REVIEW OF RELATED LITERATURE

2.1 Audio and Radio Programmes

2.2 Video and Educational Television Programme

2.3 Environmental Education Studies

2.4 Development and Validation of other Innovative Programmes

2.5 Formulation of the Problem
CHAPTER – II

REVIEW OF RELATED LITERATURE

A research work is not meaningful without a thorough analysis of related works. Search for related literature should be complete before proceeding with the actual conduct of the study. According to J. W. Best (1977) a familiarity with the literature in a problem area helps the research to discover what is already known, what others have attempted to find out, what method attacks have been promising and what problems remain to be solved?

Practically all human knowledge can be found in books and library. So, extensive use of the library and thorough investigation of related literature are essential for planning and carrying out the relevant research work.

It has been already stated in the previous chapter that the present study is an attempt to develop Teaching Environmental Studies through Audio–Video / Computer software package for III, IV Standard Students. Hence, this chapter is devoted to the review of related literature.

2.1 Audio and Radio Programmes:

Problem: It attempts to study the school broadcasts in Baroda with a view to assess its quality and relevance to school syllabus.

Objectives: (i) To assess the production of school broadcast programmes (SBPs), (ii) to assess the utilization of SBPs in the secondary schools of Baroda District, and (iii) to study the quality and relevance of SBPs to the school syllabus.

Methodology: The sample comprised 165 heads and teachers of all the high/higher secondary schools of Baroda District, and the personnel of AIR, New Delhi and Ahmedabad, of the State Institute of Education, Ahmedabad and of the H.M. Patel Institute of English Training and Research. The tools used included questionnaires and interviews. The collected data were treated by frequency, percentage analysis and content analysis.

Major Findings: (1) Production of SBPs: All programmes except tele-programmes were planned and produced by the Producer Educational Broadcasts, AIR, Ahmedabad. The commonly used broadcast formats were: talk, dialogue and discussion. Scriptwriters received no training orientation. A yearly schedule of SBPs along with brief outlines of the radio-lessons was published in the SIE journal. AIR had little co-ordination with other agencies. (2) Utilisation: (a) about 85% schools had a radio set of their own; (b) one-fifth of the schools provided for SBPs in their timetable; (c) about 45% schools had pre and post-broadcast activities, and (d) the actual utilization of SBPs was much less than what was reported. (3) Perceived Relevance: (a) the speed of programme delivery, the language level and suitability to the grade level were satisfactory; (b) the
teaching points were not logically sequenced and the discussions were uneven; (c) two-thirds of the programmes were related to the school syllabi; (d) the radio-lessons seldom went beyond the textbooks; and (e) 40% to 50% of the lessons in the textbooks were brought under SBPs during the academic year.


Problem: The study aims at obtaining feedback of educational broadcast from the beneficiaries.

Objectives: (i) To enable teachers to improve their teaching skills and to improve the classroom teaching-learning situations, and (ii) to enrich the experience of both the teachers and the pupils by familiarizing with the latest information on educational innovations.

Methodology: The sample consisted a panel of listeners of radio broadcasts and teachers drawn from schools located in Shillong. Two sets of questionnaires were prepared on each for use with the listening panel and the teachers. Percentages were used to treat the collected data.

Major Findings: (1) The majority of respondents preferred the afternoons for educational broadcasts, with the present 20 minutes duration. (2) The majority of respondents preferred dramatised programmes. (3) The academic content of the programme was found suitable; the language used was easy to understand; and the method of presentation, suitable. (4) Many of the respondents found the
programmes interesting as well as practically useful. (5) Among the most preferred areas to be covered, the respondents desired emphasis on science, mathematics, language and educational psychology. (6) The majority of the teacher respondents listened to the educational broadcasts regularly, either at home or in the school. (7) The majority of the teachers found that the radio programmes helped them to improve their teaching to some extent. (8) Better utilization of radio broadcasts could be ensured if their time of presentation does not interfere with class work. (9) The majority of the teachers wanted more subjects like arithmetic/mathematics, the mother tongue, general science, general knowledge and social studies to be covered under the educational subjects. (10) Some suggestions were made regarding more broadcasts of the discussion and interview type.


Problem: The study attempts to critically analyse the primary school radio programmes in Puri, Bhubaneswar and Cuttack Districts.

Objectives: (1) To study the effectiveness and impact of primary school radio programmes, (ii) to know the attitudes of children, parents, teachers and students towards the programmes, (iii) to assess the strengths and weaknesses of the programmes, and (iv) to assess the specific objectives of the programmes.

Methodology: The investigator randomly selected 25 subjects from Puri, Bhubaneswar and Cuttack. These 25 candidates represented different sections of the people, such as teachers, teacher-trainees, parents, and other government
employees. A questionnaire was used as the tool. The collected data were qualitatively treated.

Major Findings: (1) The maximum percentage that is 46.1% of programmes was devoted to song programmes which were found interesting. (2) Stories based on the lives of eminent personalities from mythology and folk-culture were interesting. (3) The parents were of the opinion that their children liked the programmes but could not grasp the meaning because of the use of difficult words. (4) Quiz and talk programmes were not appreciated by the children. (5) The presenters were not giving due attention to clarity of voice and speed of the talk. (6) Sound effects helped to create illusions which words alone could not convey. (7) Children liked to listen to programmes based on child characters. (8) The programmes were only knowledge-oriented. (10) Quiz and riddle programmes were not given due attention. (11) Child artists were not invited to tell stories. (12) Interesting discussion programmes were not broadcast during these days.


Problem: The study centres upon the problem of a critical appraisal of primary school radio programmes and their effectiveness for pupil's growth.

Objectives: (i) To identify the nature of the contents of primary school programmes broadcast by All India Radio, Cuttack, and to ascertain pupils'
growth, and (ii) to know about the suitability of language and format in respect of comprehension of the primary school programmes.

Methodology: The sample consisted of 400 children studying in Classes IV and V of rural and urban primary schools of Orissa. Out of the total primary schools of Orissa, 30 schools were drawn randomly. Boys and girls from both urban and rural areas were taken in experimental and control groups. The tools used comprised Comprehension Test to test language development, Knowledge of gain Test to measure cognitive growth, Aptitude Test of primary school teachers, and Interview Schedule. Mean, SD, 't'-test and percentage were used to treat the collected data.

Major Findings: (1) Almost all the formats of primary school programmes were moderately comprehended by the pupils. As such the level of comprehension was moderate though not satisfactory. (2) Feature/drama and story programmes received a high level of comprehension, whereas talks and poetry recitations were comprehended poorly. (3) Under experimental and control treatments in rural and urban settings it was revealed that the effect of exposure to radio had been rather unsystematic and small in magnitude, in general. (4) The criterion measures for the "gains" revealed that the difference between the experimental and control groups were significant, and the difference between the rural and the urban group was found to be highly significant. (5) Comprehension of the programme contents indicated that media programmes were only moderately comprehended and that there was no remarkable effect of the duration of exposure on the target audience.

**Problem:** It attempts to assess the impact of an audio intervention programme aiming to sensitise Anganwadi workers

**Objectives:** (i) To promote cognitive skills in children such as sequential thinking, problem-solving, concept-formation, (ii) to inculcate in children an awareness of their immediate environment, (iii) to develop in teachers/Anganwadi workers the skills to use the 'lay-way' activity method in teaching young children, and (iv) to develop in teachers/Anganwadi workers a positive attitude towards disadvantage children and also help to interact with children more actively.

**Methodology:** Out of the eight ICDS sectors of Kota, four sectors formed the experimental group and four formed the control group. A hundred Anganwadis each, formed the experimental and control groups. Similarly, twenty-five morning-shift government primary schools were selected for the experimental groups and twenty-five afternoon-shift schools formed the control group. Audio programmes were prepared keeping in view the developmental level and the abilities of children, and the needs of the community. A guidebook for each programme was prepared containing details of each programme. Radio sets were supplied to the 100 experimental Anganwadis and to Classes I and II of the primary schools.

**Major Findings:** (1) The evaluation indicated that the children of the experimental group in the Anganwadis outshone their counterparts in the control group in listening comprehension, sequential thinking, recall and vocabulary, concept of
colour and shape, awareness of immediate environment, awareness of cultural heritage and verbal expression. (2) The girls did as well as the boys in the Anganwadis and in Classes I and II of the primary schools. (3) No significant difference was found between the experimental and the control group children belonging to primary schools.


*Problem:* The research addresses the problems and prospects of the school broadcast programme.

*Objectives:* (i) To evaluate the modus operandi of the planning and production of school broadcast programmes, (ii) to study the extent of utilization of school broadcast programmes, (iii) to assess the effectiveness of the programmes and (iv) to study the barriers, if any, standing in the way of the planning, production and utilization of such programmes.

