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SELECTION AND USE OF INSTRUCTIONAL MEDIA BY PRE-SERVICE AND IN-SERVICE ELEMENTARY SCHOOL TEACHERS: THE CASE OF REGION 13

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ABSTRACT

The purpose of the study was to investigate whether or not there is a substantial difference in media application habits between teachers with different training programs. About 276 subjects were selected out of 21 sample elementary schools in Region 13. Data were secured through a survey method and direct observation of actual classrooms. Statistical significance were checked through chi-square and/or t-test at $P<0.05$ level. Consequently, the following major findigs were observed.

1. Higher proportion of teacher have used the broader definition as well as experienced the systematic application of media.
2. Substantially higher proportions of pre-service teachers have frequently visited school pedagogical centers and have shown favorable attitude toward media as compared to their in-service counter parts.

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CHAPTER ONE

INTRODUCTION

1.1 Background to The Problem

Instructional Media have the attributes: to sustain attention, to provide concreteness, to increase the meaningfulness of abstract concepts, to bring into the classroom places and events remote in time and space, and to stimulate interest (Richet, 1971:207). To this end, the media vary in their physical existence ranging from concrete, real and first-hand to abstract and complex experiences including models, audio-visual materials and technological layouts (Shores, 1960, and Brown, 1983).

Besides the general nature, the application of media has to undergo different stages of development, namely selection, preparation, use and evaluation (Romiszowski, 1977). On the other hand, toward the realization of instructional effectiveness, as compared to the remaining stages of media development, greater proportions of time, energy and skill are needed in selection and use of instructional materials. That is to stay, a good deal of instructional endeavor is needed to effect media that are appropriate, pedagogically sound, innovative, cost effective and manageable (Callahan, 1988: 414).

Thus, if properly selected, instructional media increase student achievement of various learning objectives (Dwayer, 1971:28; and Davies, 1981:193), and if properly managed they could at best benefit the teacher in reducing verbalism, in adding student interest and involvement, and teaching efficency (Dale, 1956:66). In a Michigan Media Related Study, (Komiski, 1978:48) it was found that learners whose teachers had been involved in choosing the mathematics and reading materials used in their classrooms scored significantly higher in achievement than learners whose teachers had not been given the opportunity to choose their own materials, even when the same materials were being used by both groups of teachers

However, despite their and importance to enhance the teaching-learning process, instructional media were underestimated and mis-used in most instructional situations. Among the observable mal-practices the following could be cited.

Firstly, although they were badly needed, in most cases instructional materials were rarely used by a considerable number of teachers. For instance, in the Ethiopia school context, according to the finding of ERGESE (MOE, 1986:15), only less than five percent of the observed teachers were using instructional materials. Even in Addis Ababa schools where the provision of adequate materials materialized, teachers in most cases do not use educational materials (Amare, 1987:5).

Secondly, in most instructional situations, although ample options were at their disposal, teachers aware themselves of the common and limited items of instructional media (Locatis, 1984:52; and Callahan, 1988:414). According to the research findings of Donelson (1970), for example, although such aids as tape-recorders and overhead projectors were available, most teachers practiced the bulletin board in their respective classrooms.

Thirdly, evidently, resource centers are the main sources of instructional media, however, teachers exploit the centers in rare occasions. Regarding the extent of teachers-habit in visiting resource centers, most Addis Ababa teachers included by the studies (Amare, 1987: 5) were not in a position to utilize or participate in educational centers of their respective schools.

The problems have evolved, mainly, from mis-conceptions and mis-understanding on the part of the teacher (Farrant, 1968; Donelson, 1970; and Gilbert 1982). There exist enormous resource materials on general concepts but even then the teacher has to study these things with reference to related sources to see what should be supplemented or left out (Balogun, 1971:212). Selection and use demand keen and

competent instructional behaviour that would effect the appropriate choice among the accessible and available materials, and the application of appropriate procedure at a classroom level (Clark, 1974; and Curtis and Blachford, 1992).

In the context of developing countries, among other things, the inadequate performance of teachers is attributable to insufficient pre-service and In-service training's available (Unesco, 1975:136). Bearing this in mind, the research study attempted to assess the behaviour of teachers in instructional media; more specifically, the knowledge, attitude and performance of pre-service and in-service teachers in light of selection and use of media.

1.2 Statement of the Problem

The major purposes of the study was, therefore, to answer the following basic questions:

1. Is there a difference among teachers in opinion on instructional media?
2. Is there a statistically significant difference between pre-service and inservice teachers in:-
   - 2.1 the presentation of variety items of media?
   - 2.2 the attributed qualities of media?
   - 2.3 the exploitation of resource centers?
   - 2.4 the attitude toward instructional media?

1.3 Significance of the Study

As it was mentioned earlier, despite the theoretical framework of media relative to instructional design, in the light of the practical application to classroom situation, in our schools context, admittedly there is little or no research evidence available. Thus, the study is expected to have the following major contributions:

First, it contributes to experiences that improve the frameworks of both pre-service and in-service training programs, in that, it sheds light on theoretical frameworks by indicating specific issues of relationships that should exist between practical instructional environments and training programs.

Secondly, it explores the major and common problems of media in actual classrooms thereby providing recommendations for teachers.

Thirdly, it creates a suitable situation that likely encourages further research in the area.

1.4 Delimitation of the Study

Although there are different levels of formal schooling and training programs in which the technique of instructional media is frequently used, this study is conducted on elementary school teachers due to the following unique contributions of media to elementary school children

Firstly, elementary schooling is the first level of formal education and a basis for all subsequent levels; and therefore, lessons should always be presented in meaningful ways. To this end, media play a paramount role; media help to concretize and localize the lesson of presentation (Richet, 1971:207).

Secondly, children are restless towards repeated technique of instruction. Media, on the other hand, motivate learning, stimulate participation and reinforce learning (Hanely, 1971:10).

1.5 Limitations of the Study

Media selection and use undertake a long process and include a very vast area of instruction. The process in the instructional development refers to the knowledge and skills of the teacher for its effective application.

The instruments designed to investigate the instructional behaviour of teachers in media selection and use have limitations in this regard. Firstly, the questionnaire was not possible to include all aspects of media for it makes the instrument extremely bulky and result in boredom on the part of the respondents. Secondly, it was not possible to make repeated observations of instructional classrooms for this needed a good deal of observation time and instructional skills in the area.

1.6 Definition of Term

Instructional Media: the technique of processing media for instructional purpose as well as the corresponding devices.

Instructional Behaviour: the observable or measurable behaviour of the teacher, namely the knowledge, the attitude and the performance skill relative to media.

Performance skill: the skill in selecting the different items and preserving the qualities of presented media that were detected through direct observation.

Opinion: Instructional media information that was received from the sample population through the survey questionnaire.

Pre-service Teacher: a teacher that received a teaching certificate through regular primary school teachers training program.

In-service Teacher: a teacher that received a teaching certificate through summer-inservice programs of primary teachers training program.

CHAPTER TWO

II. REVIEW OF RELATED LITERATURE

The chapter deals with issues of selection and use under two main headings, namely selection and use of instructional media, and the media and elementary school teachers behaviour.

2.1 Selection and Use of Instructional Media

In modern society, there are many things which every competent citizen needs to know: things which he/she can not experience directly. Some of these "experiences" are too remote, some no longer exist concretely, some are too costly, and some others are questionable value for all the people (Kinder, 1959:10). The effective communication of these experiences can no linger be considered possible with words alone. The very nature of languages, coupled with the limited experiences of most people, often makes it difficult to convey ideas and information efficiently without resources beyond words (Culkin, 1978:3). It is with instructional media of different capabilities that all the experiences above could be brought to the appropriate learning environment (Kemp, 1968:4).

Though instructional media were defined variously, this paper presents only two. According to the first definition, instructional media one an aids in the teaching of a topic (Romiszowski, 1977:9). Hence, it covers a part in the instructional process where as the remaining part is covered by the human teacher. In the second case, instructional media are defined as materials or devices which present a body of information and are largely self-supporting rather than supplementary in the teaching learning process (Brown, 1969:592). Hence, the definition is founded on broader perspective to include instructional materials ranging from those that occupy limited instructional time upto full coverage of the whole instructional time.

To the nature of existence, the range of media embrace simple and concrete materials as well as complex and abstract expereinces (Haney, 1971:14). Thus, to systematically arrange and reduce the disarray of media into a manageable size, some classification has been made by different authors (Shores, 1960; Brown, 1983). However, this paper will present the classifications of only those that have direct relevance to the study.

Edgar Dale (1956:42) has attempted to classify media on the basis of the degree of experiential concreteness; and hence, through the "Cone of Experience," Dale illustrated graphically the relationship of audio-visual materials as organized proceedings from real and concrete experience at the base to verbal abstract experience at the apex. Thus, from level of doing or experiencing, the pupil passes to the level of observing and listening or reading.

Sampath (1984:26) categorized the eleven different experiences into three, namely direct experience, projected aids, and non-project aids. Direct and purposeful experience provides rich, and first hand experience. Learning is attained through direct, and maximum physical involvement of the learner. Accordingly, the respective instructional materials include real objects, projects, excursions, experiments, etc.

Projected and non-projected aids, on the other hand, are said to be indirect experiences, due to the fact that the learning experiences are comparatively abstract ones. Projected aids include films, overhead projectors, TV, silent and sound motion picture, etc; and non-projected aids include chalkboard, charts, models, etc. In terms of relative effectiveness for instruction, therefore, direct experience is most effective over the indirect, and, projected aids are more effective than non-projected aids (Sampath, 1984:26).

To McLuhan, "The medium is the message," in the sense, all the thinking and pattern of human affairs are caused, not by the type of content or information conveyed by a medium, but by the medium used to process the information (Culkin,

1978:5). In otherwords, McLuhan has generated much interest in the very basic question, at to the effectiveness of the media themselves, ignoring content for the moment (Siegel, 1973:68).

McLuhan (1964:23), hence, classifies the media on the basis of level of lerner participation. According to Mcluhan, some media demand low level of learner participation, and called them as "hot media". Radio, movie and lecture are typical examples of hot media. And others are attributable to low definition, and labeled as "cool media." The very media are identified as cool by the presentation of meager amount of information and high participation level of the learner. Typical examples of cool media are TV, telephone, cartoon, chart etc.

The media have been referred to as being either static or dynamic, i.e., either they can or they can not depict motion. In other words, given a certain medium (hardware), the form of the message to be transmitted through it could be identified as either mobile or stationary (Green land, 1963:3). Hence, a particular medium could be named as still or dynamic, depending on the motion of the message to be communicated. Graphics, print and pictures, for example, are said to be still media, whereas films and film strips are among dynamic media (Kinder, 1959:156).

