Availability and Use of Instructional Materials in Tigray Primary Schools

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Introduction

No one disputes the role and function of instructional materials in enhancing the quality of education. Instructional materials have different names such as instructional technology (Brown and others, 1985), instructional media (Heinich, 1989), audiovisual materials (Dale, 1969), etc. For a long time, they have been distinctly known as *teaching aids*, a concept squarely tied to a teacher-centered model (Amare, 1996: 93-106).

In the New Education and Training Policy of Ethiopia (NETP) instructional materials are classified under what is called *Education Support* -- educational materials, educational technology and educational facilities. This classification, however, fails to satisfy all-inclusiveness and mutual exclusiveness in the categorization process, because instructional materials are part of education technology. In addition, the status given to instructional materials in this context very closely resembles the old model of the teaching-learning process (Amare, 1995: 1996).

In this study, instructional materials relate to all forms of materials with which students and teachers interact for the purpose of learning- teaching. They are the instruments with which a teacher teaches and from which students learn. Teaching without instructional materials boils down to teaching without technology.

The materials can be *concrete:* models, specimens, simulators, objects—those that allow physical involvement of learners; or abstract–those that allow imaginative involvement of learners with a minimum effect of physical involvement or sensory involvement (learning with written or spoken words).

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Quality of Education and Instructional Materials

It is argued that instructional materials provide the learner with a wide variety of experiences such as:

doing	listening	speaking	reporting	thinking
drawing	observation	discussing	researching	
reading	sketching	computing	role playing	

The traditional method of learning which mainly relies on the experience of listening and reading limits the development of other experiences which, in turn, are instrumental to further learning (Amare, 1995). A student-centered approach, which is gaining currency, is unimaginable without the optimum use of instructional materials (Amare, 1998: 39-49). The speaking-listening approach, the most common teaching method in Ethiopian schools (Amare, 1998:43) inhibits active learning and encourages passive learning, a syndrome that robs all feelings of students responsibility for their learning. It is argued that responsibility is positively correlated with AIME (Amount of Invested Effort), a prerequisite for learning. It goes without saying that the higher degree of responsibility a person feels the higher the performance in the which the person is responsible--in learning or in all other activities.

Dale (1969) has argued that instructional materials create the access to of reality, enhancing understanding and enriching experiences. They also making relationships between the real world and the symbolic world pedagogically known as understanding. Words (written or spoken) necessary dimensions to represent reality. Iconic or inactive representations, however, are very close to reality creating the access to it. It is a process of bringing the world into the classroom and the classroom into the world.

Instructional materials are also known in compelling and retaining student attention (Heinich, et al., 1989). They add variety to the learning process inducing greater attention and understanding (Brown, 1985). Psychologists also argue that 50 percent of what we see and hear is learned. Only 10% is recalled from reading.

McLuhan (1964) said those media that encourage maximum involvement of the senses are most effective in the teaching-learning process. He calls them *Cool Media* as contrasted to *Hot* Media (1968). Cool means more participatory and hot means less. For instance, a lecture is hot and a discussion cool. In the latter, students have more chance in providing information and more involvement in the process--making learning most effective.

In his book, Audiovisual Methods of learning, Dale (1969) has provided a comprehensive listing of the pedagogical uses of instructional materials. Some of them are:

1. facilitate active learning
2. encourage creative thinking
3. effect student skill development
4. overcome the limitations of time and space
5. concretize abstract experiences
6. create the access to invisible realities
7. teach and entertain
8. relate theory with practice
9. make learning more functional by increasing retention
10. assist learning of a method of learning in the field
11. encourage responsibility.

Based on this brief elaboration of the nature and functions of instructional materials, this study attempts to evaluate the adequacy of instructional materials in Tigray schools by reviewing policy materials and survey reports.

Theoretical Framework

In this study, instructional materials are assumed to be an important component of teaching media which, in turn, are important components of the teaching-learning process as depicted in Figure 1 (Amare, 1996 b:93-106).