*Methodology:* A sample of one hundred and fifty-six schools, both from urban and rural areas was taken randomly for the study along with 50 students each for controlled and experimental groups. The tools used were questionnaires, interview schedules to educationists and radio personnel and a teacher-made achievement test to collect data from the students. Percentages and descriptive statistics were used to treat the data.

*Major Findings:* (1) Only 20.51% of teachers were trained by the department with regard to the use of radio in the classroom and writing scripts for radio. (2) Only
54.43% of schools in the urban, and 27.27% of schools in the rural sector had the provision of a separate period in the timetable for listening to school broadcasts. (3) In the urban sector listening regularly was done by 54.43% of schools, which was higher than the schools (37.6%) of the rural sector. (4) According to 30.77% and 69.23% of respondents, the facts presented in the radio broadcasts were covered in the textbook to the maximum extent, and some extent, respectively (5) The content covered through the programmes was fully understood by the students according to 15.38% of respondents; 83.98% of the respondents said that the students had understood the content to some extent. (6) The language used in the broadcast was simple for the students to the maximum extent, and to some extent, according to 23.72% and 76.28% of respondents, respectively. (7) The duration of the programme was adequate to the maximum extent, and to some extent, as opined by 12.18% and 57.69% of respondents, respectively; and not at all adequate according to 30.13% of respondents. (8) Highly stable percentages were found both in the urban (81.01%) as well as rural (74.92%) sectors confirming the usefulness of the broadcast programmes for teachers in their teaching work, as per the response of the teachers. (9) As per the views of the teachers (urban, 100% and rural 97.4%), the broadcast programmes were helpful to the students in their learning. (10) According to 66.47% and 33.53% of teachers, improvement of quality could be brought about in the school broadcast programmes if sufficient attention was paid, respectively, to the production and the presentation of the programmes.

Problem: It attempts to study the utilization and effectiveness of specially prepared audio cassettes in village primary schools for language development and listening comprehension.

Objectives: (i) To study the management strategies to achieve the objectives, (ii) to study the problems involved in converting a broadcast mode into a cassette mode and to identify the steps to be taken, (iii) to study the teachers’ acceptability of the media, and (iv) to identify the types of programmes understood, remembered and repeated more often than others and to identify their production characteristics.

Methodology: The sample comprised 450 primary schools of Hoshangabad District of Madhya Pradesh, 900 teachers, and 34,345 students of Classes I, II and III for three years. The tools used included 308 programmes, 17 audio cassettes and 500 two-in-one tape recorders. The tools used included questionnaires, observations and recording of children’s responses. The collected data were treated using percentage, averages and ranking.

Major Findings: (1) The children were able to tell the stories and sing the songs they had heard as a part of the project, where the songs had simple tunes and the stories were narrated in direct, uncomplicated formats. (2) Children wanted to listen to more such programmes. The programmes were enjoyed as being
entertaining in spite of having been produced with definite learning objectives for language learning. (3) The content analysis indicated that the best liked programmes had segments of songs and stories, question-and-answers which were 'activity-oriented'. (4) The learning points were repeated in the different segments of a programme; the production followed the scripts with care.


Problem: It attempts to review educational broadcasting research, analyse trends and provide future directions.

Objectives: (i) To take an overview of educational-broadcasting research, (ii) to observe current trends in educational-broadcasting research, and (iii) to explore the potential thrust areas of such research.

Methodology: The study is based on the survey of newspapers, printed reports, journals, etc.

Major Findings: The following themes were suggested as potential thrust areas of educational-broadcasting research (EBR) in India.

(1) School Broadcasting: There is much scope to study the role and relevance of educational broadcasting in India. This would be certainly useful for improving the standards of school broadcast programmes. The relevant use of the programme schedules can be assessed by considering pre and post-telecast effects.
(2) **Comparative Study**: Comparative studies can be conducted to assess the educational broadcast programmes in South Asian countries. The SAARC platform can be used for preparing a common model. African countries also can be studies in this light. This would evolve a Third World model. The UGC programmes such as the country-wide classroom can be properly assessed and evaluated to make them more suited to Indian conditions.

(3) **Co-ordination Research**: There is a need to co-ordinate radio and television educational programmes, both leading to a common effect. Co-ordination between these two potent medias can be fruitful in the propagation of new values as highlighted in the New Education Policy.

(4) **Evolving Educational Media Criticism**: As educational-broadcasting is growing, the press coverage is also growing, but the content on educational broadcasting is generally anti-electronic.

(5) **Fusion of Folk and Electronic Media**: There is a need for the fusion of the traditional folk media and the electronic media to improve the effect of educational programmes.

(6) **Indian Character and Broadcasting**: Special efforts must be made for the educational development of the poor and downtrodden classes. More relevant programmes suitable to Indian conditions may be evolved.

*Prakruthi, 2002, Documentation of Keli-Kali Radio Programme. DPEP Karnataka, Bangalore,*

*Problem*: To find out the impact and reach of Keli-Kali radio programme.
Methodology: The investigators prepared a separate questionnaire for the students, teacher, and community members. The group also recorded students’ information in the form of audio-cassettes, questionnaires and photos.

Major Findings: The programme was found to be effective, which increased students' attendance, quality of study at the school. This has brought the community to the school as they become aware of the topics and content which are transacted in the school.

Phalachandra, B. 2003. Impact of Interactive Keli-Kali Radio Programme. DEP-DPEP, IGNOU, New Delhi,

Problem: To find out the impact of Keli-Kali radio programme.

Methodology: A survey was made by use of questionnaire prepared with the help of Educationist, Psychologist, Sociologists and Media Expert. An achievement test was also administer on radio school and non-radio school children.

Major Findings:

Students of these schools have achieved better, they attend school regularly. The backward caste / tribe children achievement is worth mentioning. These programmes have made the teachers understand the objectives, content and they have covered all the topics as described in the Keli-Kali handbook. These programmes have enhanced the inter-school curricular competitions.
Objectives of the Study

The study was undertaken with the following objectives:

1. To study the extent of awareness of the programme among primary school teachers.

2. To study the audience characteristics listening to the programme Gyankalash.

3. To study the use of Gyankalash for teaching-learning process among teachers.

4. To study opinion of the audience about the Gyankalash.

5. To study the overall impact of Gyankalash programme on the audience.

Methodology

Sample Selection: The study was undertaken by sending questionnaires to 1000 audience teachers who were registered with DPEP under Gyankalash. Out of 1000 only 442 teachers sent back their completed questionnaire by sending their responses to the respective clusters and blocks. The sample represented all clusters of the four DPEP districts and all walks of life of the teachers.

Tools of Enquiry:

A questionnaire-cum-opinionnaire was developed for the study with the help of experts in the field. The opinionnaire contained questions based on...
information, knowledge about Gyankalash programme, the respondent's opinion about the programme and suggestions for improvement of the programme. The tools used for study includes,

- Specially designed questionnaire for data collection.
- The in-built feedback mechanisms answering question in 100 words.
- Responses to questions at the end of each episode.
- Teachers' interviews for best responses.
- Publishing the question-answers in Giri Raj magazine under Gyansurbhi.

Major Findings

1. Gyankalash emerged as a popular programme not only among the DPEP primary school teachers but also among non-DPEP districts.

2. Teachers had a prior knowledge of the objectives, phases and the different aspects of the programmes.

3. Active learners expressed their interest in the programme by regularly sending their responses to All India Radio (AIR).

4. Participants gained academically as revealed through different feedback mechanism.
5. Some primary teachers felt that these programmes acted as catalyst and inspiring factors as they helped them use innovative techniques in their classroom transactions.

6. Format used for presentation of radio programmes in Gyankalash were said to be suitable.

7. Teachers took active interest in Gyankalash programme. It was traced from their involvement in the episodes.

8. Most of the respondents rated Gyankalash as good / excellent.

9. The best part o Gyankalash was found to be “school readiness”.

2.3 Video and Educational Television Programme:

Highlights of a Few Studies of ETV Programmes under SITE - An Experiment of International Importance

The Satellite Instructional Television Experiment (SITE) was a year-long communication project which commenced from August 1, 1975 and ended on July 31, 1976. The India/USA Project envisaged the use of a communication satellite (ATS-6) for direct broadcast of instructional television programmes to rural community receivers. The Memorandum of Understanding signed as long back as in 1969 between USA and India specifically referred to programming in relation to agriculture, family planning and national integration as primary objectives and suggested secondary objectives which would include contribution
to school and adult education, to teacher training and the improvement of occupational skills, health and hygiene.