On the other hand, sensory channel classification (Romiszowski, 1977:61) presupposes an instructional medium as dominated by either of the sense organs, namely hearing, sight, touch smell, taste and kinesthetic. Although learners receive information via sight, hearing, touch, smell, taste, and kinesthetic, the degree of involvement varies; and hence, in most cases, the required learning experiences were acquired via the senses of sight and hearing (Culkin, 1978:5).

Audio media are known to communicate message via hearing. Although the media under audio vary, they include tape recorder, radio, and telephone (Kemp, 1974:14). Visual media, on the other hand, are those materials mainly designed to transmit messages via the sense of sight. Thus, visual media include pictures

(drawings, charts projectors) and concrete objects (the real thing, models, Mockups) (Green land, 1963:2).

The term audio-visual, on the other hand, depicts those media that posses the quality to involve both senses of sight and hearing (Haney, 1971:14). Television and video tapes could be cited as typical examples of audio-visual media. However, apart from this, in most cases, it is customary to call any instructional medium as audio visual media (Cross, 1961:8). In general, one would require a multi-dimentional classification and even if one could devise such a comprehensive classification, different people would no doubt wish to place particular media in different positions (Romiszowski, 1977:61).

On top of the aforementioned general nature, in practical sense, some media are exposed for external variables that affect their inherent qualities, namely legibility, clarity, sufficiency, physical condition, etc (Goltry, 1958:54). Appropriately designed materials should be : simple with all non-essential details eliminated. (Brown, 1989:208). In most cases, these qualities were associated with visual media, namely chalkboard, notes, charts, pictures, posters, etc.

Instructional materials are mainly located in resource centers, namely Audio Visual Center (Pedagogical Center) and library (Shores, 1960:34). The Awrajia Pedagogical Center (APC) is in charge of facilitating the role of instructional materials in teaching. APCs are centers of innovation ready to assist teachers in their problems to develop new ways and approaches to teaching, to produce models or prototypes that can be used by teachers as a point of departure for developing their own teaching aids (MOE, 1982:19). According to Brown (1985:70), the use of a wide variety of audio-visual materails enable teachers to provide more effective learning experiences for students. Amare (1995:165) says.

From the point of view of educational communications, it is arguded that the different medi complement and supplement, resulting in multi-media effect. Be it due to the effect of stimulating different perceptual nerve endings or due to the additional time required, multi-media approaches are found to be more effective in behaviour formation or change of behaviour.

Thus, th method of multi- media or cross-media presentation, i.e, the utlization of appropriate sequences of interrelated instructional materials, is liekly to reinforce or strengthen learning (Kempt, 1968:4; and Wittich, 1973:317). Multi - media, Brown (1969:593) says, is a methodology based on the principle that a varitety of audio-visual media and experiences correlated with additonal instructional materials reinforcing each other.

Environmental set-ups as well as curricular elements were given due consideration in the process of selection. However, these by no means could safe-guard instructional effectiveness unless the behaviour of the teacher is taken into account (Locatis, 1984:63). In other words, it is appropriate to say that even with the best buildings, well-printed books, high quality of instructional materials and bright students, the standard of education cannot be improved if the teacher is not competent and keen to teach (UNESCO, 1980:37). Thus the forthcoming topic will exclusively deal with the instructional behavior of elementary school teacher, i.e., the educational training as well as instructional performance in relation to selection and use of instructional media.

2.2. The Media and Elementary School Teachers Behaviour

For a long period of time, teacher education had been exercised in an incidental and haphazard manner (Kieffer, 1950:15). According to Tyler (1974:6), from time immemorial, teacher education programs undertook inconsistent and various forms, to meet the massive educational demand of the contemporary society. Thus, at best individuals were recruited as teachers after receiving instructional orientation of some kind, and at worst they were supposed to teach subjects with bare knowledge of instruction, indicating that the status as well as educational level of teachers varied greatly (Green land, 1966:34). Likewise, prior to 1958 many teachers in Ethiopia were employed to teach in the few subjects they knew; none of these had received teacher training and few had secondary schooling (MOE, 1972:7).

Since 150 years ago, in global terms teacher education departments have designed programs that are likely to be accomplished through regular (or pre-service) and on-job (or In-service) training's (Lasely, 1980:38). In comprehensive terms, in-service training is given to teachers who did not have enough preparation previously or those who have not up-dated their knowledge and skills (Agdew and Zawdneh, 1982:49) Though in-service programs could be adjusted for various purposes, the main concern of the paper lies on the program that is conducted for untrained teachers in the summer-vacation time.

The Department of Teacher Education (in the Ministry of Education) gave in-service education for untrained teachers, who were employed in elementary school, through regular vacation time courses (MOE, 1972:7). The intent of the program is, therefore, to mold (shape) practical experience of teaching in a systematic and organized manner through the guide of scientific approach of instruction (Green, 1966:34). In most cases, in Ethiopia, three summer-vacations were required for elementary teachers' certification (Junge and Beyene, 1971:70).

The pre-service program, on the other hand, recurited fresh participants who had completed grade twelve (Agdew and Zawdneh, 1982:49). The pre-service program was dominated by theoretical knowledge of instruction that are likely to be

practiced later, at the time the novice-teacher starts teaching (Johnston, 1994:199). Toward effective instruction, therefore, pre-service training should be strengthened by experiencing teaching and educational innovations through in-service programs. In the Ethiopian context, although the pre-service semester course was raised to a one-year course of one academic year, ERGESE (MOE 1986:19) recommended to extend the current program to two years. The study by Mekonnen (1993:48), suggets that about 69 per cent of pre-service trainees and above 89 percent of the teachers proposed two years for a completion of the already over loaded one-year program.

The premise upon which pre-service and in-service trainings' were founded was that the elementary teachers of any school were presupposed to receive their initial professional training through either of the pre-service or summer inservice programs, especially in the Ethiopian context. Pre-service as well as Summer - In-service trainings' rely on pre-service course designs (Trevaskis, 1969:13). The two main concerns (or issues) of the topic; namely the training program and the instructional performances of teachers were, therefore, examined in totality rather than the individual treatment of each of in-service and pre-service programs.

2.2.1 Pre-service and In-service Teachers Education and The Respective Media Courses

Elementary teacher training programs enable teachers to be professionals that are equipped with subject-matter knowledge as well as professional skills (Richet, 1979:49). The programs were designed to incorporate elements of modern instruction; namely methods, techniques and materials of instruction (Bierly, 1982:37). Course offerings in instructional media provide knowledge and skills in updated and relevant instructional materials (Hoke, 1950:115).

ERGESE (MOE, 1986:28) recommended some emphasis to be given to instructional media, and stated that: teachers must be trained in the theoretical and practical use of teaching aids and equipment inorder to make use of what is already

available in their schools. Training programs have theoretical and practical parts; where the former, which is accounted for the already acquired knowledge in classrooms, is exercised in the actual environment of schools as a sort of practicum (Goble, 1977:178; Johnston, 1994:199).

2.2.1.1 Theoretical Part of the Program

Much of teacher education of the past is charged to the conviction that teachers pick up information about materials incidentally in their method and subject courses (Shore, 1960:362). But such incidental learning has not turned out a generation of teachers with either the knowledge or confidence to use the wide range of materials and equipment available today (Descy, 1992:16).

Recognition of this fact has brought required courses in instructional materials into the teacher education program (Hoke, 1950:115). However, as various research studies revealed, the design of courses to be offered varies. For instance, as the finding of Kinder (1959) reveal among 240 teacher education institutions inU.S.A., The required audio-visual courses were offered at less than 25 per cent of the concern, elective audio - visual courses at almost 70 per cent and audio- visual units in other courses at 60 per cent of the schools. Thus, Kieffer (1950:17) says. "There is no one way of training pre-service teachers in the effective utilization of instructional materials. Such training by its very nature must be considered as a 'process' not an 'event'."

The Ethiopian elementary teachers training Syllabus of 1960 indicated Art and Visual Aids as a course that had been offered mainly to acquaint the trainee with the necessary knowledge and skills in producing visual aids (MOE, 1960:32). The content of the course, Art and Visual Aids, widely deals with practice of the skill of blackboard sketching, poster and map drawing, collecting and organizing other visual materials, and study of the value and uses of visual aid materials in teaching. Further recent publication in teaching materials for training of

primary teachers in Ethiopia indicated main groups of materials, namely, natural objects, audio-visual aids, textbooks and graphical teaching materails (Verlag, 1978:204).

For a number of reasons, it is justifiable to concentrate on training materials for the teachers to enable them adopt a more creative and imaginative approach in education (Unesco, 1978:53). Among the various topics in pedagogics, the principle of teaching and the principle of giving clear ideas during instruction, could be clearly conceived, if the presentation was accompanied by appropriate instructional materials (ICDR, 1979:21). Thus, accordingly to the research conclusion of Descy (1992), besides media course offerings, a teacher training program should develop the tradition of instructional media utilization.

By the use of visual aids (Melesse, 1992:121), the pre-service teacher trainees are expected to:

- realize the necessity of using visual aids in teaching
- be convinced to use real objects than models
- prepare visual aids from locally available materials. To this end, visual aids with regard to teaching English include real objects, models, charts and pictures, flash cards and flannel board.

Although no study area offers the full range of courses available, a fully organized primary in-service program (in African Countries that were treated by the study) would include preparation of materials and the use of library (Trevaskis, 1969:108). In specific context, for example, most of in-service participants (in Uganda and Sierralone) were given assistance in the preparation of teaching aids related to subjects of the primary school curriculum. Similarly a study conducted by UNESCO (1970:42) indicated radio, television, films and tape-recorders, and teaching notes among the pertinent instructional materials to train in-service teachers in Africa.

The course in Nigerian-summer-In-service teacher education includes demonstration lessons involving training in the construction and use of visual aids (Green land, 1967:124). Furthermore, what Nigerian teachers would benfit most is a consentrated course with imaginative use of modern teaching aids: tape-recorders, films and the like (Russell, 1967:115). In areas of practical learning, the experiences of the Sudan and Cameroon (Goble, 1977:140) indicated that the in-service trainees are expected to undergo various activities in instructional materials development such as the production of prototypes, textbooks and teaching materials.