A multidimensional approach to the study of the major causes of student-learning requires the triangulation of the most important independent variables; curriculum, media and students. Figure I demonstrates the contribution of each independent variable to the causation of maximum learning. Area 1 emphasizes media factors, including teacher factors.
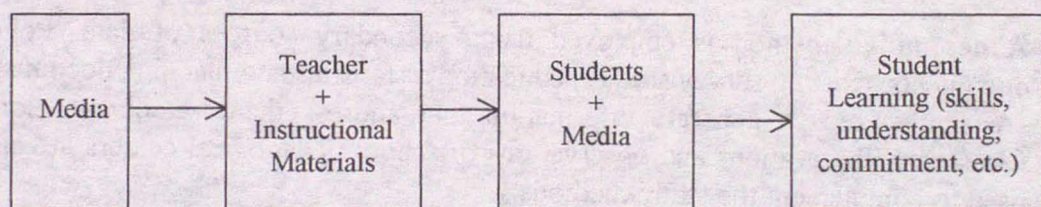
Figure 1: Teaching –Learning Model
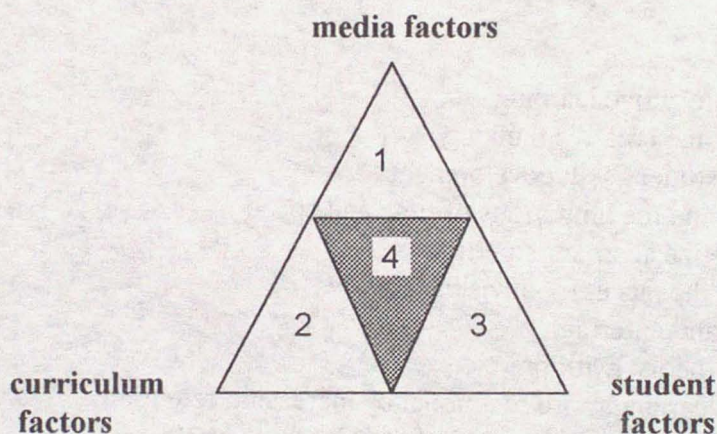
Area 2 and 3, however, stress on curriculum and student factors respectivel Area 4 could be taken as a region of fair balance among all factors in tl causation of student-learning. These three important variables are, therefor taken in this model as constructs whose variation tends to bring about a variati in learning. The model can help the educational researcher to conceptualize t different areas of strategic emphasis in the causation of optimum stud∂3- learning. The place of media in this model is very clear. It is either ɑ determining or a contributing factor to the learning process (Amare 1996b:93- 106).

It is absolutely clear that no teaching–learning activity takes place without media. Media are carriers of information from a source to receivers or vice-versa. These carriers could be human (teachers or students) or technological (instructional materials) or a combination of the two (e.g. teachers and instructional materials).

It is possible that learning can take place with the help of teachers without use of instructional materials (teacher-centered approach). This would, however, mean limited experience to students. Students can also learn from instructional materials with limited help from teachers (Distance Education, Programmed Learning, Computer Assisted Learning etc.). Common sense would, however, tell us that it is most effective if we combine the two types of media.

Figure 2: Media and Learning

| Media | → | Teacher + Instructional Materials | → | Students + Media | → | Student Learning (skills, understanding, commitment, etc.) |

A complete consensus has been reached among all educators that a multi-media approach is most effective in learning. The approach could mean listening to lectures and observing teacher demonstrations and practicing the same activity.

Objectives of the Study

1. Assess the policy and administrative support for provision of instructional materials;
2. Describe the extent to which instructional materials are available in primary schools of Tigray;
3. Evaluate the extent to which teachers use instructional materials;
4. Identify the incentive systems for preparing & using instructional materials;
5. Identify major impediments of use and availability of instructional materials; and
6. Develop a strategy of production, procurement and use of instructional materials at school levels.

Method of Study

A descriptive method is employed using secondary sources of data. Policy documents, existing survey studies, educational statistics and planning documents are synthesized to generate information that address the research questions. Classroom observations and observations of school pedagogical centers are also used to complement the study-methods.

Limitation of the Study

- Dependence on secondary source of data;
- The data are less directly framed to the research question. They are rather indirect observation; and
- Insufficiency in having classroom observation data.