Under SITE, ETV programmes were transmitted to 2,400 villages in six states of India - Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Orissa and Rajasthan. By means of satellite it became possible to take television to the remote villages poorly served by modern media of communication. Programmes for four hours were transmitted daily both in the morning and evening during the experimental year. The morning transmissions were educational in character intended for school children, whereas the evening transmissions were for general education, information and entertainment of other sectors of the audience. The morning programmes were transmitted daily except on Sundays and holidays for 22½ minutes.

Television Base Production Units of All India Radio were mainly responsible for the production of the morning programmes. On all Mondays and Thursdays Science programmes produced by the Space Applications Centre (SAC) of the Indian Space Research Organisation (ISRO) were broadcast as SACSITE programme. The Indian Space Research Organisation was responsible for providing hardware facilities required for the project including deployment and maintenance of TV sets in the villages. Each SITE state government was responsible for electrification of the buildings which housed TV sets, paying electricity bills and remuneration to custodians for operating and safeguarding sets.
Evaluation of ETV under SITE

With a view to making SITE really useful as well as effective for the development of communication and utilizing its tremendous potentialities, both formative and summative studies were designed from the very beginning. N. Bhaskar Rao (1974) had made it very clear even before the implementation of the project. "The SITE programmes should be an action-research effort involving immediate development of target group profiles, deciding what sort of messages in what combination and context are to be delivered and then actually producing these programmes. Television hardware capable of diffusing all over the country by itself does not ensure a television service. Unless enough priority and planned attention is given to produce target audience-oriented educational/ motivational/ information software from now onwards, the whole satellite experiment would be irrelevant. Feasibility and problems involved in producing such programmes need evaluation of the programmes which, is an integral part of any evaluation of the programmes. To avoid costly mistakes research and evaluation should be given high priority along with hard and software development."

In accordance with a clause in the Memorandum of Understanding, social scientists were appointed by the Indian Space Agency to conduct evaluative studies. Bella Mody (1978) has laid down the social evaluation plan with the following phases:

Phase one (Pre-SITE): Context evaluation, Audience profiles, Needs assessments.
Phase two (Pre-SITE): Input evaluation, Pre-testing of prototype programmes.

Phase three (During SITE): Progress evaluation, Programme feedback from audience, In-depth studies on specific programmes.

Phase four (Pre-during and Post-SITE): Global evaluation, Sample survey of adults, Experimental studies of children, etc.

Some Major Findings:

According to Bella Mody (1978) the important findings of social evaluation studies are the following:

1) The first month's average evening audience of 300 settled down to about 100 per cent and the audience was composed of about 30 per cent children, 50 per cent adult males and 20 per cent adult females.

2) Socio-economic status was found to be inversely related to TV viewing as the small farmers and landless labourers formed the greater part of audience.

3) Twice as many men as women reported viewing as there was the clash of viewing times with cooking times and the general irrelevance of programmes to their areas of interest.

4) TV viewing did not displace or increase the use of other media, but it did not increase contact with the village-level extension agent.

5) There were statistically significant gains in knowledge of preventive health measures.
6) There was increase in the proportion of respondents favourable to the ideas of a small family.

7) There was a large gain in knowledge of improved varieties of animal breeds, but there was no gain in general agricultural knowledge, partly due to the variety of farming techniques in different regions.

8) There was significant gain in knowledge of political events in both TV and non-TV villages.

9) The magnitude of the gain was greater for lower castes, for illiterates, for females, for low-income groups and for those who reported regular TV viewing.

10) Children exposed to TV in the classroom showed significant increase in their language development.

11) The presence of TV in the school had no impact on enrolment and attendance, because of poor economic conditions and need for children to help their parents in the household/farming activities.

12) TV school teachers were excited about TV as a classroom aid, but they found “enrichment” programme unrelated to their syllabus.

According to a study of ETV programmes (Mohanty, 1976) the major findings are as follows:

1) There were deviations of ETV programmes from the date schedules as a result of which there was difficulty in organizing pre-and post-telecast discussion in the classroom.
2) There was lack of synchronization and overlapping of Hindi and Oriya tracts in SAC (ISRO) produced science programmes.

3) Programmes made on familiar topics and from the immediate environment seemed to be more interesting and appealing to children.

4) Programmes giving too many details were found to be uninteresting and ineffective.

5) Language difficulty, inadequate pause and quick speed were felt as barriers in understanding some programmes.

6) Some programmes giving recitation of comparatively long poems were found to be taxing and strenuous for the small children. On the other hand, group singing was found to be more effective.

7) Programmes dubbed from documentaries meant for adults did not seem to have appreciation from young audience.

8) In some science programmes various steps, different kinds of elements and equipment used could not be made clear, as a result of which children failed to understand the content.

9) It is experienced that the more the participation of active and happy children, the more effective and better the programme.

Another study of science programmes produced by the Centre for Educational Technology, NCERT, New Delhi, and telecast during the In-service Training Course for Teachers in Science reported the following findings of the pedagogical nature (Mohan, Giri and Mohanty, 1976).
1) Dubbing of ETV programmes into regional language or lack of synchronization.

2) In some programmes the tele-teacher was required to cover so many topics, e.g., Centre of Gravity, Heat and Temperature, which was too much for one lesson.

3) It was difficult on the part of primary school teachers to follow some programmes as their topics were not in the syllabus.

4) Most of the programmes need to be of problems-solving nature.

5) Students’ participation in most of the ETV programmes was not up to the mark.

6) Most of the experiments were not conducted in demonstration to the mark.

7) The achievement tests used in some TV lessons were not suitable.

A pioneering study of ETV programmes was conducted by the Ministry of Education, Government of India, in collaboration with the Educational Technology Cell, Orissa, and Doordarshan Kendra, Cuttack. It was a summative study taking a larger sample representative of all the three clusters of the State of Orissa.

The most significant findings of this study as reported by Saulat Rahman (1977) are as follows:

1) There was high liking for the programmes among both children and teachers.
2) There was variation in the level of liking among children and teachers.

3) A few children and teachers were undecided about their opinion and in giving responses.

4) By and large there was similarity in children’s and teachers’ assessment of programmes.

5) The most important factors governing favourable assessment are familiarity of subject matter and its satisfactory treatment.

6) There was close connection between liking and comprehension.

7) Comprehension was found to be partial among both children and teachers.

8) Fragmentary information relying on the spoken word was not found to be perceived.

9) Dialogue was not found to be a successful method of purveying information, particularly in a dubbed version of programme.

10) High comprehension is closely related to visually effective and conceptually well-structured communication.

11) A visual by itself is not adequate for purposes of communication – it has to be carefully used.

12) A good script based on the careful structuring of ideas is essential for good television programmes.
This study has established the considerable success of the educational television programmes taken up for the investigations and more importantly, the acceptance of television as an educational force in our rural primary schools. It is also recommended that there should be adequate arrangement for planning, production and use of ETV programmes and an infrastructure should be created for collaboration of producers, educationists, teachers, planners and others on a continuing basis. Since this study has revealed the great potential of TV for communicating directly to children, attempts should be made to stimulate their interests and curiosity and motivate them to learn from ETV by providing suitable support materials.

It is only by making research a continuous and systematic part of television process that we can move towards a deeper understanding of the multifarious problems to which answers are necessary. It is also felt that appropriate concepts, strategies and methodology that would be sensitive to the young audience have to be developed, as our existing tools and techniques of evaluation are found to be inadequate. Lastly, it may be concluded by quoting the closing sentences of this study report, “Television is too great a medium to be allowed to remain as an aid in the hands of an indifferent teaching community and arid educational system. Our search must be for the means whereby the potential of television can be realized.”

Problem: The study is undertaken to assess the need and also to serve as groundwork for the introduction of educational TV as and when facilities for such interests is available in Meghalaya.

Objective: To assess the needs of different beneficiaries in the introduction of TV in educational work.

Methodology: The study was conducted on a randomly selected sample of headmasters, teachers, parents and students. The number included from each category being 289, 538, 774, and 1,240, respectively. Four sets of questionnaires, one each for the four categories of respondents, were used. Percentages were used to treat the collected data.