2.2.1.2 Practice - Teaching

Practice-teaching enables the trainee to be oriented to the experience of teaching. An opportunity for the student to put his theoretical teacher training into practice under the guidance of an instructor (MOE, 1973). It is during student-teaching that the student has the opportunity of trying out his knowledge and theory by applying them to actual learning situations (Kieffer, 1950:18). Many teacher trainees believe that the practicum provides the only real learning of their teacher education programs (Johnston, 1994:199).

In the Ethiopian context, pre-service trainees of the primary program receive both practical and theoretical knowledge in the training room through peer observation and micro- teaching before their placement to school experience and for practice-teaching (Melesse, 1992:86). Through these types of practical teaching student-teachers, would exercise the selection and use of instructional media; and in the meantime receive feedback from their peer-mates and instructors.

On the other hand, inservice teachers were not exposed for these types of practical teaching. Instead, they practice the theoretical knowledge in their respective

schools, with the actual classroom and instructional subject matter, after the end of the second summer. However, the supervision or inspection of this session was very difficult and impractical (UNESCO, 1970:39).

Oliver (1962) conducted a research to find out the emphasis that could be placed on the effectiveness of various types of media for the program. The finding indicated that, if specific emphasis is placed of instructional media, the results will be reflected by the trainees. To this end, the research finding of Gibbony (1959) revealed that the trainees (in American Institutions) have shown a considerable performances in the use of instruction materials and pedagogical center. On the other hand, the finding of Burn (1965:156) revealed that, in the institutes visited by the committee into the Inquiry of African Education, in sufficient attention was given to practical teaching ability and the making of apparatus by the trainees. The rationale behind the inability to promote teaching- practice, for most of the institutes, was suggested to be large class size. To this end, Lemler (1950:52) says, "... in consequence of inadequate materials and lack of space, it is not possible, obviously, for student-teachers to have needed experience in the selection, preparation, and use of instructional materials."

2.2.2 Selection and use of Media among Pre-service and In-service Teachers

The instructional efficiency and effectiveness of a teacher is attributable to his/her teaching-experience and teacher-education (Romiszowski, 1977:58, Johnston, 1994:199). The former variable was not the concern of the paper, and was mentioned to indicate as distinct from the latter, hence needless to go through it. Teacher education as a variable, on the other hand, was the main issue of concern; and was exhaustively discussed under the foregoing heading. Thus, to add a little, teacher education program was designed, among other objectives, to produce teachers who are efficient and effective in the utilization of instructional materials.

As it was mentioned elsewhere in this chapter, at the end of the training program, the trainee is expected to: master the required knowledge in instructional media, show attitudinal changes in the use of instructional media, and show competent skill in the use of variety of instructional media. If so, the effects of the training programs could be reflected upon the practical instructional environment (Oliver, 1962). In other words, due to a change in behavior, the trained teacher uses a variety of materials, at his/her disposal, for more meaningful and permanent learning (Balogun, 1971:214).

Nevertheless, considerable number of trained teachers show variant mal-practices in media utilization ranging from the absence or rare presentations upto simple manipulative materials including the frequent use of common and traditional ones (NEA, 1967; Donelsory, 1970).

For instance, chalkboard, charts, posters, and models are common among teachers in their day-to-day instructional activities of classrooms (Brown, 1969:409). This is because, the media are at low price, easy to attain and use, many are relatively simple for teachers and students to make (Wittich, 1979:34). Thus, among other factors, the assumption behind the improper utilization and negligence of instructional materials could likely be the inefficiency of the training programs to promote behavioural changes. (Kieffer, 1950:19).

Lipitt and Fox (1974:135) say, "Training Programs should lend themselves to the realities of local school situations." Even though the scope of instructional media vary, the program should be flexible to impart accessible and available materials. In situational terms, computer and teaching machine are among the various types of instructional media; however, since these are not among either the accessible, or available ones (MOE, 1960:32), the program in our TTIs should devote insignificant training time to this end.

When the subjects of Gebregzebhier (1986: 51), inservice teachers, were requested to indicate the degree of the productivity of the program to the actual situation, six percent indicated either low, or nothing. To the same issue, as the finding of Mekonnen (1993:43) shows, 56 per cent of the preservice trainees and 60 percent of the teachers responded negatively. To this end, although greater proportion goes to pre-service than inservice trainees, in both programs dissatisfaction was perceived. Hence, Oliver (1962), contends teacher education programs on instructional media as Oliver (1962) contends, should recognize conditions in the schools for which the teachers have been trained.

The best training results from presentations that are simple and direct in approach. Thus, complex arrays, novelty gimmicks, and special effects are not likely to aid learning and may even serve as interference (Haney and Uller, 1980:17). Training methods must reflect, therefore, to a far greater extent, the way how attitudes and skills are acquired instead of reflecting a kind of blind faith in the written and spoken word (Fantini, 1974:192). Due to trainers special attachment to theoretical and verbal presentations, in most cases, the instructional methods of teacher training programs were inconvenient for the acquisition of required instructional skills (Allen, 1974:119). Since this has an impact upon the behaviour of the trainee, later, while exercising teaching, he/she too behaves the same way (Ariyadasa, 1976:38).

According to the perception of pre-service teachers, media course offerings of teacher education program do little to prepare teachers for the real classroom (Wittich,1979:4; and Lasely.1980:38). Similarly, when Surrey primary teachers were requested to indicate what special help should likely to offer for pre-service teachers, 75 percent indicated "help for preparation and organization of instructional materials." (Fantini, 1975:46). On the other hand, when Ghanian In-service teachers were requested to indicate the likely improvements to be made. with respect to training program, the response for most of them was the establishment of a tradition of exercising practical teaching (Dankwa, 1971:5). In audo-visual classes, inservice

teachers must learn first-hand-by doing; i.e., they must produce materials, collect and evaluate materials (Kinder, 1959:544). If we accept the doctrine that people "learn by doing." We must also supplement our instruction by providing prospective teachers with numerous opportunities to produce the skills of their instruction (Kieffer, 1950:16).

As it was mentioned in this chapter, the participants should be trained by exercising the use of library and the tools and raw materials in the development of indigenous products within the context of pedagogical center. When the subjects of Mekonnen (1993:51) were requested to indicate the efficiency of the TTI library, above 56 percent of the pre-service trainees and 66 percent of the teachers responded negatively. Further, 42 percent of the trainees have revealed that the services offered to them was low.

On the other hand, to indicate whether or not the trainees practice the use of instructional materials and pedagogical center, Gibbony (1959) conducted research among American Teacher Education institutions. As the findings revealed, therefore, in more than 85 percent of the institutes, the subjects employed instructional materials during student-teaching. Furthermore, 65 percent of the subjects made more than casual use of the instructional materials centers in their respective institutes. Nevertheless, according to the findings of the study made by the committee of Inquiry into African Education, many of the institutes visited by the committee gave insufficient attention to the practical teaching ability and the making of apparatus by the trainees (Burn, 1965:156). And further, according to the responses of pre-service teachers of elementary school, training program have shown weakness is developing skills that would enable to use community resources (Mulugeta, 1993:103).

A major concern of learning designs must be to activate link the cognitive, affective, and action aspects of the self. To effect this end, while demonstration and participation are more effective than lecturing, both verbal reinforcement and spaced practice in these tasks are needed (Avalos, 1981:111). Attitudinal change could be

manifested through the commitment the teacher makes, and, without such commitment on the part of the teacher, the chances of success are poor (Ariyadasa, 1976:7). In areas of instructional media, the commitment of the teacher enables him/her to invest time in the use of resource centers and in the production of media from indigenous materials (UNESCO 1975:136).

In some cases, teachers tolerate the problem of absence or scarcity of instructional materials by developing the required media from indigenous materials, mostly, by using raw materials and tools of the pedagogical center. In this case, the teacher's endurance and commitment were accounted for the extra-effort devoted for the purpose such as time and skill invested toward the procurement of the required material (Prawat, 1996:100).

CHAPTER THREE

III. DESIGN OF THE STUDY

3.1 Subjects of the study

The research project was designed to suit the instructional environment of schools located in Region 13. The Region was chosen for the fact that the researcher has adequate information and knowledge of the schools in the region than that of other regions.

Stratified random sampling was used in requirement of the sampling to serve as a representative of the population. A sample may be expressly chosen because, in the light of available evidence, it mirrors some larger group with reference to a given characteristics (Thorndike, 1977:207). To this end, schools were sampled using location (either urban or rural) and size (either big or small) as to the classification of Region 13 education bureau. A school located in either of the urban or rural area was typified as small if it exclusively runs an elementary program and if it was a recently founded school with inadequate educational facilities. A school was considered to be big, on the other hand, by the opposite attributes specified for the smaller school.

For further information, the researcher had made a preliminary survey of selected schools (pending on the classification points) and their respective teachers. The survey, with respect to the schools, was intended mainly to check the existence and the status of pedagogical center and library. Information concerning teachers stressed upon the types of their educational trainings (pre-service and in-service) and the comparative number.

The results of the survey revealed, hence, that the existence as well as organization of educational materials were in a good and promising mood in the urban than the rural and in the big than small schools. In addition, in most schools, the teachers trained in pre-service and in-service programs existed. However, pre-service teachers out-numbered their in-service counter-parts, and the number of inservice teachers increased as it was proceeded from rural to urban and from smaller to bigger schools. Thus, taking location and size as frame of references, twenty-one schools were randomly selected.

The next step, after the sampling of the schools, was to sample out the teachers that were likely to be included in the study. Stratified random sampling was employed, in the sense, stratification of teachers interms of pre-service and in-service, and then random sampling, on independent bases, among pre-service teachers, on one hand, and among inservice teachers, on the other, of each of the schools. The size of the sample was 283 teachers.

3.2 Methods of Data Collection

3.2.1 Questionnaire

The questionnaire consias of three sections. (Appendix c). The First section was about demographic accounts of the subject. It was comprised of nine information seeking questions of the types, age, sex, training type, etc. The Second section contains the items relating to the survey topics. This section was composed of open-ended and closed types of questions and the latter multiple-choice-items.

The Third and final section of the questionnaire was an attitude scale (a five-point Likert scale) ranging from strongly disagree to strongly agree. The main purpose of this section was to explore the attitudes of the teachers toward the subject matter of the study.

3.2.2. Direct Observation

Direct observation was intended to gather data about classroom instructional behaviour of instructors. Direct observation is a vital tool for studies like this, because it serves purposes such as checking the instructor's procedural presentation, the quality of the presented media and the type of presented media. To effect this end, observation checklist (or model) that was developed by Goltry (1958:55-59) was adopted in a way that suits the study. Thus, the final version of the format was composed of five parts and nineteen questions (refer to Appendix B).