Status of Instructional Materials --Findings

A survey made by the same author (Amare, 1998:289-298) to identify the two most critical educational problems in Ethiopian schools has demonstrated that unavailability of instructional materials was the most serious one followed by crowdedness of classrooms.   A regional desegregation of the data has also revealed that shortage of instructional materials is the number one educational problem in Tigray.   This finding was consistent with the results of Beso Decentralization Study conducted in 1995 (Amare, 1995) where teachers perceived shortage of books and instructional materials as the most critical educational problem in Tigray contrary to parent's perception which was less related to pedagogical factors.

In the former study (Amare, 1998:293) shortage of what are called *teaching aids* were found to be more serious than shortage of textbooks.

A general survey made by Tigray Region Education Bureau (Yihdego, 1997/98: 12:13) to assess the status and function of school pedagogical centers (SPCs) has identified 14 problems which revolved around the following categories:

- Shortages – materials, personnel and space.
- Lack of clear school level policy and direction.
- Problem of training SPC-coordinators and others.

The BESO study has also concluded that SPCs are so underreported that it might probably be useful to reassess their purpose and utility (Sommers, 1996:99).

A very current survey of SPCs in Mekelle Zone (Berhane, 1999) has shown results that suggest that SPCs are not giving the expected services to the teaching-learning process as they are ridden with numerous problems, such as:

- there is qualified personnel,
- SPCs are closed in some shifts,
- SPC-coordinator has normal teaching-load,

- most schools have only nominal SPC-budget,
- most schools do not use even the meager budget,
- none of the schools provide incentives to teachers who use instructional materials,
- none of the schools have written guide materials on how to prepare and use instructional materials,
- the size of SPC rooms is very small and
- most of the teachers have not participated in relevant workshops.

In addition, this survey has found that book-ratio is almost 1:1 for the subjects: English, Mathematics, Tigrigna, Environmental Science, Social Science and Amharic. Shortages, however, are observed for the subjects: Agriculture, Music, Arts and Aesthetics in the schools that were used for this study.

Many studies have also demonstrated that teachers do not often take advantage of materials including books when they are available (Sommers, 1996:100).

Reason for Status of Instructional Materials

Two arguments are given to indicate why the system has not given adequate attention to instructional materials: These were problems of conceptualization and operationalization.

Conceptualization

The role of instructional materials in the teaching - earning process is not usually properly understood. These materials are popularly known as " teaching-aids" in the Ethiopian context-a status that keeps them at the discretion of teachers.

A content analysis of the 20-page Educational Sector Strategy document (TGE, 1994:18) reveals that only one statement is mentioned about instructional materials.

> *The provision of educational materials shall be improved by raising the level of production by the existing institutions,*

particularly EMPDA, to full capacity improving on the efficiency
of international procurement, promotion of local production by
the private sector and expansion of international assistance.

About two-page are devoted to instructional materials in the 33-page document of the Education and Training Policy (TGE, 1994). Even those pages are not clear with the central role of instructional materials in enhancing the quality of education. The phrase, *Educational Support Inputs*, is used to refer to instructional materials, educational technology and educational facilities (TGE, 1994:27-29). One can clearly observe that the role of instructional materials is stated (in the policy document) in the context of "teaching aids" as the name clearly suggests. It is not also clear why instructional materials are so grouped with educational facilities such as buildings, desks, chairs, sports' fields, etc. The latter which have always enjoyed the lion's share of the budget make up the physical environment in which the instructional process takes place; the former (instructional materials) are component parts of the instructional process.

Regarding this confusion and structuring problem, this author had critiqued in the *Educational Journal* (Amare,1995:4 -7) advocating a change of name and re-structuring as these were believed to influence instructional strategies and plans of action. It was also argued that with this kind of attitude toward instructional materials, the "student –centered approach will remain but a dream".

Operationalization

The problem of conceptualization of the role of instructional materials is more vividly observable in what educational officials and teachers plan and do. Two points of departure are used to argue that there is a neglect of instructional materials in the planning and action plans of planners and implementers.

a) *Educational Sector Development Plan (ESDP) and Instructional*
    Materials

The ESDP Action Plan is a 37-page document that has devoted only a paragraph
to the subject of books and materials (page 8) while stating the problem. Three
other paragraphs are devoted to stating textbook provision (page 19). In all four
paragraphs there are no clear statements about instructional materials. The
phrase, instructional materials, has always appeared as an annex to books (books
and instructional materials). It appears that planners are not convinced about the
clear role of instructional materials. Of course, books are central to the concept
but availability of books is not a sufficient condition for a better quality
education. Instructional materials, such as models, objects, specimens, graphics,
etc. provide rich experiences that demand high student involvement in the
process. Without student interaction with instructional materials, active learning
will not be achieved.

