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CHAPTER - VI

SUMMARY AND CONCLUSION

The present study gave us a new method of teaching EVS for Primary school children having discussed all details of treatment of the three groups in the previous chapters and effect of the treatments to different groups, and attempt is made to bring the salient point in the form of summary in this chapter.

Environmental study is one of the compulsory primary school subject in the curriculum of Karnataka. The children study EVS from the beginning of their schooling. But the attainment of the students in EVS is found to be not so satisfactory, this is because of the traditional methods followed in the schools by the teachers. To improve the standard of teaching EVS in Primary schools the investigator made sincere efforts to show the effectiveness of Keli-Kali Radio programme.

The Keli-Kali Radio Programme is a sincere effort by the DEP-DPEP with the help of office of CPI, DSERT, DEP-IGNOU and AIR which he had co-ordinated for distance education programme of DPEP Karnataka. The radio programme comprising of 20-25 minutes lessons giving in the form of narration, discussion, songs and question and answers made the children to learn the EVS with more interest. It was seen by the investigator that, the children were very eager to hear the conversation going on in the Keli-Kali radio programme. Lot of evaluation work on effectiveness of Keli-Kali went on throughout the state. It was
found that, this method of teaching EVS found to be more effective to the children and the Radio sets were available in each and every schools, which is most economic audio tool. But the investigator being a member of designing and programming Keli-Kali Radio programme found that, this method becomes a passive approach since only audio effect may not be suited to young children. They are very eager to see the sequence along with audio output. Hence, in this regard the investigator made survey throughout the state to know the effectiveness of Keli-Kali Radio programme as well as to find out alternative method or technique to teach the EVS most effectively. This survey was done through radio phone-in conference, teleconference, personnel visits and interaction with beneficiaries-teachers, students, parents, resource persons and officers. Some of the teachers and children expressed that, the Keli-Kali Radio programme should be converted into a video TV programme. So that one can see and here the sequences and understanding subject matter most effectively. Hence, an idea emerged in the mind of the investigator to develop an audio visual teaching aid, which was named was Nodi-Keli-Kali package to teach III and IV standard EVS subject. This idea later developed as EDUSAT programme of Karnataka.

To develop such Audio visual material it requires lot of preparation and approach to programme designer and script writer. The investigator took the help of Keli-Kali Radio programme to design such AV material. He approached the script writer to write down lessons in the form of conversation scripts. He also met Video-grapher to shoot required scenes in schools, market, dispensary,
house, gardens etc., to bring about the facts and figures in the form of video clips. Then audio dubbing was done accordingly. Hence, an AV aid was prepared and was subjected to pilot study and standardization in which he found lot of encouragement and appreciation from the teachers and the students.

6.1 Statement of the Problem

"DEVELOPMENT AND VALIDATION OF AUDIO-VISUAL PACKAGE TO TEACH ENVIRONMENTAL SCIENCE FOR III, IV STANDARD STUDENTS OF ELEMENTARY SCHOOLS OF KARNATAKA STATE."

6.2 Objectives of the Study.

1. To study the new interventions in the field of Primary Education.
2. To study the curriculum of primary education concerning to III and IV Standard (EVS).
3. To study the present strategies and methods of teaching EVS in primary schools.
4. To know the effectiveness of Keli-Kali Radio programme of teaching EVS to the Primary School Children.
5. To know the present traditional system of teaching of EVS and its weaknesses / drawbacks in primary schools.
6. To evolve new strategies / technique of teaching EVS in Primary Schools like AV package.

8. To compare the effectiveness of three techniques of teaching EVS namely, traditional teaching, Keli-Kali technique and using AV package technique of teaching.

9. To know the relative effect on the achievement of the students belonging to different Socio Economic and Educational Status for three different treatments.

10. To know the relative effect of achievement of Boys and Girls towards three types of treatment.

11. To know the relative effect of teaching of the EVS with three techniques for the teachers who teaches EVS.

6.3 Review of related literature

In this chapter investigator collected the following related literature:

i) Audio and Radio Programmes

ii) Video and Educational Television Programmes

iii) Environmental Education Studies

iv) Development and Validation of other Innovative programmes

6.4 Design of the Study

The design of the study included formation of three groups. These groups were formed by controlling the intelligence of the students which means selection
of the students having similar intelligence amongst total strength of III and IV class of each school.