Each of the five parts were headed by the following phrases in order of presentation on the format: general information concerning the teacher, the condition of the classroom, the state of presented media, and the behaviours of the learner and the teachers.

Among the detail issues raised by the instrument, the three questions of part III have much to do with the purpose the study was designed to accomplish. Part III sought information about the presented media, namely the types, the qualities, and the sources. The types of media were itemized as still, audio-visual, model, and real experience, the qualities as legibility, clarity, and sufficiency, and the sources as adopted, adapted, and borrowed.

3.3 Procedures

After consulting various reference materials and models, the questionnaire and the observation checklist were developed, on the bases of the following main points; each question is related to the topic under investigation, there will be clear and adequate coverage of the overall topic, and the questions must be clear and unambiguous (Mouly, 1963:253). To this end, experts on related areas (fields) checked the validity of the instruments, in which the correction coefficient r of the questionnaire was 0.84, and that of the observation 0.95 (refer appendix G). To improve the previous r scores and to arrive at these results, the researcher has opened discussions with the experts in which he elaborated the issues that seem to be vague and out of context. With suggested comments the instruments were improved and eventually made ready for pilot test (Pre-test).

The pilot test was conducted in one of the schools (which later was excluded from the sample selection) for the purpose of validation interms of practical use. To test the reliability of the instrument the test-retest method was used in which the first and the second tests were conducted within a two-week period of time. Repetition of a test is the simplest method of determining agreement between two sets: the test is given and repeated on the same groups within a short period of time, and the correlation computed between the first and second sets of scores. Hence, the reliability of the questionnaire, i.e, the correlation coefficient (r) was calculated to be 0.93. To support the stability of the instrument, correlation to be 0.90. are typical of those reported in the manuals for both the strong and the Kuder series (Thorndike, 1977:413).

After correcting the results of pilot test, the questionnaire was reconstructed on the basis of item analysis. Item analysis provides a basis for preparing better questions, by reviewing the responses of the previous items (Thorndike, 1977:251). With reference to difficulty, therefore, upon ten questions slight modifications and improvements were made, and six questions were discarded. The final version of the questionnaire was developed with the total sum of 39 questions.

To collect reliable data, judges were chosen and received orientation and training on separate occasions. Orientation was given, on one part, upon the process of distribution, and collection of questionnaires. About 276 (97%) questionnaires (more than 97 percent) were returned out of the distribution 283. This was the highest proportion of returns that enabled the study to use the data for the anticipated purpose (Good, 1963:283).

Training concerning classroom observation was conducted. Observers were selected on the basis of their professional status as well as teaching experience. The training of the observers is a crucial factor to increase observers agreement topossible a maximum (Hilum and Cane, 1979:43). Inter-agreement of judgment was calculated using objectivity coefficient (O.C.) developed by Smith and Meux (1964):

$$O.C = \frac{\text{Number of code agreement}}{\text{Number of units coded}}$$

Thus, the result of the O.C., 0.76, is above the critical point (i.e. 0.5) for supporting the judgment made. Out of the intended 84 classroom observations 78 (or more than 92 per cent) were carried out successfully.

3.4 Methods of Data Analysis

Data gathered through the questionnaire and observation were catagorized interms of: frequency or percentage and chi-square. To analyze, thus, two statistical instruments were employed: t-test and Chi-square (X^2).

t-test was employed to compare mean attitude scores of the two groups, pre-service and in-service teachers. The t-test is most commonly used to examine whether or not two groups are significantly different from one another (Cozby, 1989:138). Chi-square, on the other hand, was used to compare data of the two groups secured through observation and questionnaire. When subjects have been measured using a

nominal scale (that have no numerical or quantitative properties), the appropriate test is a chi-square test (Cozby, 1989:15). Hence chi-square was necessitated to indicate whether the difference observed was significant or not (Hopkins and Glass, 1978:302). All differences were tested at the 5 percent (alpha 0.05) level of statistical significance. Alpha (α) 0.05 level of significance was selected because, it is neither too high nor too low for most social and educational research (Kerlinger, 1964:54).

CHAPTER FOUR

IV. Presentation and Analysis of Data

In this chapter the data were presented, analyzed and interpreted. The chapter deals with two main topics, namely the opinion of teachers toward media, and pre-service and in-service teachers in media selection and use. However, before the immediate presentation of the respective topics, it is imperative to present some facts about the collected data and some aspects of the sample population.

As the research data were gathered through survey, questionnaire and direct observation of the actual classroom, the rate of return (or success) for the former was 97 percent, and that of the latter 92 percent. As a result, the summarized data of sample population is presented in Table I below.

TABLE I

Status of Sample Population (in Percent)

School Standard		Professional Status			
		Training Type		Teaching Experience	
		Pre-service-(N=207)	In-service (N=69)	Below 10 years (N=100)	10 years & above (N=176)
Location	Urban	87	90	83	90
	Rural	13	10	17	10
status	Junior	44	48	48	44
	Elementary	56	52	52	56

Table I shows the status of sample population interms of professional status and school standard. Thus, more than three-quarters of the pre-service as well as in-service teachers were drawn from urban schools. Among these, more than half of them were selected from elementary schools. On the other hand, experience wise, more than three-fourth of the subjects, namely below 10 years, and 10 years and above were

selected from urban schools. Among these, more than half of them were selected from elementary schools.

4.1 The Opinion of Teachers Toward Media

Respondents were asked to select the definition of media from among possible definitions. Their responses are summarized in Table II below.

TABLE II

General Notion of Media (in percent)

Possible Definition of Media	Respondents (N=276)	X^2
A Teaching aid	22	85.8
A teaching - learning aid	78	

As shown in Table II, just above three-fourth (78%) of the respondents believe that media is a teaching learning aid while a minority of the respondents (22%) believe that media is only a teaching aid. The proportion of respondents in the former category are substantially higher than the proportion of respondents in the latter category ($X^2 = 85.8$, $P<0.05$).

As recent literature and research findings on the perspective of media revealed, teachers explain instructional media from different angles, namely from the points of view of the teacher alone, or from the points of view of the whole instructional scene (Gilbert, 1982, and Leavitt, 1991).

Operationally instructional media are defined as a technique as well as a device that facilitate the teaching-learning process. In traditional sense, since instruction was considered to be a dominant task of the teacher, media was defined in conformity with this theme - as an aid for the teacher. That is, it is a material that helps the teacher to concretize the instructional lesson. Under this view, media

selection takes into account the belief that the lesson to be imparted becomes very difficult otherwise. The definition is limited in scope to materials that support the teacher in teaching and/or complement the instructional process by providing vivid evidences or substantial facts. As this was discussed elsewhere in the literature, the relative instructional materials are chalkboard, charts, posters, films, graphs, etc.

On the other hand, in its modern perspective and wider context, instruction takes into account the interests, needs as well as experiences of the learners as means toward instructional effectiveness; and further, it creates an opportunity for a two-way communication an interplay between the teacher and students. In this context, media are defined as "a teaching-learning aid." Consequently, media selection and use ought to operate under multi-faceted instructional activities. To this end, the substantive materials include programmed text, teaching machine, computer, radio, TV, etc.

Overall, the respondents' general notion of media seems to be consistent with the modern view. However, it could have been more promising had all teachers been of the same opinion.

On the other hand, subjects were requested to choose among the presented options of media-design the one that likely indicate respondent's habitual-experience. Their responses are summarized in Table III below.

TABLE III

The Design in Using Media (in percent)

Possible Options	Respondents	X^2
As part - and - parcel of the instructional Design	94	212
To use as far as the materials are around	6	

Table III shows that the overwhelming majority (94%) of the respondents have experienced media as part - and parcel of the instructional system, where as the minority (6%) have experienced in occasional circumstances. The proportion of respondents in the former category are significantly higher than the proportion in the latter category ($X^2 = 212$, $P<0.05$).

As the findings of different studies indicated, considerable number of teachers were exposed for occasional use and random selection of media. Thus, as the finding in the study made by ERGESE (MOE, 1986) revealed, among teachers sampled nation wide, only 4.1 percent used instructional media. Likewise, although ample options were at their disposal, most of the teachers in Addis Ababa that were included in the studies were not in a position to use instructional media (Amare, 1987). Further more, the finding of the study made by Jamison (1974) revealed that significant number of teachers that were included by the studies involved in random selection of media.

As a matter of fact, instructional media is considered to be part - and- parcel of an instructional system. Since due consideration is given from the start of the design, the process by no means encourages random and incidental selection. Although differenct factors could be suggested, among other things, the rationale behind the difference is the beliefs of the teacher toward media. As it was mentioned elsewhere, if the teacher does not believe in using media as a facilitator of the instructional process, he/she will be liable to random selection and occasional use. Unless they stand infront of the students and lecture, or unless they talk too much as if they are the only source of knowledge upon which students have to depend, some teachers fill discomfort. In other words, other source of knowledge that supplement or complement the human teacher receive insignificant attention among such teachers. To this end, the selection is accomplished randomly and the use is dedicated to fill the extra-instructional time left unused by the teacher.

In comprehensive terms, the finding of the study is in conformity with that of other studies mentioned under this issue. The experience of the subjects in designing media assumes to be consistent with the first option- media as part - and - parcel of the instructional system. If this proportion was raised to the extent of reaching the optimum, it would have created an efficient and effective instructional behaviour.

Among the factors that contribute to the development of efficient and effective instruction, the experience of teaching and the training of teachers are the main ones. To this end subjects were requested to select among the options the one that played the dominant. role in the formation of the desirable instructional behavior. Thus, the summarized form of the date is presented in Table IV.

TABLE IV

Source of Instructional Media - Knowledge (in percent)

Possible Source	Respondents (N = 276)	X^2
Teaching Experience	53	0.94
Teacher Training	47	

As shown in Table IV, the majority of the respondents (53%) believe in teaching experience as the main source of their media-knowledge, and less than half of the respondents (47%) believe in teacher training as the main source. The observed difference in proportion, however, was not statistically significant ($X^2 = 0.94$, $P>0.05$).

As a number of studies on the area indicate, considerable number of teachers show dissatisfaction in their teacher education experiences. For instance, the subjects of Lasely (1980) revealed, although much was expected of the teacher education program in the knowledge of media, little was practically achieved. On the other hand, in the research studies made by Wittich (1979) and Johnson (1994), subjects were requested to choose among training and experience in teaching, in order of importance each contribute for the development of desired behaviour in instructional media, most of the teachers were inclined to teaching experience.