Major Findings: (1) The time preferred for educational telecasts was not same by different categories of respondents. A high proportion of heads of schools preferred TV programmes to become a part of the class work; a high proportion of teachers preferred to have the educational telecasts during the school recess/break. However, the majority of parents and students preferred such programmes in the evenings. Regarding the frequency of telecasts there was general agreement among the different categories of respondents with most of them preferring one telecast a day. The duration of telecast suggested by the respondents varied between 30 minutes to 1 hour, with students showing preference for a longer duration. (2) Regarding the types of programmes preferred by the various categories of respondents, it was found that a large percentage of headmasters preferred enrichment programmes, a large numbers of teachers and parents preferred demonstration programmes and the majority of
the students preferred programmes on science. A mixed format for presentation of the programmes was preferred. (3) The majority of respondents from all categories agreed that educational telecasts would make teaching-learning process easier and interesting. (4) There was general agreement among the respondents that TV sets should be supplied to schools. (5) Among the problems mentioned by the headmasters were the difficulties faced because of power supply, difficulty of keeping the TV set in safe custody, problems of repairs and maintenance, etc. (6) The suggestions given by the respondents included provision of TV sets to schools; training of teachers for the work; linking TV programmes to school subjects; use of local languages in educational TV telecasts.


Problem: The study attempts to assess the impact of Educational Television (ETV) programmes in three districts of Orissa.

Objectives: (i) To study the impact of ETV programmes on the scholastic achievement of primary school children in general science, social studies and language development, (ii) to study the operational credibility of the medium of TV, particularly that of ETV programmes, and (iii) to collect and analyse the opinion of the school inspecting officers towards ETV programmes.

Methodology: A sample of 30 control schools from all the three cluster districts (Sambalpur, Dhenkanal and Bolangir) was drawn randomly (10 schools from
each district). From the selected schools a sample of 300 subjects was further drawn at random for treatment conditions. The total number of teachers interviewed from TV and non-TV schools was 300 (150 from each set-up). The total number of inspecting officers interviewed for the purpose was 75. The tools used three Achievement Tests which were developed to assess the impact of ETV programmes. Questionnaires, check-list and an interview schedule was developed to get the feedback from teachers, headmasters and inspecting officers of both TV and non-TV schools. The collected data were treated by using mean, SD, CR, and ANOVA.

**Major Findings:**

1. The experimental group had superior mean achievement scores as compared to the control group, which indicated the expected impact of educational television on the scholastic achievement of primary school children in respect of gaining in knowledge in general science, social studies and language.

2. The children exposed to TV were superior in their scholastic achievement as compared to the children not exposed to the medium.

3. The measure of language development was significant. Going over the mean scores of the experimental group in respect of languages, it was concluded that TV exposure had the most beneficial effect on the children of Bolarngr District, followed by Sambalpur and Dhenkanal in that order.

4. The district samples themselves differ from each other in terms of the linguistic structure because of their home environment difference between control samples consistently did not indicate that language difference in any way affects scholastic achievement.
Problem: This research attempts to verify how far the objectives of the UGC country-wide ETV have been put in practice.

Objectives: (i) To verify the extent to which the UGC country-wide ETV enriched knowledge and promoted development, (ii) utilized the potentiality of the TV medium, and (iii) catered to the needs of target population.

Methodology: The sample comprised rural undergraduate students who were drawn using Chester sampling method. The researchers used an observation schedule as a tool to collect the relevant data.

Major Findings: (1) Only a quarter of the telecast time was allotted to foreign programmes. (2) Branches of humanities and basic science were not found in the foreign programmes. (3) The telecasts were confined to applied science and social science. (4) Most of the programmes catered to the urban audience, although UGC country-wide ETV primarily meant for rural undergraduate students. The Indian script-writers, mostly belonging to Urban areas, were not conversant with the educational needs of rural students. (5) The humanities programmes provided in India offered the least knowledge enrichment,
Problems: The study aims to investigate the impact of educational television programmes on the competency of teachers belonging to elementary schools.

Objectives: (i) To study the impact of ETV on the competency of teachers of elementary schools in terms of knowledge, understanding and application in content areas, (ii) classroom interaction between teachers and students, (iii) attitude of the teachers towards ETV programmes; and (iv) problems of the teachers with respect to the utilization of the ETV programmes.

Methodology: Twenty-five TV schools as experimental schools with 50 teachers and 25 non-TV schools as controlled schools, with 50 teachers, were taken as sample schools. In addition, 25 of the Inspecting Officers concerned were also selected to provide data about the problems of TV utilization. Tools used were Competency Based Achievement Test (CBAT), Flanders' Interaction Analysis of Ten Categories (FIAC), Opinionnaire, Feedback Schedule. The collected data were treated by using ANOVA, kit test percentage and 50 ETV programmes to explore group.

Major Findings: (1) The obtained results concerning the impact of ETV programmes on the competency of teachers indicated significant differences between the TV and non-TV teachers on their knowledge, understanding and application in the covered content areas. (2) The attitude of teachers towards ETV revealed that a highly significant chunk of teachers (92%) considered ETV as not only an effective medium but also as conducive or for teaching to teach and in development of teachers' knowledge and general awareness. A higher number of respondents corroborated with their favourable attitude the utilization
of the medium, the suitability of the format, content structures, etc. (3) However, the opinion of the teachers was sought regarding problems connected with adequate utilisation of the medium in the classroom; they pointed out that mechanical disorders, power failure, unsuitable time-slot for teacher–programme, duration of the teacher-programme, insufficient remuneration to teacher custodians and inadequate supply of support material were among the most vulnerable problems. [KCP 0404].


Problem: This is a study of teachers' attitudes towards STV and its relationship with mass media behaviour and job satisfaction.

Objectives: (i) To study the attitude of teachers towards school television as an educational subsystem, (ii) to study the relationship between the teachers' attitude towards school television and his mass-media behaviour, (iii) to study the relationship between the teachers' attitude and his job satisfaction, and (iv) to study the influence of the personal and academic characteristics of teachers in relation to their attitude toward school television.

Methodology: The sample comprised primary school teachers of 104 villages having television, falling under the Jaipur Kendra. The tools consisted of a Teachers' Attitude towards School Television Scale and Interview Schedule. The collected data were treated by using 't' test, ANOVA and chi-square.
Major Findings: (1) The custodian teachers, on the whole, had fairly favourable attitudes toward STV. They perceived STV as an acceptable medium for teaching students and for presentation of instructional material. (2) Teachers supported the effect of visuals on students; they perceived STV as an effective learning medium. (3) The custodian teachers' attitude toward STV was independent of their personal and academic characteristics. (4) The teachers who taught the higher classes (Classes IV and V) showed a more favourable attitude towards STV in comparison to those who taught all classes from Classes I to V. (5) The custodian teachers were fairly satisfied in their job situation. (6) Teachers' attitude toward STV and their job satisfaction were positively related. (7) Job satisfaction was associated with authority-figures responsible for work allocation, work supervision and the role of custodian of STV. (8) The intensive case study method revealed that the majority of teachers did not operate STV regularly. (9) Most of the sets were out of order. (10) Teachers were not found happy with regard to their training, viewing arrangements and mode of viewing.

Abrol, U. et. Al., (1991) conducted a study on TV viewing among children of Delhi schools. The study was based on a sample of 750 students drawn from 44 primary and secondary government schools. The findings reveal that the majority of the mothers were restrictive to their children's TV viewing, and no significant difference was found in the amount of TV viewing by male and female children. Viewing was independent of IQ of viewers and it was heavy on Saturday and Sundays.
Pillasy, G.S. Anandan, K. (1990) made an analysis of the educational video programmes produced in India at the higher educational level. The survey revealed that very few video programmes were produced in subjects like law, anthropology and veterinary sciences. In general educational subjects like economic, sociology, management, education received greater attention but not geography or political science. The researchers felt that there was no co-ordination between various production agencies.


Problem: It attempts to study TV-viewing related factors among Delhi Children.

Objectives: (i) To study the TV-viewing behaviours of children in terms of duration of viewing and programme preference, (ii) to delineate the factors influencing TV-viewing among children, (iii) to determine the relative importance of the factors influencing TV-viewing among children, (iv) to study the impact of TV on the daily life of children, and (v) to study the perception of parents regarding the TV-viewing of their children.

Methodology: The study was confined to 754 children studying in primary and secondary level schools of Delhi. A total of 44 schools constituted the sample. In the second stage, 254 children covering 135 boys and 119 girls from the primary level, and 500 children covering 250 boys and 250 girls from the secondary level were selected through simple random sampling. Mothers sample comprised 754 subjects. Two separate interview schedules were constructed for interviewing the
children and the mothers. For measuring the duration of viewing the programme-recall list method was used. Collected data were treated with mean, SD and ANOVA.

**Major Findings:** (1) Viewing was behaviour on Saturdays and Sundays than on other days. On week days, on an average children watched TV for one hour and 18 minutes; and on Saturdays and Sundays for three hours and six hours respectively. (2) No significant difference was found in the amount of TV-viewing of male and female children. However, the younger children watched TV more than the older ones. (3) Parental restriction of TV-viewing, home stimulation, parental attitude towards play of children and parents' attitudes towards TV were found to be significantly correlated with the duration of TV-viewing. (4) The study did not show any significant relationship between the IQ of the child and the duration of TV-viewing. (5) Surprisingly, children's programmes produced by Doordarshan were not at all liked by the children; in fact, 94% children were not even aware of such programmes. However, the sponsored children's programmes were quite popular with them. (6) About 81% mothers reported that their children's enjoy TV-viewing [NS 1037].


