CHAPTER - III

METHODOLOGY

Introduction:

The experiences in the use of television for educational purposes reviewed so far indicate that there is considerable understanding of the medium as a stimulant to the learner but very little analysis of reception conditions and learning context in which television is introduced to provide instructional messages. Looking at the issue from a learner perspective, Campeau (1967) points out the paucity of research that examine learner characteristics, learner behaviour and learning abilities related to television. Similarly Robinson and Bates compiling a set of 80 papers presented at the International Conference on Educational Radio and Television held in 1977, could find only five studies under the category of Basic Studies which are concerned with "how people learn or process television and radio" (PVR).
Apart from consideration of lack of research evidence, focus on learner environment and reception situation aspect of educational television have to be specific to given locations and conditions of learning. As such any attempt to generalise or transplant the understanding from one context to another would be more prone to failure than the mere transfer of techniques examined in the experimental and country case studies reviewed earlier. This is more so in the Indian context with the cultural and linguistic diversities prevailing in different regions. Thus a micro level region specific analysis of educational television is likely to offer more meaningful understanding of the relationship between the learner and the medium. The present study is one such attempt of analysis of "Country Wide Class Room" (CWCR) television programmes sponsored by University Grants Commission (UGC).

Focus of Study:

According to the Country Wide Class Room (CWCR) Credo, the programmes are expected to upgrade the
curriculum and enrich the quality of education at undergraduate college level of study in the country. More specifically, the Credo identifies the target audience as the students enrolled in colleges located in small towns and rural areas of the country. (A copy of the Credo is given in Annexure-1). Inherent in the Credo is the recognition that television must be used to balance the inequality of educational services particularly the urban/rural imbalance existing in institutes of higher education.

However, given the variety of courses of study available to students at undergraduate level in different parts of the country and the limited telecast time available for CVCR programmes, catering to the diverse needs of the target audience group is practically unrealistic. Consequently, though not intentionally, there is greater coverage of science topics in the CVCR programme schedule as compared to other themes and topics. An observation of the programmes telecast during the month of January 1989, substantiate this assertion of greater weightage given to science programmes.
In the observed month CWCR programmes were telecast for 24 days, leaving aside Sundays and other public holidays. The actual telecast duration everyday was about 55 minutes and consisted of an average of three programmes of different time duration. Also the daily telecast was generally a mixed package of Indian and Foreign made programmes. A total of 67 programmes were telecast during the month and Table 3.1 indicates their distribution in terms of Foreign/Indian and Science/Non Science programmes.

Table 3.1 CWCR Programmes Telecast in January 1969.

<table>
<thead>
<tr>
<th>Production Source</th>
<th>Programme Themes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Science</td>
<td>Non-Science</td>
</tr>
<tr>
<td></td>
<td>(In percentage)</td>
<td>(In percentage)</td>
</tr>
<tr>
<td>Indian (N = 48)</td>
<td>45</td>
<td>27</td>
</tr>
<tr>
<td>Foreign (N = 19)</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Total N = 67</td>
<td>69</td>
<td>31</td>
</tr>
</tbody>
</table>
It was also observed that among the Non-Science programmes, the treatment of subject matter was often diffused and had a multidisciplinary approach. Thus a more precise thematic classification such as History, Economics, Commerce or Literature programmes was not feasible. However, in the case of both Indian and Foreign made Science programmes there was greater clarity in identifying the subject matter as well as production treatment of programmes.

Objectives of the Study:

In view of these considerations the scope of the present study is limited to any analysis of the relevance of CVCR Science programmes to the students enrolled in colleges affiliated to Bangalore University.

While the choice of Bangalore University is a matter of practical consideration for the conduct of the study, the concept of relevance can have many dimensions of analysis.
Within the framework of the purpose of CWCR as enunciated by the Credo and restricting the arguments to the content of science programmes, perception of relevance can vary from the planner/administrator, teacher to the student.

From the organisational point of view, CWCR is an ideal educational equaliser that ensures a uniform educational resource to all students at the same time, pace and without any distortion of the message. Thus judgement of relevance can be seen in terms of access to CWCR programmes, availability of a tele-curriculum that serves the needs of as large a student population as possible, the appropriate levels of information provided in the programme along with presentation techniques and the degree and amount of additional information provided in the programmes that are not normally available in class instruction.

