materials observed in use in the study were "home made". Charts were the only kind of published instructional materials available to all the schools visited. There were no globes, maps, photographs, models, television or films in the schools studied in the research.

It is evident from the study that the period in which a teacher was trained is significantly related to their use of NBMs. This is explained by the fact that more users were found among teachers trained in the 1960s and early 1970s than in the period after that. Two possible explanations for this correlation are the theory of teaching that was operating at that time and the practical experience that student teachers developed through their training.

From the evidence of the interviews and school observation, teachers trained in the "golden age" of the 1960s and early 1970s had practical experience (with instructional materials) that reinforced the theoretical knowledge they acquired in the college classroom. This suggests that the colleges took responsibility for NBMs more seriously than in the period thereafter. Ultimately, teachers trained in the "golden age" of Ghanaian education became more convinced of the importance of instructional resources to classroom practice.

The period of training and NBMs usage correlation is also significant in terms of changes that have occurred in teacher training and hence teacher resourcefulness and extent of instructional materials usage. What this seems to indicate is that as teacher training became more specialised, Art ceased to be a compulsory subject

on the college curriculum, from a subject studied by students in all colleges, to one that is offered to select students in one of 38 public colleges around the country. This also implied changes in the kind of Art that was taught to students in college: Art as a school subject replaced Art as a form of visual communication. Consequently, fewer teachers acquired the requisite artistic skills for making instructional materials for use in their own classrooms. This is also significant in the sense that changes in teacher training did not match corresponding changes in primary education, teacher attitudes or training in new approaches to teaching specific subjects.

CONCLUSION

The observation evidence indicates that instructional materials are essentially woven into the practice of classroom teaching and that their use generally promotes effective teaching and learning. Perhaps teachers who do not employ instructional materials are neither aware of the kind of service they are providing in their classrooms nor the benefits their pupils are actually deriving from this nominal use of instructional materials observed. If this is the truth, then such teachers are justified in not utilising instructional materials as part of their normal teaching schedules. But, if their action is deliberate, then there is no better recommendation than for the Ghana Education Service (GES) to provide those teachers with creative opportunities that will encourage them to re-evaluate their actions, and for the Teacher Education directorate to re-define the college curriculum and objectives for teacher training.

Since non-users of NBMs cannot be compelled to change their attitudes overnight and turn their classrooms into flexible learning environments, perhaps encouraging school clustering and team teaching among teachers will encourage them to learn something from their user colleagues. But, the question is how can this be achieved, by what means, when and by whom? Since effec-

tive functioning of teachers is a direct reflection of teacher training schemes, it is imperative that the teacher-training curriculum be reviewed and made more creative and innovative in order to provide teachers who can positively influence pupil learning in primary schools and significantly improve the quality of basic education in Ghana.

REFERENCES

- Opoku-Asare, N. A. A. (1987). "Organisation of Art in Teacher Education in Ghana", MA Thesis, University of Science and Technology, Kumasi.
- Opoku-Asare, N. A. A. (2000). "Using Non-Book Instructional Materials to Promote Teaching and Learning in Ghanaian Primary Schools – Rhetoric and Reality", MPhil Thesis, University of Sussex Institute of Education, Brighton, UK.
- Ghana Education Service (1992). Handbook for Principals, Teacher Education Division, Ghana Education Service, Accra.
- Bogdan, R.C. and Biklen, S.K. (1992). *Qualitative Research for Education: An Introduction To Theory And Methods*, Allyn and Bacon, Needham Heights.
- Commonwealth Secretariat (1974). *New Media in Education In The Commonwealth*, Commonwealth Secretariat Publications, London.