Although the systematic apprehension of any knowledge is the cumulative effect of practical and theoretical experiences, one of them ought to play a greater role over the other, provided that the subjects were not equally exposed in time, space

and experience. In effecting appropriate instructional efficiency and effectiveness, teacher education as well as teaching experience have considerable impact upon the behaviour of the teachers.

The teacher begins his/her career of teaching either after receiving the required knowledge and skill from the respective teacher training or with almost no training; i.e, with bare knowledge of instructional behaviour. In specific terms, thus, the former is named to be pre-service teacher and the latter in-service teacher. As it was mentioned in the literature, most pre-service teachers believe in the program of teacher education as the source for their basic and prior media - knowledge. This is because, prior to any instructional experience, the teacher is likely to be exposed for the theoretical knowledge, nowhere but through the teacher training Program.

Apart from this, as practical experiences indicate, training programs were dominated by theoretical facts and abstract thoughts that were alien to the experience of the trainee. Hence, the complete and appropriate knowledge in the area becomes possible through the transformation of the theory into practice in the real instructional environment.

Each of the options have their contributions to make for effective utilization of instructional media. Not significant difference, implies, both are equally important in developing the desirable behaviour in instructional media. This seems to be consistent with the findings of the studies presented above.

4.2 Pre-service and In-service Teachers in Media Selection and Use

The main sources of data for this specific topic are the different sessions of the direct observation of the actual classrooms. Subjects are categorized relative to the item of the presented materials. The summarized form of the data are demonstrated in Table V below.

TABLE V

Media Common Among Teachers (in percent)

Items of Visual Media	Respondents		X^2
	Pre-Service	In-Service	
Two-dimensional	48	58	2.30
Model	31	25	
Realia	21	17	

Table V shows the different proportions of subjects, between groups as well as within each groups in the use of different items of media. Nevertheless, there is no substantial difference in proportion between groups ($X^2 = 2.30$, $P > 0.05$). Among both groups the proportion of subjects that employed two-dimensional materials was greater than the others to be followed by models and realia. Thus, further computation of chi-square indicated that the between - group difference was not significant.

In similar studies conducted at different times, teachers have shown differences in their application of media of various items. For instance, a vast majority of the subjects of NEA (1967) practiced simple manipulative materials. Further more, according to Brown (1969:409) and Wittich (1979:34), charts, posters, chalkboard and models were specific and common materials employed among the subjects of the studies.

The fact that more than half of the subjects employed two-dimensional media could be explained from two perspectives. First, the elementary teachers training programs for both In-service and Pre-service teachers are aimed at enabling the trainees to acquire the necessary knowledge and skill in producing and using visual aids, namely chalkboard, posters, graphs, charts, etc. In other words, although models and realia are among the contents of the course relative to media the aforementioned items were emphasized by extending the theoretical knowledge to the exercise of practical skill through the program of practice-teaching.

Secondly, the materials that were presented under two-dimensional materials and models were those that could easily be prepared by the teacher, or are available in a school pedagogical center, or easily organized. For instance, as it was indicated in the literature, two-dimensional still media were common among teachers and widespread among school pedagogical centers as compared to the remaining two. Hence, the aforementioned variables could have considerable impacts upon the selection and use of these materials.

The need for the presentation of various items, the qualities of media need due consideration in the process of selection and use. Subjects were observed with respect to the qualities of the presented media. The summarized data are presented in Table VI.

In conclusion, the finding of the study is consistent with the related studies presented ealier. If the theoretical as well as practical trainings of both programs present the bulk of accessible media-items, similar experiences seem to be observed in the actual instructional classrooms.

TABLE VI

Main Qualities of Media (in percent)

Qualities	Respondent				X^2
	Pre-service		In-service		
	Yes	No	Yes	No	
Legibility	75	25	52	48	11.0
Clarity	65	35	52	48	3.3
Attract Attention	65	35	62	38	0.2

Table VI shows the extent to which the subjects stressed upon the qualities of the media while making use of them. Here, differences were observed among subjects; and this difference was significant (X^2 = 11.0, $P<0.05$) between the two groups, preservice and in-service teachers. In other words, in giving due attention for legibility pre-service teachers excelled their in-service counter parts as a consequence of training programs.

The observed differences between pre-service and in-service teachers were not significant for the rest of media qualities. The within group computation indicates, a substantially higher proportion of encouraging features in the treatment of the

aforementioned qualities ($X^2 = 9.00$, $P<0.05$). A significant difference was observed among in-service teachers on the quality factor, "Attract Attention."

While teachers were in training , in addition to acquisition of knowledge from media course, they had opportunities to familiarize themselves with the likely qualities of materials through topics or units that were specifically designed to enlighten the importance of instructional media in the various subject areas. Thus, not a single course but a set of courses were responsible for the desirable behaviour of teachers in the area of instructional media.

Nevertheless, Practice - Teaching is a course that is mainly designed for pre-service training. As this was mentioned in the literature, due to this and other related factors in-service trainees were unlikely to acquire the experience anticipated of the course, Practice-Teaching. This fact is consistent with the finding in Table VI relative to legibility.

Toward the acquisition of skills of preserving the attributed qualities of media one has to go through recurrent exercise in the process of selection and use of materials. Training programs inspire guideline principles and laydown bases that could instill the desirable behaviour and reinforce application. In relative terms, if equally treated in practical teaching, legibility needed limited guidance and feedback and could be mastered within short period of time. And the rest qualities were likely to be mastered in exercise beyond the training session, in the actual teaching.

In sum, besides the greater proportion of subjects in preserving the attributed qualities of the media, in relative terms, pre-service teachers have performed better than in-service teachers in attaining these qualities.

For effective utilization of instructional media, the establishment of resource centers is an indespensible issue of concern. The sample schools were observed in terms of establishment of centers. To this end, the summarized data are presented in Table VII below.

TABLE VII

Availability of Resource Centers (in percent) in Sample Schools

The Type of the Center	Schools (N=21)		X^2
	Not Established	Established	
Library	62	38	16.2
Pedagogical Center	33	67	

As Table VII depicts, among the sample schools of the study, in 38 percent of the schools libraries were established, and in 67 per cent of the schools pedagogical centers were established. The proportion of the schools in the latter category is substantially higher than the proportion of schools in the former category (X^2 = 16.2,$P<0.05$).

This result is in-consistent with the findings of ERGESE (MOE, 1986) which revealed the absence of resource centers in most of Ethiopian schools. The study however, indicated that the available resource centers are poorly organized.

Resource centers, namely pedagogical centers and libraries are hosts of enormous activities, experiences and materials which are instrumental to promote instructional effectiveness. Among the enormous activities, for instance, the centers serve as reference sources as well as centers for producing required instructional materials. To effect this end, the centers should retain minimum standard to be met That is, the centers should be, accompanied by appropriate facilities, equipment and organization.

In practical instructional environments, school pedagogical centers serve below the required standard. Thus, in one way or another the required materials may not be found ready-made in the centers. Consequently, the execution corners to serve some of the purposes. In one way or another, the required materials may not be found ready-made in the school centers. Consequently, the execution of the required materials could only be possible through either borrowing or local production.

TABLE VIII

Selection and Use of Materials (in percent)

Source of	Respondents		X^2
	Pre-service	In-service	
Borrowing	40	62	9.9
Locally Produced	60	38	

As shown in Table VIII, greater proportions, namely 62 percent of In-service teachers and 60 percent of pre-service teachers were involved in selection and use of materials out of their schools and within their schools respectively. That is, substantially higher proportions of subjects in each category experienced different sources of the required materials ($X^2 = 9.9$, $P<0.05$).

As studies conducted at different times indicate, in the use of resource centers at different levels teachers have shown differences. For instance, as to NEA (1970), in the selection of materials at different levels, 57 percent of the subjects were involved at school level where as 31 percent were involved at local level. On the other hand, according to NEA (1968:16); Brown (1969:2); and Amare (1987:5), the subjects included by the studies have shown low level of participation in the pedagogical centers of their corresponding schools.

In the absence of ready-made materials, the process of selection and use is accomplished by consulting different sources, namely school pedagogical centers

(SPCs), neighboring schools, or Awraja Pedagogical Center (APC). For some teachers, the chief sources of required media are neighboring schools or APC. Other teachers exclusively depend on SPCs for the delivery of required media. Among other things, teachers use their skills while adapting the existing materials to the required purpose, or producing the medium using local materials and the tools of the centers.

The acquisition of practical skills in the selection of media was subject to practice in the use of pedagogical center, however, as it was mentioned in the literature, in most training institutions the centers were not in a capacity to either aid or accommodate the group of trainees in their practical - teaching . Consequently the prospective teachers lack the knowledge in the very essence of the centers as well as the use of the tools in the center for required purpose.

Although no research evidences or authoritative statements were available, as to the researcher's practical experience in TTI (1979-1985 E.C.), due to overpopulated instructional classrooms as well as over-crowded program, in-service teachers were unable to exercise resource centers. The fact that in-service teachers had lower participation in the production of local materials was indicative of the earlier experience; and hence, resort to use resources outside their schools.

In Conclusion, the finding of the study is consistent with the results of the studies indicated above, in that the experience of selection was examined in terms of the different sources as well as the degree of involvement in the use of schools pedagogical centers. Further, most pre-service teachers were accustomed to SPCs where as their in-service counter parts were accustomed to borrowing as the main source of selection.

Attitude, one of the major components of instructional behaviour, influences the selection and use of media postively or negatively. The attitude of the subjects were, therefore, assessed in terms of the data secured through attitude scores. Thus, the summarized form of attitude scores are presented in Table IX.

TABLE IX

Attitudes of Pre-service and In-service Teachers Toward Media

Training Type	Attitude score		
	Mean Score X	Standard Deviation Sx	t
Pre-service	41.3	6.40	2.67
In-service	38.9	6.54	

($t = 2.67$, $P<0.05$)

As shown in Table IX, differences were observed between the groups relative to mean scores (X). And the greater mean scores was earned by preservice teachers (X=41.3). That is, the mean score of pre-service teachers is substantially higher than that of the in-service counter parts ($t=2.67, P<0.05$).

As studies concerning instructional media indicate, the attitude of teachers were manifested in different ways. As to Kilgor (1979:12), subjects revealed that teacher education courses should be feasible in order to cause favorable attitude toward instruction. On the other hand, as to the studies of Gebregzebhier (1986), and Mekonnen (1993), most of pre-service and in-service teachers were dissatisfied with the feasibility of respective teacher training programs.

Favorable attitude could be developed through the programs of teacher training and the practice of actual instruction. Training programs laydown foundations by designing courses that are feasible to the localities of the trainees and familiar to their experiences. The further development of instructional attitude could take place in the actual instructional situation.