1. **Formation of three groups:**

   1) **Control group** : Teacher dominated traditional method of teaching.
   
   2) **Experimental-I** : Students are exposed to the Audio-Radio programme Keli-Kali.
   
   3) **Experimental-II** : Students are exposed with Audio-Video package for learning EVS with little bit of teachers interventions.

2. **Selection of Units**

   The investigator selected four common units from State government syllabus, III and IV standard.
   
   1. **Namma Hallugalu** – Our Teeth
   
   2. **Namma Aahara** – Our Food
   
   3. **Namma Jnyanendriyagalu** – Our Sense Organs
   
   4. **Surya Mattu Jeevigalu** – Sun and living beings.

**IV Standard**

1. **Namma Aahara- Aarogya** – Our Food and Health

2. **Namma Nammalli** – Among Ourselves

3. **Hawamana Mattu Vayuguna** – Weather and Climate

4. **Samparka Sadanagalu** – Means of Communication.
6.5 Sampling Procedure

1. Selection of schools: The investigator randomly selected three schools, namely:

   1) Government Primary School, Nigadi,
   2) Kannada Model Primary School, Sadankeri, Dharwad,
   3) Government Primary School, Navalur.

2. Selection of class and students

   In each of the below three schools there are four IV divisions the investigator administered group intelligence tests and calculated the IQ. Then he selected 25 boys and 25 girls from each school having similar intelligence. The same is presented in the following table.

<table>
<thead>
<tr>
<th>School:</th>
<th>III Standard, Boys and Girls</th>
<th>IV Standard Boys and Girls</th>
<th>Total Boys and Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS, Nigadi</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>KMPS, Dharwad</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>GPS, Navalur</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

3. Selection of teachers: The Science teachers teaching the above classes have been selected.

4. Treatments:

   i. GPS, Nigadi – Control Group
   ii. KMPS, Dharwad – Experimental –I Group
   iii. GPS, Navalur – Experimental –II Group
6.6 Tools used for the study

1) EVS Text Books for III and IV standard
2) Keli-Kali: Audio-Radio Programme
4) Standard Progressive Matrices (Coloured RPM or SPM)
5) Achievement test
6) Opinionnaire

6.6.1) EVS Text Books for III and IV standard

a) III Standard Environmental study text book:

There are 30 chapters in this book. The text book is newly written and published. Every chapter starts with a small activity/exercises. There are coloured pictures and diagrams for each chapters. At the end of each chapter simple exercises has been given with different coloured printings. The investigator chose four units from the text books. They are;

1. Namma Hallugalu – Our Teeth
2. Namma Aahara – Our Food
3. Namma Jnyanendriyagalu – Our Sense Organs

b) IV Standard Environmental Study text book

Similarly, the EVS text book for IV standard contained 29 chapters with similar features as we have seen in III standard EVS text books. There are
number of self guided activities in each chapter. At the end of each chapter objective type of questions and creative activities are given. The investigator has chosen four units, they are:

1. Namma Aahara- Aarogya – Our Food and Health
2. Namma Nammalli – Among Ourselves
3. Hawamana Mattu Vayuguna – Weather and Climate

6.6.2) Keli-Kali: Audio- Radio Programme

The Keli-Kali programme is developed by DEP-DPEP Karnataka. Each chapter of III and IV standard EVS has been adopted by the Radio Programme. Creative and Experienced teachers, script writers, technical experts, artists along with some school children were involved in developing an Audio-Radio programme. The details of which is presented as follows.

Validity of the programme:

The Keli-Kali programme is designed by experts with the contents of III and IV standards EVS. Hence, it has content validity. Similarly, the EVS portion for III and IV standard students are currently involved in the syllabus. Hence, it has concurrent validity. This tool is also having face validity.

Reliability of the Test:

The Reliability of Keli-Kali test was calculated with the help of test- retest method, which was found to be 0.8963.

Hence, the tool is valid and reliable.
Adoptability:

This tool is also easily adopted for the teachers as well as students. Simply they are informed to watch the Radio programmes. So this tool is easily adoptable. Hence, the tool is used for the data collection.