*Problem:* It aims to study children's television-viewing behaviour and its effect on personal and educational development.
Objectives: (i) To develop tools to measure television-viewing behaviour (TVB) and attitude towards television-viewing (ATTV), (ii) to compare parents' and children's viewpoints with regard to TV-viewing, and (iii) to explore the potential influence of TV-viewing on the educational development of children.

Methodology: The sample of the study comprised 180 children, who had TV in their homes (96 boys and 84 girls), selected by a systematic random sampling method from two English-medium schools of Tirupatti urban area. The children belonged to the 5-10 years age group. Schedules for parents and children and Intellectual Achievement Responsibility Scale (IAR) were used to collect data.

The TV-viewing index (TVI) was calculated for the sample. Mean and percentage and chi-square were used to analyse the data.

Major Findings: (1) It was found that 90% of the Subjects were light viewers. There were no heavy viewers. (2) When the sample was classified as light and moderate viewers (type of viewing), it was found that there was no association between type of viewing and sex or educational achievement. (3) The students spent more time on seeing sports and advertisements. (4) A majority of parents, of both boys and girls, agreed that children became lazy and less interested in studies; they disagreed that TV-viewing made children broadminded. (5) A majority of children disagreed that TV affected their school work and that they became disinterested in social work. They felt that TV-viewing helped a lot in school work, and they gained more knowledge and consequently got good marks. [AVRR 1604]

Problem: The attempt is to investigate whether students in Standard VI who are taught by the video method develop more vocabulary in Tamil than those who are taught by the traditional classroom method.

Objectives: (i) To prepare video lessons for Standard VI students on certain common topics such as “Weekly market”, “Village and Town”, and “Animals”, (ii) to find out the effectiveness of video lessons in language teaching and learning, and (iii) to find out whether Standard VI students improve their vocabulary in Tamil after viewing the video programme.

Methodology: The sample of the study consisted 120 students (60 boys and 60 girls) of Standard VI from the K.R. Government Higher Secondary School, Oddanchatram and the S.M. Girls' Higher Secondary School, Chatrapatty in Anna District. The researcher used the pre-test-post-test -equivalent-groups design. Video lessons of 60 minutes’ duration were prepared. The experimental group was taught the topics by the video method. The same topics were taught to the control group by the traditional classroom method. The ‘t-test’ and ANOVA were employed for statistical analysis.

Major Findings: (1) The students learned more words in Tamil language when they were taught by video lessons. (2) The students improved their vocabulary in Tamil language after viewing the video programme on language development.
Educational telecasts: Research priorities.

Problem: The existing methods of research do not seem to be suitable for the future development of the broadcasting media, especially educational telecasts as the research priorities have still not been decided. This study addresses the problem of identifying priorities associated with the production of educational-television programmes and their telecast. It also deals with the problem of coordination between researcher and producer.

Objectives: (i) To identify areas for research studies in educational television (ETV) (ii) to identify priorities of research topics, and (iii) to suggest a suitable design for research.

Methodology: This is based on the existing literature related to educational telecasts and has identified research priorities using the survey method.

Major Findings: (1) The electronic media specially ETV, is an advanced means to provide variety and novelty in the methods of imparting instruction in various subjects, and vital learning resources for students and teachers alike (2) Educational administration experts programme-designers, programme producers teachers, students and researchers are all important links in the implementation of various strategies for effective use of ETV and its production. (3) Researches are very much essential to enable ETV to attain its desired objectives, study of the existing system, in terms of the needs of the audience, finding the gaps if any, and organizing them systematically (4) Research should be conducted on
the team approach, the teams consisting of representatives of teachers, producers and researchers.


Problem: An attempt has been made to provide details regarding educational reporting on TV in Tamil Nadu State.

Objective: To report quantitatively as well as qualitatively about the nature of educational reporting on TV in Tamil Nadu State.

Methodology: Educational programmes shown on TV have been surveyed and analysed.

Major Findings: (1) Twenty-one hours were devoted to educational programmes, though many of them were not telecast in the "prime viewers' time." (2) As regards quality, the UGC programmes were technically sophisticated especially when the foreign made programmes were shown. The Indian programmes on art, history and science were also regarded as good quality programmes. (3) Some the educational programmes that were telecast were Bhazhkkai Kalvi or lifelong education (2 hours a week); Nal Bhayhavo Udal or health education (15 minutes); Bhayalum bhay habum or farmers education; popular Science programmes (30 minutes a week); and career education programmes. (4) Though several universities were running correspondence courses and distance education programmes, no university had collaborated with Doordarshan to give lessons through TV (5) Whatever programmes were given through TV under
adult education farmers, education remained isolated segments of knowledge and had no continuity with any syllabi, the open universities had planned.


Problem: The study focuses on the impact of television on students’ learning.

Objectives: (i) To find out the impact of television on students’ learning (ii) to find out the comparative effectiveness of the tele-films and the tape-chart programmes, and (iii) to get the opinion of students and teachers regarding the two media used.

Methodology: For survey of the opinions, the stratified random sampling method was used. In all, 24 Gujarati-medium secondary schools, and 84,000 students belonging to Classes VIII to X of Surat District were selected as the sample. For the experiment, 180 students of Class IX from two schools of Surat District were selected purposively. Four matched groups, two from each school, each group having 45 students were formed. Tools used were Bhatt and Desai Intelligence Test, Desai’s SES Scale, Opinionnaires, criterion test and interview schedule. The collected data were treated by using ‘t-ratio’, and chi-square.

Major Findings: (1) Significant improvement had been achieved after the treatment with the tele-film. It was found effective for self-learning in both the groups. It showed a significant gain in the spot test as well as in the retention test scores. (2) The tele-film was found more effective in both the groups. (3) It was found that television had an impact which affected study habits. It was also found
that television was not considered as an obstacle in the study. (4) Seventy-seven per cent of the students opined that television motivated self-learning. (5) Television had no adverse impact on the attendance of the students in the school. (6) The social relations of majority of the students had been disturbed by television. (7) Majority of the students felt that their educational interest was fulfilled by television. (8) Students suggested an increase in educational and agricultural programmes in Hindi or in Gujarati.


**Objectives:**

(i) To study the level of attitude of primary school children towards ETV; and (ii) to study the effect of level, technology acquaintance and sex background on student's attitude towards ETV.

**Method:** The sample comprised of 90 students, 45 each from Classes III and V. Self-Constructed Attitude Scale and Technology Acquaintance Scale were used to collect the data. Mean, S.D. and 't' test were calculated for analysing the data.

**Findings:**

(1) There was no significant difference between the mean attitude scores of upper primary and lower primary stage students. (2) Technology acquaintance had significant effect on attitude of students towards ETV. (3) Sex background of students had significant effect on attitude towards ETV.

Dr. N. Natesan., (2001), *Teaching Concepts in Mathematics through Video Cassette – An Experiment.*

**Objectives of the Study:**
1. To study the effectiveness of teaching concepts in mathematics through video-cassette.

2. To compare the effectiveness of teaching concepts in mathematics through video-cassette with that of teaching through video-cassette with discussion by giving pause often.

3. To compare the effectiveness of teaching concepts in mathematics through video-cassette with that of traditional method.

4. To compare the effectiveness of teaching concepts in mathematics through video-cassette mixed with discussion by giving pause often with that of traditional method.

5. To study the gender difference in achievement in Mathematics.

**Design of the Study**

The study taken here is an experiment and it is based on the pre-test/post-test equivalent group design.

\[ R \text{ } 01 \times X \text{ gain } = 02 \text{ } 01 \]

\[ R \text{ } 03 \text{ } C \text{ } 04 \text{ } C \text{ gain } = 04 \text{ } 03 \]

Where,

- \( R \) refers to random assignment of pupils to groups.
- \( X \) refers to exposure of a group to an experimental treatment.
- \( C \) refers to exposure of a group to the control condition.
- \( 01 \text{ } 03 \) refers to Pre-tests.
- \( 02 \text{ } 04 \) refers to Post-tests.
Preparation of Video Cassette

Lesson plans were developed for the 9 units and proper teaching-learning materials were also developed. The teaching processes of these 9 units using the teaching -learning materials were video films utilising the services of some competent teachers working in various elementary schools in Krishnagiri Educational District.