In practical terms, a favorable attitude of media could be expressed in terms of diligent behaviour and instructional commitment of the teacher. Commitment strengthens action by transforming effort in to value and meaning. With regard to the study, the attitude of the subjects could be discussed in terms of the presentation of various items as well as the exploitation of resource centers.

In designing the available materials for the required purposes, much time and effort are needed. That is to say, appropriate selection and effective presentation presuppose enormous items at the disposal of the teacher and the various qualities to be met. As to the findings of the study, the presented media were limited in items, common among teachers and most of them were found to be ready-made (Table V). And in the preservation of the attributable qualities of the presented media, effort expenditure seems to be limited (Table VI).

On the other hand, in developing media from local materials, the commitment of the teacher is essential for the fact that it needs much time and effort on the basis of self-initiation. By using his/her spare-time, the teacher needs to involve in the school pedagogical center for preparation and organization of required materials. To this end, as compared to pre-service teacher, in-service teachers have shown low participation level (Table VIII). In other words, in the use of pedagogical centers for the purpose of localizing instructional materials in-service teachers were less in proportion to that of pre-service teachers.

In sum, the finding of the study is consistent with the studies by Gebregzebhier (1986) and Mekonnen (1993). That is, training programs have played limited roles in causing attitudinal changes in instructional media. If training programs have designed courses relative to the local environments and to the experiences of the trainees, the mean scores of both in-service and pre-service teachers would have been greater than observed scores

CHAPTER FIVE

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The technique as well as the materials of instruction have qualities to make learning experiences simple and concrete. As learning experiences are acquired through simple and concrete methods, this in turn paves the way for reliable and permanent learnings'. Instructional media plays a significant role in bringing about effective instruction in almost every levels of instruction. In specific terms, to benefit from the media children especially of the elementary school should be taught through the presentations of materials that have direct relations to the experiences of the learners.

On the other hand, according to the practical experiences of schools, instructional media were not appropriately employed. That is, the problems of selection and use of instructional media were common and widespread among teachers regardless of specificity in areas as well as levels of educational environments.

The purpose of the study was, to investigate the instructional behviour of teachers in the selection and use of media. To this end, the study posed the following basic questions:

1. Is there a difference among teachers in opinion on to instructional media?
2. Is there a statistically significant difference between pre-service and in-service teachers in .

2.1 the presentations of various items of media?

2.2 the preservation of attributed qualities?

2.3 the use of resource centers?

2.4 the attitude toward media?

Subjects of the study were 276 certified elementary school teachers of region 13, among which 207 were pre-service and 69 in-service teachers. Data on instructional behaviour of subjects were gathered through survey questionnaire as well as direct observation of actual classrooms. Furthermore, the data gathered were processed for the purpose of interpretation using statistical instruments, namely chi-squire and t-test. The Findings are as follows:

1. In defining instructional media, the greater proportion of subjects (78%) were inclined toward media as a teaching - learning aid (Table II).Likewise, in their experience of selection and use of media, the over-whelming majority (94%) have indicated their experience as part-and-parcel of the instructional system.
2. Although not substantial, greater proportion of subjects (53%) favored teaching experience as a source of instructional media knoweldge. Thus remaining subject (47%) favored training as a source of their instructional knowledge. Thus, both sources seem to be almost equally important in instructional media knowledge.
3. The categories of subjects have shown no difference in their application of various items of media . However, within categories greater proportion of subjects, i.e., 48 percent of pre-service and 58 percent of in-service teachers have employed two-dimensional media.
4. Subjects were observed against the three main attributes of the presented media (Table 6). Thus, categorically a substantially higher proportion (75%) of pre-service teachers have fulfilled the required

qualities of legibility. However, no substantial difference was observed in the remaining attributes.

5. Resource centers were unevenly established within sample schools. Thus, as compared to libraries, greater proportion of schools (67%) have established pedagogical centers. In sorting out the frequent source of materials, substantially higher proportions of in-service (62%) and pre-service teachers (60%) have exercised borrowing and resources within school pedagogical centers respectively

6. With regard to attitudes toward media, subjects have shown considerable differences. More specifically, pre-service teachers appeared to have more favorable attitudes than in-service teachers. This is indicated by a statistically significant difference between the attitude scores of pre-service teachers ($X = 41.3$) and the attitude scores of in-serive teachers ($X = 38.9$).

5.2 CONCLUSION

1. As more than three-fourth of the subjects were selected from schools that were based in urban area, they have a better access for information, instructional innovations and various resources. On the other hand, since more than half of the subjects were selected from elementary schools (in most cases schools face insufficient facilities), they are exposed for inadequate services of resource centers of their respective schools.

2. Most of the subjects defined media as a teaching-learning aid, and experienced it as part-and-parcel of the instructional system. This implies, the opinion of most subjects was toward the broader, and accepted definition and experience of media design.

3. There are two major sources of instructiona-media knowledge, namely teaching experience and teacher training. These two sources were found to be almost equally important for instructiona-media knowledge.

4. In the selection and use of different items of media, among categories the exhibited differences were not significant. This implies, the differences were not created as a consequence of the difference in training programs. The fact that within categories there were significant differences were large imply that other factors, such as, teaching experience could influence selection and use of different items rather than thetraining programs.

5. There was a significant difference between pre-service and in-service teachers in the preservation of some qualities such as legibility. This implies that, training programs differed in imparting (acquisition of the skills) of the former quality where as either identical efforts were exerted upon or totally ignored the treatment of the latter qualities.

6. Substantially higher proportion of pre-service teachers have exploited school pedagogical centers. This implies that, training programs have shown differences in their esign toward developing the habit to use local products. By doing so, apre-service program, in practical sense, encourages curiosity, creativity, and the use of local resources for those materials that were not accessible and/or available in their respective schools.

7. The greater mean attitude score of pre-service teachers relative to their in-service counterparts indicates that pre-service teachers have developed relatively more favorable attitudes toward instructional media.

5.3 RECOMMENDATIONS

Based on the findings and the conclusion, the following recommendations were suggested:

1. In-service teachers have exerted limited efforts on meeting the required qualities of the presented media. The most of all, inadequate training on the area could be suggested as a means for the insufficient selection in appropriate used of the media, Hence, it seems advisable to establish the tradition of staff development programs within schools. Through staff development programs, teaching staffs share common ideas and experiences encountered instructional problems and the possible ways of tacking the problems.

2. In-service teachers numbered least in the use of local materials as alternative means of tackling the problem of absence of the required instructional materials. In order to develop the habit of using local materials, locally organized workshops and refresher seminars are appropriate and indispensable means of filling the gap. Hence, it is advisable for the local educational authorities to organize programs for the development of teachers' habits of localizing and adapting instructional materials for local use.

3. The teachers used limited items of instructional materials. In part, training programs of teachers have contributed for the observed instructional behaviour of teachers in media. Hence, programs should comply with modern principles of instruction. That is, practica knowledge in media that was based on the experience of the trainees.

The issues of instructional media are delicate and complex in nature and need careful treatment of the factors that influence the process of selection and use. Toward instructional effectiveness, the study recommends further research on the areas in depth as well as the treatment of other factors such as teaching experience.

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APPENDIX - A

Sample Schools Interms of:-

I. Location

	URBAN		RURAL
1.	Ras Mekonnen	1.	Dire Tayara
2.	Jegnoch	2.	Sigicha
3.	Arbegnoch	3.	Gelmeshira
4.	Menfesawi	4.	Harewie
5.	Bethlehem	5.	Soffi
6.	Luthran	6.	Burka
7.	Sengaber	7.	Abuker Mutti
8.	Hamaresa		
9.	Model one		
10.	Model Two		
11.	Yeshimebet		
12.	Islam		
13.	Kelad Amba Number one		
14.	Shenkor		

II. Status

	Small (Elem. School)		Big.(Junior & Elem.
1.	Model one	1.	Ras Mekonnen
2.	Model Two	2.	Jegnoch
3.	Yeshimebet	3.	Arbegnoch
4.	Islam	4.	Menfesawi
5.	Kelad Amba Number one	5.	Bethlehem
6.	Shenkor	6.	Luthran
7.	Dire Tayar	7.	Sengaber
8.	Sigicha	8.	Hamaresa
9.	Gelmeshira		
10.	Harawie		
11.	Soffi		
12.	Burka		
13.	Abuker Mutti		

APPENDIX - B

An Observation Checklist

Instructor's Classroom Performance

I. General Information

1. The Subject to be taught _____
2. Date _____
3. Section Observed _____
4. Length of the Observation period _____
5. The Number of Students _____
6. Name of Instructor _____
7. Type of Training _____

II. The Condition of the Classroom

	Variables to be Observed	Yes	No	Remarks
8.	Adequate seats			
9.	Appropriate seats			
10.	Class size in relation to the medium			
	10.1 Does the medium suit hearing, observing			
	10.2 Does the medium suit individual, small group of large group instruction			

III. The Presented Media

11. The Types

	11.1 Still Media	Y	N	R
	11.1.1 Chalkboard			
	11.1.2 Charts or posters			
	11.1.3 Handouts or Textbooks			
	11.1.4 Others			

	11.2 Audio-Visual Media	Yes	No	Remarks
	11.2.1 Radio			
	11.2.2 Tape Recorder			
	11.2.3 Television			
	11.2.4 Others			

	11.3 Models	Yes	No	Remarks
	11.4 Real Experience			
	11.5 Others			

12	The Qualities			
	11.1 Legibility			
	12.2 Clarity			
	12.3 Attract Attention			
	12.4 Sufficient (ratio)			
	12.5 Old			

13	The Source			
	13.1 Adopted			
	13.2 Adapted			
	13.3 Borrowed			

IV. Learners

14	Condition: does the medium conform to the age level as well as learning experience			
15	Do the learners react to the medium			

V. Teacher

16	Skillfully manipulated the medium			
17	Succeeded in repeatedly using the medium to clarify the lesson			
18	Encouraged learning through the presented medium			
19	Managed the procedural presentation (appropriately used the medium			

APPENDIX - C

አዲስ አበባ ዩኒቨርሲቲ

ካሪኩለምና እንስትራክሽን ትምህርት ክፍል

ዱህረ ምረቃ ፕሮግራም

አዲስ አበባ

አጠቃላይ መምሪያ፣

ይህ መጠይቅ የአንደኛ ደረጃ ት/ቤቶች መምህራን በትምህርት መረጃ መሣሪያዎች አመራረጥና አጠቃቀም ላይ ያላቸውን አስተያየት በመሰብሰብ ላይ ያተኮረ ነው:: በመሆኑም በዚህ ረገድ ባሉት ችግሮች አኳያ የመምህራን አመለካከት ምን እንደሚመስል መረጃዎችን ለመሰብሰብና ተስማሚ ሊሆኑ የሚችሉ የመፍትሔ ሃሳቦችን ለመጠቀም ነው::