6.6. 3) Nodi-Keli-Kali, Audio-Visual Package:

1. This is the main tool of the study which is developed by the investigator with the following objectives.
   a. All the students should learn the EVS systematically, scientifically and effectively.
   b. The environmental subject should be taught with modern AV aids.
2. All most all sense organs should be involved in the learning process.
3. The students belongs to rural areas should also learn the EVS effectively.

Keeping in view the above objectives, the investigator utilized the following primary sources for construction of such tool.

1) Text book of III and IV standard EVS.
2) Teachers hand book for teaching III and IV standard EVS
3) Keli-Kali Radio Programme on III and IV standard EVS.
4) Encyclopaedia of Science and Technology.
5) Animation Films and Video Clips.

Choosing of the Units

As already mentioned for the Keli-Kali Radio programme, the investigator chose four chapters each from III standard and IV standard EVS randomly.
III Standard

1. Namma Hallugal — Our Teeth,
2. Namma Aahara — Our Food,
3. Namma Jnyanendriyagalu — Our Sense Organs,

IV Standard

1. Namma Aahara- Aarogya — Our Food and Health
4. Namma Nammalli — Among Ourselves
5. Hawamana Mattu Vayuguna — Weather and Climate

Script Writing:

After choosing the units for developing an Audio-Visual package for III and IV standard EVS the investigator approached script writer and Director of AIR. He also met some of the programmes executives in AIR, Hospet and showed them the chapters along Keli Kali Radio programme with the guidance of the above persons script writing was done.

Video Shooting

The investigator approached technical persons of Video shooting and gave them the scripts. So that, they are able to shoot the events according to the scripts and content matter. Sri G.R.Bhat and Sri A.R. Desai took up the Video shooting for the above Eight chapters of III and IV standard EVS. The shooting of events took about two months.
Audio output

The written scripts for EVS III and IV standard were subjected to Audio output for this purpose following persons were involved in recording.

1. Primary School, Teachers (Including lady teachers)
3. Doctors and other persons.

The scripts were shown to them for proper narration. The above persons prepared well for audition test. This audition test was directed and prepared by the experts of AIR, Dharwad.

Audio-Video Dubbing

After the scripts were properly practiced by the persons involved in the study their narration were recorded and these recorded tapes were dubbed in the Audio-Video studio according to the situation.

Hence, a programme material known as Nodi–Keli–Kali was prepared. Here, the students observe the events along with proper Audio output (Narration), which has direct effect on their mind and will not be forgotten easily. Unlike in the Keli-Kali programme where in only Audio output is involved, this programme utilized two senses auditory and cite.

Try-out-I

The Nodi-Keli-Kali AV package was shown to experts and necessary corrections were made. The tool was subjected to Try-out-I.
Sample for Try-out-I

The tool was administered to a group of III and IV standard students belonging to model primary school, Hosa Yallapur near Dharwad. The opinions of the teachers as well as the children were noted down. Both the teachers and the children enjoyed the programme and learnt the EVS effectively, which was estimated by an achievement test prepared by the investigator for the study. The mean was found to be 85.5 and the SD 2.13.

Second Try-Out

The same test was administered to another set of students studying in III and IV standard in Kamalapur village near Dharwad city. The opinion of the teachers and the students were noted down. They were highly satisfied with the tool. The achievement test prepared by the investigator for the study was administered and the mean calculated was 84.8 and the Standard Deviation 2.1.

Validity of the Test

The results of two tryouts the opinion of the teachers and the children expressed high degree of satisfaction, which means the test has content validity and concurrent validity.

Reliability of the Test

The reliability of the test was established by test-retest method. The coefficient of correlation between the two tests calculated was 0.813 which means the test is reliable.

Hence, the audio-video package was retained for final data collection. Since, it is to be validated on large sample with the help of experimental design.
6.6.4 Intelligence Test (Standard Progressive Matrices)

It is important to know the achievement of the students after the treatment. But the intelligence of the students intervenes achievement. Hence, it is customary to control, statistically the intelligence of the students. For this purpose the investigator used RPM coloured matrix (which is meant for children Age, 10 years).