On the other hand seen from the learner point of view, relevance is related to the usefulness of the tele-lessons in improving performance in the courses being pursued. For most students enrolled in colleges, television programmes will be relevant.
if it can "substantially and self evidently help the students in their studies" (Bates, 1964. p.164). Apart from considerations of selection and treatment of educational themes, relevance is also related to the learning context in which the message is received.

At present CWCR programmes telecast on national network are not systematically integrated into the teaching process in any of the colleges or universities. As such each programme, or at best a set of programmes, is self contained and independent of other learning resources. Therefore, for most students, CWCR programmes are subsidiary to other learning resources, particularly printed text and face-to-face instruction in the classroom. It is left entirely to the student to synthesise the knowledge provided through various teaching methods including CWCR programmes. Such an analysis and integration of information provided by CWCR programmes is possible if the student has grasped the factual and conceptual ideas presented in the television programmes in the first place. Comprehension of the instructional message is, therefore, a prerequisite
to judge the relevance of CWCK programmes to meet learner needs in a given learning context.

In view of the considerations just discussed that

- there is need for greater understanding of learner characteristics;

- each learning context is an unique situation;

- majority of CWCK programmes deal with science or science related subjects.

the General Objective of the study is to analyse the relevance of CWCK science programmes to the undergraduate students enrolled in colleges affiliated to Bangalore University.

More specifically, the objectives are:

1. To find out the pattern of exposure of the students studying in urban and rural colleges to CWCK programmes telecast on national network.

2. To analyse the attitude of students to CWCK programmes as an additional source of learning.
To assess the extent of comprehension of CWCR science programmes by the students, and the factors that contribute to variation in comprehension.

**Study Design:**

In the context of the objectives of the study, an Exploratory Field study is an appropriate approach to be adopted. As Kerlinger (1967) indicates exploratory field studies have three purposes - "to discover significant variables in the field situation, to discover relations among variables and to lay the ground work for later more systematic and rigorous testing of hypothesis" (P.467).

In the present context of the stated objectives of the study and the proceeding discussions, the Exploratory Field Study requires that:

a) an appropriate field survey be conducted to find out the pattern of students' exposure to the Country Wide Class Room television programmes, and also gauge their attitude towards television as a source of learning, and
b) the students be exposed to a select set of CWCR programmes followed by the administration of a test to assess their level of comprehension of the content of the programmes.

Therefore, in order to have a representative sample of students from urban and rural colleges, it is first of all necessary to have a profile of the student population of Bangalore University and also find out the limit of signal reach of network transmission of television programmes in the area coming within the jurisdiction of Bangalore University.

Bangalore University:

Set up in 1964, Bangalore University was the fourth University to be started in the state of Karnataka. Carved out of the earlier Mysore University, Bangalore University has jurisdiction over colleges located in the districts of Bangalore (urban and rural), Kolar and Tumkur.
According to the 1988-89 annual report, there are a total of 183 colleges affiliated to Bangalore University. Among them, 78 are professional colleges such as education, law, engineering and medical colleges. In addition to these professional colleges, there are nine evening colleges and five institutions providing various vocational courses of study. One college started functioning only from 1988-89 and no information is available about the college. There are therefore, a total of 90 colleges providing undergraduate courses of study leading to a Bachelor degree from Bangalore University. The distribution of these undergraduate colleges in the three districts along with the total student enrolment is indicated in Table 3.2.

As the Table indicates, about 64 per cent of total students are enrolled in the 49 urban colleges and the remaining 36 per cent are studying in the 41 rural colleges.