Tool

The investigator developed and validated the pre/post-test in order to evaluate the pupils' mastery of concepts in Mathematics (fractions) at standard IV level. The answer scripts after administration of test were collected and scored according to key and found out the discrimination index and difficulty index. The item discrimination index about 0.20 and difficulty index 25% to 75% where included in the final tool.

Findings

The superiority index of teaching through video cassettes with discussion over the other two methods namely teaching through video cassette without discussion and teaching through traditional method. There is significant differences between Control and Experimental group (Boys and Girls), Experimental 1 and Experimental 2 (Boys and girls) and Experimental 1 and Experimental 2 (as whole sample) at 0.05 level of significance. Control Vs. Experimental 2 (Girls and as whole sample) at the 0.01 level of significance.

Objectives

With a view to seek answers to the questions raised in the initial paragraphs of this section, the following objectives were proposed:

a) To study the effects of TLP, viewing strategy and their interaction with the components (concept, proposition and schema) of cognitive map in terms of corresponding cognitive map scores taking intelligence as a co-variate.

b) To study the effects of TLP and viewing strategy and their interaction on cognitive map (total score) taking intelligence as a co-variate.

c) To analyse the cognitive maps of learners of the treatment (VS) groups in relation to different production variables, namely, message track, message presentation form and message type.

d) To analyse the cognitive maps of different television language groups in relation to different production variables, namely, message track, message presentation form and message type.

e) To analyse the learning distortions in the cognitive maps of the students in relation to viewing strategy, TLP and production
Methodology

Sample and Tool: This study was conducted with six specific sample ETVs (syllabus based content enrichment programmes which were produced and telecast by the SIET, Bhubaneswar, Orissa) and their target viewers were students of standard VIII. In fact, classroom groups were used as the sample groups. The number of students for ETVs was different and ranged from 155-170. Intelligence was measured with the Raven's standard progressive matrices and television language proficiency with a standardised Television Language Proficiency Test (TLPI). Cognitive map data were collected through cognitive map inventories and subsequent ratings were done with rating scale.

Experimental Design: Experimental method was followed to seek answers to the questions underlying the study. The experiment with television viewing strategy as independent, television language proficiency as the moderating variable and cognitive map as the dependent variable was built on the frame of a post-test control group design. The three sample groups (each group consisted of students from a rural and an urban school) were randomly assigned to different viewing strategies.

The initial non-equivalence among the sample groups under the various viewing strategies was taken care of during data analysis with ANOVA. Since intelligence is a strong co-relate of learning which would also influence the
development of cognitive maps in the television learning encounters, the same
was employed as the co-variate for the purpose.

Findings

a) Effect of TLP on Cognitive Mapping

i) Concept Level: TLP included differential impact on cognitive maps at
concept level in three sample ETVs. Cognitive mapping at this level was in
direct relation with TLP. But occasionally the average and the low TLP
formed similar cognitive maps.

ii) Proposition Level: Differential impact of TLP on cognitive mapping at
proposition level was observed in 4 sample of ETVs. The high TLP group
formed better cognitive maps as compared to the average and the low
TLP, but the latter two did not exhibit regularly in cognitive map of
formation.

iii) Schema Level: Differential impact of TLP on cognitive mapping at schema
level was found in four sample ETVs. The high TLP group formed better
cognitive maps as compared to their average and the low TLP
counterparts. The average was superior to the low TLP in three ETVs but
was similar to the low in one ETV.

iv) Total Level: Differential impact of TLP on cognitive mapping (on total
score) was found in four sample ETVs (Table 4A). The high TLP group
formed better cognitive maps as compared to their average and the low
TLP counterparts. Between the average and low TLP groups, the former
Anuradha K., V.V. Bharati, 2002. Effect of T.V. Viewing on Elementary School Children's, Academic Achievement

Methodology

The sample of the study was constituted of 300 children and theirs mothers (150 boys and 150 girls) studying in the III, IV and V grades in recognized English medium schools in Tirupati town. A two stage stratified random sampling technique was employed to select the sample.

Tools

Two omnibus schedules were developed to collect personal demographic information and TV viewing behaviour from children as well as their mothers. The total marks secured by children in the examinations conducted during the academic year was considered as their academic achievement.

Procedure

The data was collected through the constructed tools over a sample of 300 children who had a television set in their homes and also from their mothers after establishing a good with rapport with them. These children were selected from 10 recognised English medium schools in Tirupati town by the two-stage random sampling method. The academic achievement of children was obtained from school records.

Results and Discussion
The amount of TV watching by children was statistically treated in terms of means and SDs and the percentage of total marks obtained by the child was considered to be the academic achievement. t/F ratio was calculated to see the significant differences in academic across TV viewing behaviour variables.

The following conclusions were drawn from the study

1. A trend of negative association was observed between children's academic achievement and their amount of TV watching; children's academic achievements increased significantly with a decrease in their TV viewing.

2. Watching only selected programmes improved children's academic achievement significantly rather than watching all programmes or random watching.

3. In families where all family members were able to watch TV together daily, children's academic achievement was more than those who were watching weekly once.

4. Children who were watching more programmes than their parents scored less marks than those who watched less than their parents.

5. Children differed significantly in their academic achievement depending on the member of the family who interacted more while watching TV.

Implications
The results of present study imply that certain TV viewing behaviour like viewing only selective programmes, viewing TV programmes with parents and interaction of father or mother while watching TV improved children’s academic achievement. Parents education programmes in this aspect may be very helpful.

2.3 Environmental Education Studies:


Problem: This study addressed the problem of school TV programmes in science and their impact on scholastic achievement and the scientific attitude of students.

Objectives: i) To study the STV programmes in science in terms of instructional objectives, number of programmes, content coverage, its suitability and resources required, (ii) to study the impact of STV programmes on the scholastic achievement and scientific attitude of students, and (iii) to study the effect of intervention activities on the achievement and attitudes of students.

Methodology: The sample included all the personnel from the production end of STV programme to the utilization end, covering 50 school principals, 180 school teachers and 200 students. The tools used included: Questionnaires, check-list, unstructured Interviews, Raven’s Progressive Matrices, and Vardhini and Ravindranath’s Scientific Attitude Scale. The collected data were treated by content analysis, percentages and ANCOVA.
Major Findings: (1) The STV programmes had not changed over the years, and the coverage of different science subjects was incorporated although 40% of the total course was covered. (2) The time given for preparation of STV programmes was insufficient. (3) The quality of STV programmes was poor although the timing and duration were appropriate. (4) No significant difference was found in the scientific attitude of students exposed and students not exposed to STV programmes in the three groups. (5) No significant difference was found in the scholastic achievement of students in the three groups.


Problem: The study is undertaken to investigate whether working children in the non-formal education centres achieved more when taught environmental concepts by the video method than by using charts.

Objectives: (i) to prepare a video programme on environmental concepts, and (ii) to find out experimentally whether the video method is more effective than using charts in teaching the environmental concepts.

Methodology: The sample of the study constituted 60 working children at the school for working children in Dindigul. The pre-test-post-equivalent-groups design was employed. The experimental group was taught through video lessons on 'Environmental Concepts' and the same lessons were taught to the control group using charts. A video programme on 'Environmental Concepts' lasting for 40 minutes was produced for this study. The 't-test' was applied for statistical analysis.
Major Findings: (1) The school drop-outs taught by the video method learned more concepts on environment than those who were taught by using charts. (2) The working children improved their achievement on 'Environmental Concepts' after viewing the video programme. (MKU 1058).


Problem: This study deals with the science programmes broadcast by all India Radio (AIR) from its various science cells.

Objective: To survey and understand the procedure of preparing the science programmes broadcast by AIR.

Methodology: The programmes prepared by the Science Cells up in the state capitals and broadcast by the AIR were selected. A sample to study the audience response to science programmes was also selected in Delhi and a structure schedule was developed with some open-ended questions. The Audience Research Unit collected data on listening, contents and conceptions, about the science programme. The data were analysed with percentages.

Major Findings: (1) Listening to science programmes this series ranged from 20% to 31%. The major reasons for not listening to the science programmes were 'watching TV' and also 'not interested in these programmes'. (2) About the concepts of the programme, 64% were 'generally satisfied' and 16% were 'somewhat satisfied'. (3) About two-thirds of the respondents considered the language of the science programme as 'easy to follow' while only 14%
considered it as 'somewhat difficult to follow'. (4) 'Science quiz' and interviews were preferred by 39%, interviews by 31% and short feature/play by 27%. Talks of 5 minutes and 'Newsletter' were the least preferred. (5) More than half of the respondents felt that the science programmes improved their knowledge. About 42% who were graduates and above, felt that the programmes informed them about the latest discoveries, whereas 67% of the below-high school group considered the programmes helpful in their day-to-day work. (6) Forty-four per cent opined that communication of scientific knowledge, accelerated the economic development, and 40% said that radio could be used to propagate scientific achievements.