በዚህ ረገድ ለዚህ ጥናት መሳካት እርስዎ ለመጠይቁ የሚሰጡት አውነተኛ ምላሽ ከፍተኛ አስተዋጽኦ ስለሚኖረው የተሟላ ምላሽ እንዲሰጡኝ አየጠየኩኝ ጊዜዎን ሰውተው ላደረጉልኝ ትብብር በቅድሚያ ከልብ የመነጨ ምስጋናዬን አቀርባለሁ::

በመጠይቁ ላይ ስም አጻፍ አያስፈልግም

መመሪያ አንድ፣

ከዚህ በታች ላሉት ጥያቄዎች አማራጭ መልሶች ለተሰጣቸው ☐ ምልክት በማስቀመጥ መልሱን ያመልክት:: አማራጭ መልሶች ላለተሰጣቸው በክፍት ቦታው ላይ አጭር መልስ እንዲሰጡኝ አጠይቃለሁ::

1. ጸታ ወንድ ☐ ሴት ☐

2. ዕድሜ _____

3. አሁን የሚያስተምሩበት ት/ቤት _____

4. የተመረቁበት መምህራን ማሰልጠኛ ተቋም _____

5. የሰለጠኑበት በየትኛው የመምህራን ሥልጠና ፕሮግራም ነው?

ሀ. በመደበኛ የመምህራን ሥልጠና ☐

ለ. በአረምት " " ☐

6. ለአምስተኛው ጥያቄ መልስ "ለ" ከሆነ ዝክታታይ ሥልጠናዎችን የወሰዱባቸው ዓመታት

1ኛ ዙር 19__ 2ኛ ዙር 19__ 3ኛ ዙር 19__

7. የሚያስተምሩት የትምህርት ዓይነቶች

1. _____ 2. _____ 3. _____

8. በሳምንት የሚያስተምሩት ክፍለ ጊዜያት ብዛት _____

9. በአጠቃላይ በመምህርነት ያገለገሉት ዓመታት _____

ክፍል አንድ፡

መጠሪያ ሁለት፡

ከዚህ በታች ላሉት ጥያቄዎች አማራጭ መልሶች ላሏቸው ፊደሉን በመክበብ ይጠቁሙ አማራጭ ላለ ተሰጣቸው ደግሞ አጭር መልስ አንዲሰጡኝ እጠይቃለሁ::

10. ከዚህ በታች ከተሰጡት አማራጮች ውስጥ የትኛው ከርስዎ የመርኃ መሣሪያ ትርጉም ጋር ይስማማል?

ሀ. መምህሩ በማስተማር ሂደት ሊረዳው የሚችል መሣሪያ

ለ. በመማር ማስተማር ሂደት ለመምህሩም ሆነ ለተማሪዎቹ አጋዥ ሊሆን የሚችል መማሪያ

ሐ. ከዚህ የተለየ ካለ _____

11. የትምህርት መርኃ መሣሪያዎችን ምን ጊዜ ነው ለንጠቀምባቸው የምንችለው?

ሀ. ከትምህርት ዝግጅት አንደኛው ክፍል በመሆና ቸው ዋን ጊዜም ለናስባቸው ይገባል::

ለ. መሣሪያዎቹ በአካባቢያችን አስካሉ ድረስ

ሐ. የተማሪዎችን ቀልብ ለመሳብ ስንፈልግ

12. በራስዎም ሆነ በአብዛኛው መምህራን በመዘውተር አንጻር ከዚህ በታች ያሉትን መረኃ መሣሪያዎች በቅደም ተከተል /1ኛ፡ 2ኛ/ ዐዘተ/ ያስቀምጧቸው

_____ ሀ. ቻርት _____ ለ. ፊልም _____ መ. ጥቁር ሰሌዳ

_____ ሰ. ምዴሎች _____ ረ. ትምህርታዊ ሽርሽር

13. ከዚህ ቀጥሎ ከተዘረዘሩት የመርሻ ሚዲያ ጠቀሜያቸ መካከል አርሰያ ትኩረት የሚሰጡት ለየትኛው ነው?

___ ሀ. ቀለብን ለመሰብ ___ ሐ. ለመጠቀም ያህል ሲባል

___ ለ. ተማሪያቸን ለማነቃቂያ ___ መ. ትምህርቱን በይበልጥ ግልጽ ለማድረግ

14. ከዚህ በታች ከተዘረዘሩት ውስጥ የትምህርት መርሻ መሣሪያ /ሚዲያ/ አይሆንም ብለው የሚገምቱት የትኛው ነው?

ሀ. የጠመኔ ሰሌዳ ለ. ትምህርታዊ ግብኝት ሐ. ኮምፒዩተር

መ. የለም

15. ከዚህ በታች ከተዘረዘሩት መካከል እንደትምህርት መርሻ መሣሪያ ምንጭነት አያገለግልም ብለው የሚገምቱት የትኛው ነው?

ሀ. ቤተመጻሕፍት /ላይብራሪ/ ለ. የትምህርት ማበልፀጊያ ማዕከል

ሐ. ሌላ _____

16. አርሰያ ለሚያቀርቡት ትምህርት በመረጃነት ያሰቡት መሣሪያ በአከባቢው በተገኙባቸው ጊዜያት ሁሉ አማራጮችን በተደጋጋሚ ተጠቀመ ወይ

ሀ. ከሌሎች በመ ወሰ ለ. በአከባቢው ካሉት ነገሮች በመሥራት

ሐ. ሌላ አማራጭ ካለ _____

17. ከዚህ በፊት በመ ወሰ ተጠቀመው ከሆነ ከነዚህ ውስጥ የትኛው ነው ያዘጋጀኸት?

ሀ. ከጓሮቤት ት/ቤቶች ለ. ከአውራጃው የትምህርት ማዕከል

ሐ. ሌላ ምንጭ _____

18. ትምህርት ቤትያ በትምህርት መርሻ መሣሪያያቸ አጠቃቀም በኩል አበረታች አገቅስቃሴያችን እያደረገ ነው ቢለው የሚገምቱት ከሆነ ከዚህ በታች ከተዘረዘሩት መካከል የትኛውን በይበልጥ ይመለከታል::

ሀ. ለቤተ መጻሕፍት የተለየ ትኩረት በመስጠት ማደራጀት

ለ. የትምህርት ማበልፀጊያ ማዕከልን በተሻለ ሁኔታ ማደራጀት

ሐ. በዚህ ረገድ መምህራን በቂ ግንዛቤ እንዲያገኙ ሁኔታዎች ማመቻቸት

መ. ሌላ _____

19. ከጉበዝ ተማሪዎች የተለየ አቀራረብን አድርገውን ሆነ አስበው ከሆነ ከነዚህ መካከል በየትኛው ፊደል አንጻር የተዘረዘሩት ይስማማቸዋል ይላሉ?
ሀ. ፊልም፣ ሬዲዮ፣ ቴሌቪዝን ቪዲዮ ለ. መጻሕፍት፣ ናቶች
ሐ. የተለያዩ የመዲያ ዓይነቶች መ. ሌላ _____

20. በ19ኛው ጥያቄ ሥር በተዘረዘሩት የሚዲያ ዓይነቶች /አማራጮች/ ለአዘጋሚ ተማሪዎች ይመጥናቸዋል ብለው የሚሉት ካለ የትኛው ነው? _____

21. የትምህርት መረጃ መሣሪያዎችን የሚያዘጋጁበት ጊዜ ከዚህ በታች ከተጠቀሱት መካከል በአብዛኛው እንደዋነኛ መስፈርት የወሰዱት የትኛው ነው
ሀ. የትምህርት ዓላማን ለ. የማስተማሪያ ዘዴን ሐ. ሌላ_____

22. ቀጥሎ ከተዘረዘሩት የትምህርት ዓላማዎች መካከል ለትምህርት መርጃ አመራረጥ አስቸጋሪ ይሆናሉ ብለው የሚገመቱት የትኛው ነው?
ሀ. የአንድን ህብረተሰብ ባህል፣ አኗኗርና ታሪክ ማሳወቅ
ለ. የአውሮፕላን ልዩ ልዩ አካላት ማስተዋወቅ
ሐ. የኤድስ በሽተኛ ከጤናማው ህብረተሰብ ጋር ተቀላቅሎ መኖር አንደሚችል ማስተማር

23. ቀጥሎ ከተዘረዘሩት የማስተማሪያ ዘዴዎች መካከል ለትምህርት መርጃ መሣሪያዎች አጠቃቀም በይበልጥ አመቺ ነው ብለው የሚገመቱት የትኛው ነው?
ሀ. ሌክቸር ለ. ኘሮብሌም ሶልቪንግ ሐ. ይመንስትረሽን

24. በ '23' ለመረጡት የማስተማሪያ ዘዴ አመቺ ነሉ ብለው በአብዛኛው ይጠቁሙባቸው ከነበሩት መርጃ መሣሪያዎች መካከል በመጠኑ ቢጠቀሱ

_____

_____

25. ለአርሰዎ የትምህርት መርጃ መሣሪያዎች አውቀትም ሆነ ግንዛቤ በይበልጥ አስተዋጽኦ አድርጌል ብለው የሚገመቱት ከነዚህ ውስጥ የትኛው ነው?
ሀ. የማስተማር ልምድ ለ. የመምህራን ማሰልጠኛ ትምህርት

26. በመምህራን ማሰልጠኛ ፕሮግራም የተሰጧቸው በማስተማር ዘዴ ላይ ያተኮሩ ኮርሶች የአርሰያን የመረጃ ሚዲያ አመራረጥና አጠቃቀምን አሻሽለዋል ይላሉ?