6.6.5 Achievement Tests

The investigator constructed 25 items from each unit by consulting experts and other experienced teachers in Environmental Science Based on their comments and suggested these items were future modified.

These tests were tried on a representative sample consisting of 100 students 150 Boys and 50 girls drawing 25 students each from 4 schools.

The second try out of the test was made for 75 students (40 Boys and 35 girls) drawing 25 students each from 3 schools.

The duly scored answer sheets were arranged in ascending order of scores. The answer sheets of 27% of the students scoring highest and the answer sheets of 27% of students scoring lowest were selected for item analysis which formed upper and lower group respectively.

The procedure of calculating the facility value (f value) and discriminative index used in the case of group intelligence test was employed.

From the results the investigator obtained more than 60 items which could be retained (for both III and IV standard). Hence, he covered easily prepare two pre-tests for each standard based on the five point already decided.
Standardisation Procedure:

The scores of the sample of 100 students were tabulated in a frequency distribution table. The maximum and minimum scores were noted. The mean, Median, Standard deviation were calculated. The Mean, Median of the two tests for both the classes were similar.

Validity of test:

The test had content validity as it was based on the requisite content. The environmental studies makes of annual examination of 100 students were correlated in the test scores. The co-efficient of correlation of 0.59 and 0.57 for respective classes was found to be significant. This shows that the test is valid. The two forms of content achievement tests (test re-rest forms) were reliable and valid. So they could be used with confidence in the final data correction.

The test was constructed for calculating the achievement of III and IV standard students in Environmental sciences. So it had concurrent validity.

Reliability of the Test:

The reliability of the test was calculated by the split-half method the odd numbered items formed one group and the even number items formed the other group, when both the groups were correlated by Spearman-Brown Properly formula the ‘r’ was calculated and found to be 0.72 in case of III standard and 0.68 in case of IV standard, which means the test is reliable.

6.6.6 Opinionnaire

After the development and validation of the Audio-Visual programmes the investigator also wanted to know the post-viewing opinions of the students and
teachers, which was in addition to find out comparative effect of this programmes to Traditional and Audio method. Hence, to separate opinion for the stake holders viz., teachers and students.

The investigator prepared few items pertaining to objectives of the programme, quality-content, sound, visuals, music, acuities etc., These items were discussed with the Guide and few educators. Finally, the investigator decided to use 20 items for teachers and 7 items for students of Nodi-Keli-Kali group that is, Experimental-2 group. The opinionnaire sought the respondents to reply in ‘Yes’ or ‘No’.

6.7 Data Gathering Procedure

The investigator collected the data required for the study in three stages.

First State before the treatment:

Pre-Pre test score:

These scores are nothing but the scores of the students at the annual examination of previous year in EVS for II and III standard. This mark indicates the status of the students achievement at the entry level to the next standard. So the investigator noted down accordingly.

Administering RPM

One of the objectives of the study is to know the achievement of the students. Hence, it is important to know the intelligence of the students. In this study, the intelligence is control variable. Hence, the investigator controlled the intelligence statistically, which means he has chosen similar intelligence students as a students sample. There are more than 75 students in each chosen class.
The investigator administered coloured RPM to all the 75 students and calculated the intelligence and chose only 50 such students who are having same or similar intelligence in all the three sets of schools.

**Training of the Teachers**

One of the important aspects of the study is of teaching methodology or techniques of teaching. There are 3 sets of treatments in the present study. Namely, textual teaching which is teacher dominated and having traditional method. The another one is Keli-Kali Radio programme technique and the Third one is Nodi-Keli-Kali Audio –Video Package developed by the investigator for the study. Three sets of teachers (3 teachers) one for each treatment were invited by the investigator to the P.G. Department of Education, Karnataka University, Dharwad for giving a training in using specific methodology for the present study. On 26-2-2004, three teachers chosen for the study were invited for arranged training for the teachers in three types of treatments. The first teacher was given training in using text books with traditional method. These teachers of III and IV standard of this group formed control group. The second teacher was given training in teaching the EVS with the help of Audio cassettes – Keli-Kali Radio programme. The pre recorded Audio cassettes for chosen EVS III and IV standard topics were given to the teacher with specific instructions. Hence, these two teachers formed experimental-I group. The third teacher was given intensive training in using A-V-aids that is Nodi-Keli-Kali and were also given a DVD player with TV. This group forms Experimental-II group.
Administration of Pre-test

The achievement test of EVS for III and IV standard in selected topics were administered to the students of chosen classes of the schools and the scores were noted down.