*Problem:* It attempts to study the higher education science education television programmes in terms of their contents, presentation, students' reactions and its effectiveness.

*Objectives:* (i) To analyse the higher education science educational television (ETV) programmes in terms of their contents and presentation, (ii) to find out the effectiveness of the higher education science ETV programmes in terms of students' achievement, and (iii) to find out students' reactions to higher education science ETV programmes.

*Methodology:* The B.Ed., and Diploma in Computer Education students of the Institute of Education, Devi Ahilya Vishwavidyalaya, Indore, constituted the
sample of the study. The selected ETV programmes were recorded through VCR. They were analysed with the help of tools. Achievement tests were prepared on the basis of such analysis. The sample students were administered achievement tests on the topics concerned before and after showing the ETV programmes. The tools used in the study included Content Analysis Format of ETV programmes, Presentation Analysis Format of ETV programme Achievement Test on each ETV programme and reaction scale. Percentage chi-square and 't-tests' were employed to treat the data.

Major Findings: (1) Most of the programmes (above 68%) focused on knowledge and on understanding objectives. (2) The majority of programmes (80 to 88%) had followed a logical sequence in presentation; had covered the teaching points adequately, and had used languages appropriately. (3) Lecture with demonstration and illustrated talk were found quite effective. (4) In all the programmes, except one, the post-test scores of both the English and the Hindi media students were significantly higher than their pre-test scores. These programmes included different subject area like biology, chemistry, physics, computer and general science.


Problem: This study is undertaken to investigate whether students in higher secondary schools who are taught certain concepts in biology by the video method achieve more than those who are taught by the traditional method.
Objectives: (i) To prepare a video programme on environmental pollution for instructional use for higher secondary students, and (ii) to find out whether the video method is more effective than the traditional lecture method in teaching the concepts on environmental pollution.

Methodology: The sample of the study constituted 60 students (30 males and 30 females) of Standard XI at K.R. Government higher Secondary School, Ottanchatram and S.M. girls' Higher Secondary School, Chatrapatty.

The pre-test – post-test equivalent-groups design was employed in the study. The experimental group was taught through video lessons on environmental pollution and the same topic was taught to the controlled group by the lecture method. A video lesson on environmental pollution, lasting for 36 minutes, was prepared for this study. Mean, SD, and 't' test were applied for statistical analysis.

Major Findings: (1) The higher secondary students taught through the video programme learnt more concepts on environmental pollution than those who were taught by the lecture method. (2) The higher secondary students improved their achievement on environmental pollution after viewing the video programme.

Problem: This study is undertaken to investigate whether students in the higher secondary schools who were taught certain concepts in Geography by the video method achieved more than those who were taught by the traditional method.

Objective: (i) To prepare a video programme on 'Weathering' and 'Work of the Rivers' for instructional use for higher secondary students, (ii) to find out whether the video method is more effective than the traditional lecture method in teaching the concepts on 'Weathering' and 'Work of the Rivers', and (iii) to find out whether the higher secondary students improve their achievement after viewing the video programme.

Methodology: The sample of the study constituted 60 students (30 males and 30 females) of Standard XII of the O.C.P.M. Girls Higher Secondary Schools, Madurai. The pre-test, post-test equivalent groups design was employed. A video-lesson and lecture method was used. Mean, SD and 't-test' were used to treat the data.

Major Findings: (1) The higher secondary students improved their learning of the concepts of 'Weathering' and 'Work of the Rivers' after viewing the video programme. (2) The higher secondary students taught by the video method performed better than the students taught by the traditional lecture method.

Problem: The attempt is to study whether students in higher secondary schools who are taught certain concepts in chemistry by video methods achieve more than those who are taught by the traditional method.

Objectives: (i) To prepare a video programme on 'energetics' for instructional use for higher secondary students, (ii) to find out experimentally whether the video method is more than the traditional lecture method in teaching the concepts on 'energetics', and (iii) to find out whether the higher secondary students improve their achievement after viewing the video programme on 'energetics'.

Methodology: The sample of the study comprised 60 students (30 males and 30 females from Standard XII at K.R. Government Higher Secondary School, Oddanchatram, and at S.M.Girls' Higher Secondary School, Xhatraatty in Anna District. The pre-test post-test equivalent-groups design was employed. The experimental group was taught through the video lessons on 'energetics', and the same topic was taught to the control group the lecture method. A video lesson on 'energetics' lasting for 46 minutes was prepared. The 't' test was applied for statistical analysis.

Major Findings: (1) The students who were taught by the video method learned more concepts on 'energetics' than those who were taught by the lecture method. (2) The students improved their achievement on 'energetic' after viewing the video programme.

Atan, H.; Rahman, A.Z.; Ali, A.Z.; M.R.; Ismail, G; and Saleh, M.N. 2002. Teaching of Science Courses in Distance Education: Comparative Studies

Objectives: To compare the difference in learning outcomes of the interactive audio-graphics teaching with that of the traditional face-to-face teaching to students enrolling in the under-graduate science courses, namely physics, mathematics and biology.

Method: The sample consisted of 144 students (44-1st year biology, 23-2nd year physical and 77-2nd year mathematics) enrolled at the under-graduate distance learning education programme at the Centre for Distance Education (CDE), University Sains Malaysia (USM). The students were randomly distributed into two groups, one group exposed to face-to-face teaching for one hour and the other group to the audio-graphics teaching also for the same duration. The study was repeated with the different topics with the groups inter-changed to ensure that the result were independent of the type of the students' group selected. Pre-test and post-test were used to collect the data. At the end of the learning session, the students were also given a summative questionnaire (of Likert Scale form) to get their overall opinions regarding the face-to-face teaching and the audio-graphics teaching that that they just attended. 't' test was used for the data analysis.

Findings: (1) The learning outcomes of the audio-graphics delivery system were as successful as the conventional face-to-face one for all the courses investigated. (2) Students perceived the writing on the white board during the
face-to-face delivery as more intelligible than the writing on the TV screen during the audio-graphics delivery. The study has 15 references.


Objective: The study aims to compare the mean scores of achievement of students in science belonging to different video-based instructional strategies for teaching science at Class IX level.

Method: The sample comprised of 115 students randomly selected from class IX of Kendriya Vidyalaya No. 1 from Indore city. Pre-test post-test experimental design was used in which three groups were randomly assigned to the treatments. The dependent variable was assessed by the science achievement test developed by the investigator. Statistical techniques like Duncan’s Multiple Range Test and ANOVA were applied to analyse the data. Findings: (1) The treatment has significant effect on achievement in science of students belonging to different video-based instructional strategies for teaching science. (2) The video viewing followed by lecture as well as video viewing followed by discussion were significantly higher than those of video viewing only. (3) the mean scores of science achievement of video viewing followed by lecture was found to be significantly superior to video viewing followed by discussion. The study has 8 references.
2.4 Development and Validation of other Innovative Programmes:


Objectives: (i) To develop multimedia package for one unit from lesson (Shardi-na pratape) and poem (Nag Daman) of subject Gujarati of standard-V, (ii) to construct achievement test based on selected units of Gujarati, and (iii) to check the effectiveness of multimedia package for teaching Gujarati as compared to lecture method in terms of learning achievements.

Scope and geographical coverage: Population of the study consisted of students of standard-V of primary school in Surat district.

Methodology: From two classes of standard-V of Palsana primary school in Surat district, 97 students were selected as sample for the present study. Achievement test of 25 marks based on selected units of Gujarati subject of standard-V was constructed. Content was based on lesson-Shardi na pratape and from Nagdaman. Two equal groups were taken and experimental design was used in the study. Multimedia package was developed with audio-cassette, drawing, word and sentence strips and jokes. Experimental group was taught by using multimedia package whereas control group was taught by traditional lecture method. Data analysis was done using t-test.

Major Findings: Teaching through multimedia package was found more effective than that through lecture method.
Implications and action points: (1) Multimedia package should be used in teaching Gujarati language. (2) Teachers should be trained in developing multimedia package.

**Computer Based Instruction (CBI)**

Recent success in computer based instruction (CBI) have fuelled interest in an expanded role for computerised instruction. Based upon a comprehensive meta analysis of computer based learning, Kulik, Banggert and Williams (1983) suggested that the typical computer based instructional program produced a gain of 0.5 standard deviations over similar 'conventional' instructional programs for secondary school students. Computer based instruction results in a saving of instructional and learning time (NREL study (1980), Forman (1982), Kulik and Kulik (1985)).