About 6.8% of ESDP fund (total ESDP funds Birr 12.2 billion) is devoted to
instructional materials (ESDP, 1998:Appendix 8). In Tigray Region, it is not
clear how much would go to non-textbook instructional materials as the
distribution of the budget doesn't make any mention of other instructional
materials except books (ESDP, 1998:Appendix A). Moreover, in this document,
the specific educational activities in which the various donors will be involved are
listed down. It is, however, surprising to witness that they also neglect this in the
case of Tigray (ESDP, 1998: Appendix B). Only UNICEF seemed to have closer
interest (Educational Media and Teacher Training) but it is far from
strengthening SPCs and schools.

b) *Instructional Materials and Quality Control*

It is known to everybody that our educational system has developed through its
planning offices what is called controls for the quantitative aspects of education.
Tigray Education Management Information System (TEMIS) makes a monthly
count of facilities, schools sections, students, teachers etc. No system of control
is however developed for the *quality* aspect of education. There is no statistics in
TEMIS concerning availability and conditions of books, teaching aids, media

materials, materials in SPCs, frequency of borrowing from SPCs, frequency of teacher use of instructional materials, number of student-made instructional materials, number of teacher-made instructional materials, number of student activities, number of radio, TV, etc. The absence of a mechanism in TEMIS for quality control demonstrates the system-actor's limitations in perception of quality of education factors.

One of the weaknesses of this paper is the absence of data on the contents of teacher-evaluations in the schools by students, colleagues and supervisors. There is, however, some information that suggests that those evaluations have encouraged teacher-use of instructional materials in the schools.   Nevertheless, the average number of inspections, (three times a year, on the overage) are inadequate to ensure quality control. Neither are lesson plans a guarantee to actual classroom conduct. Anomalies have been observed between the two during the BESO Decentralization Study (Sommers, 1996; 70:71) in a comparative analysis between content analysis of lesson plans and corresponding classroom observations. Sommers (1996:70) stated that, "The central classroom activity in every classroom visited is this: the teacher writes on the chalkboard while students copy into their exercise books. This happens even when a third of the students had their text books with them."

c) *School-Level Responsibilities*

It is in the school, not the region, zone or wereda where the actual conduct of the teaching-learning process takes place. The school brings teachers, students, materials and classrooms together. Each school has a responsibility to offer high quality education with the support of higher levels even in the context of a constrained school environment.   The following problems are, however, observed in many schools (Amare 1966 and Amare 1998).

- Lack of job description for teachers
- Lack of written guidelines for conducting teaching-learning activity
- Lack of a guideline for preparing and using instructional materials

- No student or teacher incentive systems for preparing instructional materials
- No commitment for allocating reasonable budget for preparation and purchase of instructional materials
- No commitment to provide needed personnel dedicated to the job.

Conclusion and Recommendations

Conclusion

It is argued in this paper that the problem-solving or student-centered approach which was strongly stipulated in the NETP can not be realized without making optimal use of instructional materials.

The various survey results in the Ethiopian situation including Tigray Region, suggest a strong deficiency in preparation provision and utilization of instructional materials. The system seems to have given more attention to other quality aspects of education, such as, preparation of teachers, classrooms, class-size, etc. In most schools students have been observed to learn in a passive way with minimum application of AIME. Shortage of instructional materials has been identified as the most critical problem by teachers. It is, however, observed that limited effort is made to address at the school level. It is also argued in this paper that most instructional materials need to be prepared at the school level using local materials by teachers, students, and media experts.

Recommendations

We know that the school is the main place where an actual teaching-learning act is conducted in a formal educational system. School level policies and guides need to be developed on the conduct of teaching-learning. These should encompass:
- An in-depth study of availability and use of instructional materials;
- Strengthening of school pedagogical centers with budget and trained personnel with all responsibilities and accountability;

- Creation of incentive systems to teachers and students for involving in preparation of instructional materials;
- Strengthening the training of teachers and educational administrators in the same field.

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