Second stage - During the treatment

During the treatment after preliminary arrangements were made and the pre-test was administered the investigator. Then he requested all the three set of teachers to start the treatment that is to start using the specific techniques given to the respective sets of teachers.

The control group treatment was over by three weeks. Where as Keli-Kali Audio programme was completed in six weeks. Similarly the Audio-Video package namely Nodi-Keli-Kali was completed in 6 weeks.

Third Stage - Past treatment

After the treatment, the investigator visited all the three schools and gave the achievement test in the form of post-test which was parallely constructed along with pre-test. Hence, the same achievement test was given to the students of three schools belonging to III and IV standard. The scores were noted down.

Statistical Techniques used.

1. Mean, Median and Standard Deviation.
2. F- ratio through ANOVA.
3. t-test
6.8 Educational Implications.

The present study directly proved that, the Audio-Visual package developed by the investigator—Nodi-Keli-Kali has yielded excellent results, which meant the children taught by using the AV-aid has achieved excellent results. Similarly, the children taught through Keli-Kali a Radio programme have achieved significantly more than traditional method. This has opened a new vision in teaching environmental studies to the primary school children that, using AV aids learning will be optimum. But when Audio-aids are used the learning will be better. Hence, we must frame the curriculum of EVS to teach such subjects with the help of either audio equipment like Radio or Tape recorder or use of DVD and TV with the help of AV package. The present study also reveals that, children are attracted by the audio visual aids and the evaluation will be most successful. Hence, the investigator who was the then state co-ordinator of distance activity surveyed schools for electricity, security of the instrument and hard spots or content areas. Finally he prepared a proposal of massive scale for Nodi-Keli-Kali which was named as EDUSAT programme for primary and secondary level. The study implementation of programme has started very recently in Chamaraj- Nagar district of Karnataka.

The investigator chosen environmental studies purposely since, it is an need of hour to develop a positive attitude towards the environment that the children are living. Every child should develop an awareness to protect the environment for the better tomorrow. Such positive thinking will be developed with the help of effective teaching. Since the children are highly receptive in
nature. They understand what is good and what is bad. So desirable, habits and active nature may be developed with the help of modern methods of teaching. The protection of green life and some of the social animals and maintaining ecological balance is urgent need of an hour. Hence, such attitude should be developed at primary stage. So, the investigator made a sincere effort to before the young children the facts and the figures about environment and create an awareness to react about the problems pertaining to it. In this way, every child becomes fully aware of the surrounding and preserving the important gift of the nature. The audio visual package is really helpful to the children to develop such desirable attitude towards protecting the nature. The units chosen for III and IV standard are really representative of total portion for respective standard. An effort may also be made to develop audio visual package in the form of Nodi-Keli-Kali AV aid for the rest of the units of III and IV standard EVS.

6.9 Limitations of the Study.

1. The present study is limited to III and IV standard Environmental studies.

2. The study is also limited to selected units of EVS of III and IV standard.

3. The AV package developed for the study may not be generalized to the other units.

4. The script writing and Video shooting may be a laborious process involving lot of expenditure and time.
5. It is not possible to supply colour TV and DVD and the AV software package to each and every primary school of Karnataka state. Since there are more than five lakh schools in Karnataka state.

6. The teacher needs special training in teaching the units through AV package, which is not possible in a short span of time.

7. In village in rural areas main problem is of electric power supply which is not evenly distributed. Hence, it is not possible to any teacher to show such programme at proper interval of time to the students.

6.10 Suggestions for further Research.

1. Such study can be undertaken as a big project to prepare and validate Audio-Visual package to teach EVS for I to VII Standard children.

2. Such study can be undertaken to prepare and validate for the other subjects like language and mathematics.

3. A comparative study of effectiveness of traditional methods and Keli-Kali Radio programme may be undertaken.


5. To undertake the survey of effectiveness of AV method of teaching EVS in the primary school children.