**Research on the effectiveness of Computer Assisted Instruction**

A review of past CAI investigations reveals a number of important findings. Among them are the following:

1. CAI has been shown to be most effective in the areas of Science, Mathematics and foreign languages. Because of the nature of the subject matter, it has been less effective in reading and the language arts (Fisher, 1983; Metron, 1983).

2. CAI is at least as effective as traditional instruction and may actually lead to significant improvements in some subject areas (Holmes, 1982).
3. Children are highly enthusiastic about working with computers and academic motivation usually improves (Spencer and Baskin, 1983; Merton 1983; and Fisher, 1983).

4. Students learn intended content at a faster rate, in some cases upto 40 percent faster when computers are used (Fisher, 1983; Gleason, 1981; Hofmeister, 1982 and Orlansky, 1983).

5. CAI appears to be most effective when used with either low achieving or high achieving groups rather than with entire student population (Fisher, 1983).

One reason for the effectiveness of CAI may lie in the fact that the computer is able to deliver focused instruction at a level of student need. According to Mason (1982), between 75 and 80 percent of a reading teacher's instructional time is spent giving directions and supervising students as they complete worksheets in non computer environments.

Sue (1986) carried out a study to investigate differences in recall and trials to criterion in a verbal learning task. A traditional method of presenting paired associated verbal learning was compared to a microcomputer interactive method when subjects were asked to learn CVC (consonant-vowel-consonant) trigrams appearing on both lists were matched according to their association value as determined by Archer (1960). The recall method of presenting the paired associated lists were utilised throughout the study in both the interactive (microcomputer) presentation and the traditional (5mm slide) method. There was no significant difference between microcomputer and slide treatments on verbal
recall. There was also no significant effect in total number of trials to criterion on interactive and traditional treatment group. However, there was a significant difference between groups exposed to low similarity lists. The groups exposed to low similarity lists performed significantly better on verbal recall.

James (1987) carried out a study to see the effect of computerized tutorial programme on high school juniors and seniors, in terms of ACTR scores.

The students were randomly assigned to an experimental group and a control. The control group used a text book approach to prepare the ACT and the experimental group used, a computerized tutorial. The results of the study showed that the experimental group scored significantly higher on ACT composite scores than the control group. No significant difference was seen in the ACT composite scores between juniors and seniors. A significant relationship was found to exist between a student background in mathematics and their ACT sub-test score in Mathematics. Students with the practical background scores significantly higher on the sub-test than those lacking the prescribed Mathematics background.

Niemice and Walberg (1987) carried out a critical examination of CAI (Computer Aided Instruction) and synthesised what was known about CAI at all levels of implementation. Evidences indicated that (i) CAI could teach as good as live teachers or other media could, (ii) there was a saving in time to learn, (iii) students responded favourably towards Computer Aided Instruction, that the computers could be used to accomplish impossible versatility in branching and individualizing instruction, because true natural instructional dialogue was
possible and (iv) the computer could virtually perform miracles in processing performance data. The most valuable finding was that many students gained mastery status in a short period of time.

High (1988) carried out a study to examine the effects of computer assisted instruction on the academic gains of students of sixth, seventh, and eighth grades in the subject area of maths and reading in a selected school of district. Findings showed at the students receiving direct CAI had significantly higher academic gains in both reading and maths when compared with the students of control group who were taught without the benefit of computers. When considered in conjunction with grade level, ability level, sex, ethnicity and socio-economic status, all had a significant effect on the academic gains of students using CAI. Only ability level, when considered in conjunction with grade level, has a positive effect on the academic gain of students receiving CAI in reading.

Cosmos (1988) have conducted a study in which two groups of students were gone through different treatment. Fifty-two 11th and 12th grade students were subjects of the research (ages 15 to 18), Twenty three students were assigned to the Computer Based Individualized Instruction (CBII) which was called experimental group and twenty-nine students were assigned to the Traditional Group Institution (TGI) class called as control group.

Galnski (1988) studied the relationship between the use of micro computer in Problem solving situation. ("The factory" Kosel and maths problem solving abilities) of seventh and eighth grade students of two private elementary schools.
The study reviewed association of special ability, computer experiences and sex of the students with the changes in levels of students analysis, synthesis and maths problem solving abilities. Students were pre and post tested for two levels of critical thinking (analysis and synthesis), and levels of special abilities were given by using the Scott-Forsman Developing Cognitive Abilities Test (DCAT) (Beggs and Mouw, 1980). The test was a validated Mathematics problem solving test to demonstrate changes in the students ability to solve problem in Mathematics that corporate the levels of analysis and synthesis. Pre testing included a researcher designs computer experience instrument. Two groups (experimental and control) of at least 30 students were randomly assigned from each of the two schools for study.

Results of the study demonstrated that, the use of "the Factory" and traditional maths instruction was not significantly better than traditional maths instruction plus other varied computer activity in enhancing junior high school students abilities to solve maths problems, analysis or synthesis information. Sex and computer experience were not associated with the change in maths problem solving analysing or synthesis ability. Spatial ability was weakly associated with the change in these variables.

Studies in CAI Programme in India

As described earlier computer is quite new in Indian Education System. The investigator has come the following studies conducted in computer Education in India.
Pravakar (1989) developed software for Computer Aided Instruction and studied its comparison with traditional method of teaching. The objectives of the study were as follows: (1) to study the effectiveness of CAI for teaching "Semiconductor" in terms of achievement and reaction towards CAI material. (2) to compare the achievement of class IX students taught through CAI material with those studying through traditional method by considering pre-test as co-variate; (3) to compare the achievement of male student taught through CAI material with female students by considering intelligence as co-variate. (4) to study the influence of treatment, sex and their interaction on achievement; (5) to compare the reaction towards CAI material of class XI students with those of class XII students by considering post-test as co-variate. Sample comprised of 58 students (12) from class XII and 46 from class XI selected randomly from three English medium schools at Indore. Results of the study were as follows: (1) The CAI was found to be effective in terms of achievement of the students belonging to class XI and XII. (2) The CAI material was found to be effective in terms of reaction of students belonging to class XI and XII. (3) The CAI material was found to be suitable to teach semi-conductor topic well to both classes XI and XII. Students when pre-test was considered as co-variate. (4) The CAI material was found to be significantly superior to the traditional method but no significant difference was observed when groups were matched with respect to intelligence. (5) The treatment, sex and their interaction did not influence the achievement. (6) Both class XI and XII students were found to have equally
favourable reaction towards CAI material when the groups were matched with respect to post-test.

Bharidway (1990) studied "Development of computer Aided Instructional Material on Microbes for class VIII." Objectives of the study were (i) to study the effectiveness of computer aided instructional material for teaching microbes in terms of achievement, (ii) to study the reactions of students towards computer aided instructional material. Class VII students of Bright School, Indore were used for the study. CAI was found to be effective and interesting. Students reacted favourably towards CAI.

Mishra (1990) studied the "Development of Computer Aided Instruction software on Educational Technology for M.Ed., ". The main objectives of the study were:

(1) To develop computer based evaluation software on educational technology (2) to study the reactions of students towards computerised testing for the study the M.Ed., students of IOE DAVV, Indore (1989090) were considered as sample post-test experimental design were employed.

Following were the findings of the study: (1) The computer based evaluation was objective, accurate, valid, reliable and comprehensive, (2) CBT was efficient and well organised. (3) computerised testing reduced the work load of teachers. (4) A computerised test can be used again and again. (5) The mode of response and level of questions in computer based evaluation were appreciable (6) Computer based testing with respect to time and resources in economic was subject to future exploration. (7) Confidentiality could be
mentioned while testing through computers in subject to further examination. (8) The non-English medium students faced difficulties while responding in English medium through computers. (9) A limited number of computers was an impeding factor in testing a large number of students. (10) The students were not trained in handling the computers for evaluation. (11) There was automation of evaluation through computers. (12) The students reacted favourable towards CBT. (13) Different students attempt different parallel items while testing through computers. (14) The scoring on the items and evaluation data-processing were done fast. (15) CBI facilitates the instructional process to a large extent.

Formulation of the Problem:

The investigator thoroughly studied the related literature on following accounts,

i. Audio Radio Programmes,

ii. Video and Educational Television Programmes,

iii. Environmental Education Studies,

iv. Development and Validation of other Innovative Programmes.

But, the investigator is at lost to know no much studies have been undertaken to develop an audio-video package either through TV or through computer to teach / learn the Environmental Studies (EVS) for III / IV standard students. Hence, he formulated the study as

“Development and Validation of audio-visual package to teach environmental science for III, IV standard Students of Elementary Schools of Karnataka State”

128