ሀ. አዎን ለ. አይደለም

27. <u>በይበልጥ</u> የአርሰያን የሚዲያ አይነቶች፣ አመለካከትና የአጠቃቀም ሥልት ለማሻሻልና ለማሰደግ መን መደረግ አለበት ብለው ይገምታሉ? በአጭሩ

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_____

28. በአከባቢዎ ባይገኙም ዘመናዊና አዳዲስ ናቸው ብለው የሚሉትን የትምህርት መርጃ ሚዲያ በመጠኑ ቢዘረዝሩ _____

_____

29. ሁኔታዎች ቢመቻቹ የትምህርት መርጃ ሚዲያን በመጠቀም ረገድ ወደ የትኛው ያደላሉ

ሀ. መን ጊዜም ትምህርት ቤቱ ወይም ማዕከሉ በተለያዩ ሁኔታዎች /በግቢ፣ በሰፓታ በአርዳታ/ ካገኛቸው መሰሪያዎች መካከል መምረጥና መጠቀም <u>አማራጭ የለውም</u>

ለ. በ "ሀ" በተጠቀሰው መሰሪያዎች የማይገኙ ከሆነ ከአከባቢው ከሚገኙ ቁሳቁሶች የሚፈለገውን ዓይነት በመሥራት መጠቀም

ሐ. በ "ሀ" ከተጠቀሰው ይልቅ አስመስሎ መሥራት ይበልጥ ለትምህርት አሰጣጥ አመቺ በመሆኑ <u>መን ጊዜም</u> ከአከባቢው ቁሳቁስ የሚሰራት መረጃዎች አማራጭ አይኖራቸውም::

		በጣም እስማማለሁ	እስማማለሁ	አቋም የለኝም	አልስማማም	በጣም አልስማማም
36.	በመምህራን ማሰልጠኛ ውስጥ የተማርኳቸው የትምህርቶች የሚዲያ ዝንባሌዬን አጉልብ ተውልኛል::					
37.	የትምህርት ሚዲያ ካለው ጠቀሜታ አኳያ ምን ጊዜም መምህራን በአ መራረጡና አጠቃቀም ስልት ትኩረት ሊሰጡት ይገባል					
38.	ካለ የትምህርት መረጃ መሣሪያዎች ቀንበር ከመማር የሚገኘው ውጤት አጠርቂ ነው ማለት ያዳግታል::					
39.	ከመምህራን ማሰልጠኛ ካገኘሁት ይልቅ በማስተማር ሥራ ላይ ያካበትኩት እውቀት ለትምህርት መረጃ አጠቃቀም ይበልጥ አስተ ዋጽኦ አድርጎልኛል					

<u>ክፍል ሁለት</u> የዝንባሌ መለኪያ

<u>መመሪያ፡</u>

ከ30–40 ለተዘረዘሩት ዓረፍተ ነገሮች ያለዎት ዝንባሌ ምን እንደሚመስል ለማመልከት እባክዎን የ" " ምልክትን በምርጫዎ አንጻር በመናር ያስፍሩ፡

	በጣም እስማማለሁ	እስማማለሁ	አቋም የለኝም	አልስማማም	በጣም አልስማማም
30. የትምህርት መርጃ ሚዲያ ለመጠቀም በሚቀዴበት ጊዜ በአብዛኛው የትምህርት ማበልፀጊያ ማዕከላትንና ቤተመጻሕፍትን እጠቀማለሁ					
31. የትምህርት መርጃ ሚዲያን በመምረጥና በማዘጋጀት አብዛኛውን የእረፍት ጊዜዬን እጠቀማለሁ					
32. የትምህርት መርጃ ሚዲያ አጥረትና በአከባቢው አለመኖር ችግርን ለመወጣት በተደጋጋሚ በአከባቢው ከሚገኙ ነገሮች ተመሳሳዩን በመሥራት እጠቀማለሁ					
33. ለማስተምረው የትምህርት ዓይነት የምጠቀመውን ሚዲያ ዓይነትና ብዛት ይወስናል					
34. ለውጤታማ የመማር ማስተማር ሂደት የተወሰኑ ሚዲያ ከመጠቀም ይልቅ የተለያዩ መረጃዎችን በመጠቀም አመርቂ ውጤት ያስገኛል					
35. የትምህርት መረጃዎችን ለመጠቀምና ላለመጠቀም ወሳኝ የሚሆነው የማስተምረው የትምህርት ዓይነት ነው					

APPENDIX - D

TABLE 10

Individual Items of Presented Media During Classroom Observations

	Visual Media
Classification	Individual Item
Still media	Chalkboard, pictures of different Objects, flash, cards, drawings, posters with flannel board, text-books, maps
Models	Globe, models of geometrical figures, models of human anatomy
Realia	Desks, Chairs, Sticks and pebbles, plants and insects of different species

APPENDIX - E

TABLE 11

Chi-Square Test for the Data Relative to Tables in Chapter Four

Table No.	f_o	f_e	$f_o - f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/te_i$	x^2
II	22	50	-28	784	15.68	85.8
	78	50	28	784	15.68	
III	94	50	44	1936	38.72	212
	6	50	-44	1936	38.72	
IV	53	50	3	9	0.18	0.94
	47	50	-3	9	0.18	
V	1.1	48	53	-5	25	0.47	2.30
	1.2	31	28	3	9	0.32	
	1.3	21	19	2	4	0.21	
	2.1	58	53	5	25	0.47	
	2.2	25	28	-3	9	0.32	
	2.3	17	19	-2	4	0.21	
VI	1.1	75	63.35	11.65	135.72	2.14	11.0
	1.2	25	36.5	-11.5	132.25	3.60	
	2.1	52	63.35	-11.35	128.82	2.0	
	2.2	48	36.5	11.5	132.25	3.60	
	1.1	65	58.5	6.5	42.25	0.72	3.3
	1.2	35	41.5	-6.5	42.25	1.1	
	2.1	52	58.5	-6.5	42.25	0.72	
	2.2	48	41.5	6.5	42.5	1.1	
	1.1	65	63.5	1.5	2.25	0.04	0.20
	1.2	35	36.5	-1.5	2.25	0.06	
	2.1	62	63.5	-1.5	2.25	0.04	
	2.2	38	36.5	1.5	2.25	0.06	

Table No.		f_o	f_e	f_o-f_e	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$	x^2
VIII	1.1	40	51	-11	121	2.41	
	1.2	60	49	11	121	2.47	
	2.1	62	51	11	121	2.41	9.9
	2.2	38	49	-11	121	2.47	

N.B. 1.1, 1.2, 1.3 represent Pre-Service

2.1, 2.2, 2.3 represent In-Service.

APPENDIX - F

T - Test Computation

Pre-Service Teachers

$x_1 = 8559$

$x_1^2 = 357,029$

$n_1 = 207$

$\bar{x}_1 = 41.3$

$S_1 = 6.4$

Inservice Teachers

$x_2 = 2681$

$x_2^2 = 107,129$

$n_2 = 69$

$\bar{x}_2 = 38.9$

$S_2 = 6.54$

t-test

$$S_p^2 = \frac{(n_1-1)\,S_1^2 + (n_2-1)S_2^2}{n_1 + n_2 - 2}$$

$$= \frac{206 \times 41.68 + 68 \times 42.88}{274}$$

$$= \frac{11,501.91}{274} = 41.98$$

$$t = \frac{(\bar{x}_1 - \bar{x}_2) -}{S_p^2 \left(\frac{1}{n_1} + \frac{1}{n_2}\right)^1}$$

$$= \frac{41.3 - 38.9}{41.98\left(\frac{1}{206} + \frac{1}{68}\right)}$$

$$= \frac{2.4}{\frac{2875.63}{3502}} = \frac{2.4}{0.9}$$

$$= 2.67$$

t - Calculate = 2.67

t - observed = 1.97

$D_f = 274$

t 0.05

Statistically Significant.

x,y Stands for two Experts

APPENDIX - G

Questionnaire Rol.No.	Rating							
	Strongly Agree 5	Agree 4	Indifferent 3	Disagree 2	Strongly Dis-agree 1	xy	x^2	y^2
10	x		y			15	25	9
11		y			x	4	1	16
13	y		x			15	9	25
14		y	x			12	9	16
15	x,y					25	25	25
16		x			y	4	16	1
17		x			y	4	16	1
18	y			x		10	4	25
19	y	x				20	4	25
20	y		x			15	9	25
21	y		x			15	9	25
22	x		y			15	25	9
23	y			x		10	4	25
24		x			y	4	16	1

Validity

$xy = 380$

$x^2 = 449$

$y^2 = 454$

$$r = \frac{xy}{x^2 \; y^2}$$

$$= \frac{380}{4515}$$

$$= 0.842$$

Questionnaire Rol.No.	Rating							
	Strongly Agree 5	Agree 4	Indifferent 3	Disagree 2	Strongly Dis-agree 1	xy	x^2	y^2
25	x			y		10	25	4
26		y			x	4	1	16
27	x			y		10	25	4
28		x	y			12	16	9
30	y			x		10	4	25
31		x	y			12	16	9
34	x			y		10	25	4
36	x	y				20	25	16
37	y			x		10	4	25
38		y	x			12	9	16
39		x	y			12	16	9
40	x,y					25	25	25
41		x			y	4	16	1
42		x		y		8	16	4
43	y	x				20	16	25
44		y	x			12	9	16
45			y	x		6	4	9
46	x		y			15	25	9

APPENDIX - C

Observation	Strongly A 5	Agree 4	Diff. 3	Dis-a. 2	Strong.dis 1	x_y	x^2	y^2
8			x	y		6	9	4
9	x		y			15	25	9
10	y	x				20	16	25
11		y	x			12	9	16
12		y	x			12	9	16
13	y	x				20	16	25
14	x		y			15	25	9
15	x		y			15	25	9
16	y	x				20	16	25
17	y	x				20	16	25
18		y	x			12	9	16
19	x,y					25	25	25

Validity

$xy = 192$

$x^2 = 200$

$y^2 = 204$

$$r = \frac{xy}{x^2\ y^2} = \frac{192}{202} = 0.95$$

APPENDIX - H

Reliability of the Questionnaire

Ro.No. of Students	Tests' Results		xy	x^2	y^2
	First Test x	Second Test y			
1	54	87	4698	2916	7569
2	67	94	6298	4489	8836
3	63	81	5103	3969	6561
4	79	54	4266	6241	2916
5	57	89	5073	3249	7921
6	76	84	6384	5776	7056
7	67	85	5695	4489	7225
8	84	58	4872	7056	3364
9	79	13	1027	6241	169
10	45	72	3240	2025	5184
11	49	82	4018	2401	6724
12	79	53	4187	6241	2809
13	80	61	4880	6400	3721
14	61	86	5246	3721	7396
15	73	86	6278	5329	7396
16	81	69	5589	6561	4761
17	88	73	6424	7304	5329

$xy = 83,278$

$x^2 = 84,408$

$y^2 = 94,937$

$$r = \frac{xy}{x^2 \; y^2} = \frac{83278}{89517.83} = \underline{0.9303}$$