Overall, there is almost equal distribution of students in the Science, Arts and Commerce stream.
### Table 3.2 - Profile of Undergraduate students enrolled in Colleges affiliated to Bangalore University

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of Colleges</th>
<th>Total Number of Students</th>
<th>Student Enrollment according to course of Study (in percentage)</th>
<th>As a percentage of Total Student Enrollment in B'lore University</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Science</td>
<td>Male</td>
</tr>
<tr>
<td>Bangalore (Urban)</td>
<td>49</td>
<td>30,672</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Bangalore (Rural)</td>
<td>12</td>
<td>3,199</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Kolar</td>
<td>13</td>
<td>5,637</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Tumkur</td>
<td>16</td>
<td>8,311</td>
<td>49</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>47,819</td>
<td>22</td>
<td>14</td>
</tr>
</tbody>
</table>

[Source: Compiled from the Annual Report of Bangalore University 1980-82]
When a distinction is made between urban and rural areas, the distribution of students in the three areas of study are again uniformly distributed in Bangalore Urban colleges. However, among the rural colleges, the distribution of students in the three courses of study shows variations. Almost two thirds of the students in Tumkur Colleges are enrolled in science, whereas the case is reversed for Bangalore rural and Kolar district colleges.

There are more boys (57 per cent) as compared to girls (43 per cent) in the total enrolment to the colleges. Also proportionately more girls are enrolled in all the urban colleges as compared to the rural colleges. In urban colleges, distribution of students in terms of their gender indicate that there are almost equal number of boys and girls in science courses. There are more girls in Arts and more boys in Commerce courses.

CMR Programme Reach:

Bangalore Doordarshan has a 10 KW transmitter
Fig. 1 - Map Indicating Jurisdiction of Bangalore University and Signal Reach of Bangalore Doordarshan Centre
with a potential service range of 120 km. The entire state is linked with Bangalore Centre for Regional programme through microwave connections with all the Low Power Transmitters (LPT) in the state. Both the districts of Kolar and Tumkur that come under the Bangalore University jurisdiction have an LPT with a service range of 25 kms. Fig. 1.1 indicates the transmission range of Bangalore Doordarshan as well as those of the LPTs located in the two districts. Practically the whole of Kolar and part of Tumkur districts are within the signal reach of the Bangalore transmission.

Thus, technically all the colleges located in Bangalore, and most of the colleges in Kolar and Tumkur have access to CVCE programmes. Thus all the 50 colleges located in Bangalore district 11 of the 13 colleges in Kolar district and 12 of the 16 colleges in Tumkur district are within the signal reach area of television transmission and therefore constitute the potential audience for CVCE programmes.
Sampling Design:

As the study objectives indicate, two sets of samples are required. A sample of students drawn from those enrolled in the colleges of Bangalore University and a sample of television programmes from those produced for telecast on the CWCR schedule.

Sample of Students:

The focus of the study emphasises the importance of the learning environment and the learner in equal measure. Hence as a first step, a sample of colleges was made and then students enrolled in those colleges were randomly selected for the study.

As mentioned earlier, jurisdiction of Bangalore University covers Bangalore city (which is urban) and Bangalore (rural), Kolar and Tumkur districts which are semi urban areas. Further as Table 3.1 indicates, of the 90 undergraduate colleges in Bangalore University, about 13 per cent are located in Bangalore rural district, but enrolment in these colleges is
only about 7 per cent of the total student intake in Bangalore University.

Clearly, students in Bangalore rural areas are enrolled in the colleges in the city in large numbers. Consequently, Kolar or Tumkur district would provide a better representation of rural students. A preliminary study of the two districts indicated that for operational conveniences, Kolar town would be more suitable. One of the colleges had its own television/VCR facility. Two other colleges in the town could arrange for the hiring of television/VCR facility locally. Moreover, students from the nearby villages and small towns are enrolled in these colleges in large numbers. Hence Kolar was selected to provide the rural student sample for the study.

In Kolar, the entire population of colleges was selected including two government and one private institution. However, in Bangalore City a sample of four colleges was drawn keeping in mind the geographical location, the educational standards, and other operational considerations.
In Bangalore City also, a preliminary survey indicated that very few colleges had Television/VCR facilities. Also on the basis of the data provided in the 1968-69 Annual report of Bangalore University, it was found that 27 of the 49 colleges in the city offered Science along with Arts and Commerce courses. The remaining 22 colleges had Arts and Commerce faculties only. Among the 27 colleges offering Science course, 16 were co-educational, seven were only for girls and two were only for boys. Further, there was varying academic standards prevailing in these colleges. A few of the colleges have high academic reputation in the city and state. While a few others are the polar opposites. A majority have more or less uniform quality of student intake and academic resources, as provided by the student-teacher ratio compiled from the annual report of the University. As many as 19 of the 27 colleges had a teacher-student ratio ranging from 1:10 to 1:20. Only three colleges had a student strength of less than 10 per teacher and five colleges had a student strength of more than 20 per teacher.
From the 19 colleges having a more or less uniform student intake and teacher-student ratio, four colleges were selected for the study based on operational conveniences such as co-operation of teachers in conducting the study, easy availability of Television/VCR, suitable time schedule for conducting the study and so on. Further it must be pointed out that colleges are per se do not have facilities to watch Countrywide Classroom programs. Therefore, the question of inter college differences in terms of infrastructural facilities relevant to television viewing does not arise here.

It must also be pointed out that government run institutions have been left out of the sample for practical reasons such as poor attendance, difficult co-operation, and their obvious non-representation of typical undergraduate institutions in the city (only 3 out of 49 constituting 6 per cent of such institutes).

In each of these colleges student respondents would be drawn from those enrolled in Science courses.
Selection of Programmes:

As discussed in the previous chapter, the television programmes for the UGC's Countrywide Classroom are produced at four Educational Media Research Centres (EMRC) and seven Audio Visual Research Centres (AVRC) located in different parts of the country. Apart from these indigenous productions, a number of programmes from U.K., U.S.A., West Germany, U.S.S.R., Canada and other countries are also telecast. As Table 3.1 indicates, majority of these programmes are on science topics, and about 65 per cent of the programmes telecast are produced in India. Also about 80 per cent of the programmes made in the country are produced in the four EMRCs located in Delhi, Ahmedabad, Iona and Hyderabad.

As a first step it was decided to take the programmes produced at the FMRC located in Iona University. It was anticipated that a sample of programmes from the same source would provide similarity in production approach and a uniform standard of production quality. Also, there was the practical
reason of the ready availability of the video tapes of selected programmes for conducting the study.

Consistent with the general pattern of programme content discussed earlier, EMRC Poona also has a tilt in favour of science topics. As the catalogue of programmes brought out by U.G.C. (1967) indicates, about 60 per cent of the programmes produced at EMRC Poona deal with science and science related topics.

Even among the science programmes produced there are programmes in Physical, Natural Sciences as also general awareness programmes. The former types were clearly meant for students enrolled in science courses and the latter (general awareness programmes) were programmes on scientific topics of interest to all students.

It was therefore, possible to make this distinction between curriculum oriented, often syllabus based, science programmes and those that were meant to provide general knowledge on science topics. In this study the first category of programmes are referred to as Instructional Programmes and the second category as
General Awareness Programmes. A set of four programmes in each category were selected for the study, the procedure adopted for the selection being that:

a) In the case of Instructional Programmes, the topics were of relevance to both physical/natural science students and were within the scope of undergraduate level of study.

b) In the case of General Awareness Programmes, the topics were contemporary issues in science or were subjects that an undergraduate student would be familiar with.

With this criteria in mind the following programmes were selected from among those available from IMRC, Poona University.

**Instructional Programmes**  **General Awareness Programmes**

1. Introduction to Lasers  1. Comets
2. Basic Electrical Components  2. Solid Waste and Water

85
3. Microscopes

4. Cathode Ray Oscilloscope

3. Introduction to Computers

4. Life and Work of Sir C. V. Raman - Sound and Light.

The Instructional Type programmes were generally presented in the lecture-demonstration format. The General Awareness Programmes followed a documentary format with voice over narration and/or interview inserts.

A brief summary of the subject matter of each programmes is given in Annexure - 2.

Development of Tools of Data Collection:

The primary source of data for the study would be the response of the students. Consequently a questionnaire to collect the data relevant to the objectives of the study and adequately probe the level of comprehension of programmes is required. To begin with the researcher repeatedly viewed the programmes and derived the questions from the programme content.
However, certain guidelines were followed in evolving these questions.

Any educational programme would first make clear the purpose of the lesson or the concept to be discussed. Then there would be an expansion of this purpose by providing factual information followed by an analysis of ideas discussed and their practical applications. Consequently the programmes were viewed primarily with the intention of deciphering these stages in the presentation of the programmes.

It was observed that these steps of stating goals/objectives, their elaboration through explanations/illustrations and an indication of their possible applications varied from programme to programme. The differences were more observable between Instructional Type and General Awareness Type programmes. Still, with repeated viewings it was possible to separate out programmes into three broad stages - statement of concepts, factual explanations and/or analytical interpretations and finally, the utility
and application of information. Thus questions have been framed to cover each of these areas.

Further questions relating to statement of concept, understanding of analytical interpretation as well as final utilisation are open ended. This would provide the student an opportunity to give comprehensive answers on the basis of information that is spread throughout the programme.

Questions relating to factual information and specific illustration/application discussed are close ended in the sense that there are no alternate answers possible. This provides an indication whether student understand content as it is being expanded. However, in the case of General Awareness Programmes, it was not always possible to frame close ended questions for reasons already stated.

While these questions and sub questions are intended to test the immediate recall of information presented, there are also general questions to elicit student response to the production treatment as also to assess the extent of prior knowledge of the topic.
Apart from this data on comprehension of content, the questionnaires also elicit the television viewing pattern and behaviour of the students and their exposure to CWCR programmes. The students reactions and opinions regarding the programmes are also being collected.

Further to assess their attitude towards television as an additional source of learning, a set of eight statements on a three point scale of Agree/Disagree/No opinion has also been developed. The proforma questionnaire developed is given in Annexure-3.

**Study Procedure:**

Students studying in science courses in the seven selected colleges were the respondents and constitute the data base for the study. Each student has to provide data related to their general television viewing behaviour, view the CWCR test unit programmes and answer questionnaire relating to the content of the programmes seen.

A set of two programmes, one of Instructional Type and one of General Awareness type constituted the
test unit. Since there were four programmes of each type in the sample four test units were prepared. Since students would be watching two different programmes in a test unit, it was necessary to ensure that the questions framed to test comprehension of each programme were of equal difficulty level.

Pretesting of the programmes was therefore, done in two colleges in Bangalore City for analysis of items of the questionnaires developed for each test unit. Fifty science students drawn from the two colleges watched the programmes and answered the questions related to the content of each of the four test units. A comparison of their answers for each programme in a test unit indicated that the questions were of equal difficulty level. Following pretesting the field work was done in the seven colleges selected for the study.

Initially, the principal or a teacher-coordinator of the college was contacted to fix a suitable time to mobilise science students of all
three years. Each college generally allowed all the students of two or more sections to participate in the testing procedure. Normally about 75-80 mixed group of students completed the test requirement of watching the programmes and completing the questionnaire.

Prior to watching the programmes the students were briefed about the purpose of the test, and asked to fill in a questionnaire of personal data, television viewing pattern and their attitude towards educational television in general. They then watched the first programme. Immediately after the programme, they filled in a questionnaire seeking information about the programme seen.

Then they viewed the second programme and filled in the questionnaire regarding the content of the programmes as well as their suggestions opinions regarding ETV programmes. After seeing each programmes, it was first ascertained whether students had seen the programme earlier. None of the students in any of the colleges had seen the programmes used for the test.
Students of one college were shown one test unit, that is two programmes. Thus the students of the four colleges of Bangalore city were shown one each of the four test units respectively. This procedure was repeated in the rural colleges. Since there were only three colleges in Kolar town, students of one of the colleges were divided into two groups and two test units were to be shown to them. In each college the same procedure was followed for data collection.

The data collection work was completed smoothly in all the four city colleges and among three of the four sets of student groups in rural colleges. In Golden Valley College, which provided two groups of students, there was a disruption of the procedure. While there was no difficulty with the first group, there was power breakdown for over three hours while the test unit was being shown to the second group of students. Consequently only partial data could be gathered from the group. Therefore, data is available from all the eight groups of students with respect of their media habits, exposure to CVCE programmes and attitude towards television as an additional learning resource. However, comprehension test responses are available from seven of the eight student groups.