

CHAPTER 1
REVIEW OF LITERATURE

The present investigation is an experiment to find out the relative as well as independent effectiveness of two selected communication strategies, namely live and videoed Bhavai as motivational programme and Exhibition-cum-Demonstration as educational programme. The investigator explored through several sources like journals, research reports and also corresponded with a number of insitiutions active in the field of energy education. However, a very small number of research studies were available in the process of motivation and in the field of energy education through communication strategies, in India as well as abroad.

The relevant studies available to the investigator were in relation to the motivation, energy education through various communication strategies, Education through video and other media as well as other related studies.

- 1.1 Research related to motivation.
- 1.2 Researches related to energy aspect and communication.
- 1.3 Researches related to education and communication strategies.

1.1 Research Related to Motivation

A study by Singhaulakh, S.P. (1979) on students motivation to work was done with the following objectives.

- i) To identify the factors which influenced a students motivation.
- ii) To study the motivational levels of the students with regard to their work.
- iii) To study the motivational levels of the students, studying in government and non-government schools.
- iv) To make a comparative study of the motivational levels of boys and girls of urban and rural schools of ix and X classes.

The findings of the study were :

- 1) There was no significant difference between urban and rural schools with regard to motivation among students.
- 2) There was no significant difference among students of class IX and X with regard to their motivation.
- 3) Motivation was found to have a significant relationship with better performance and achievement.

1.2 Researches Related to Energy Aspect and Communication

Tiwari, R. (1980) did a study of the Relative Effectiveness of two selected teaching aids - Exhibition and Slides in imparting information about non-conventional stoves and fuels to primary school children, of Ankodia village of Baroda Taluka.

The major objective of the study was to find out the

suitability of Exhibition and Slides in promotion of information on non-conventional stoves and fuels to VI and VII standard students.

The sample comprised of 45 boys and 35 girls from VIth, VIIth standard of one urban and one rural school.

The findings of the study revealed that there was overall gain in knowledge as well as retention through instructional aids for both VIth and VIIth standard students. There was significant difference in the gain in knowledge of the selected students in relation to selected variables.

Agarwal (1980) developed, fabricated and tested a novel solar cooker "Flat Box Type with Twin Vertical Reflecting Boosters". It is in domestic use since 1980.

This solar cooker eliminates the use of glass mirror reflectors, avoids any adjustments during cooking with movement of sun, cooks two meals a day in winter and summer. This solar cooker was demonstrated to and was used by people from various groups, members belonging to teaching profession, offices, science fairs, exhibitions seminars etc.

Comments by the observers were -

- * The cooking time with solar cooker is too much.
- * Use of silvered glass mirror, instead of aluminised film, could increase the reflection of sun rays on cooker.
- * The body of the solar cooker can be made of metallic sheet instead of wood, which will long life to cooker.

- * Solar cooker is useful only on sunny days.
- * It's initial cost may be high for poor rural consumers.

There were many practical problems faced by the users.

Maulik (1985) conducted a study on socio-psychological and economic factors affecting acceptability of solar cooker in 12 districts of Gujarat.

The major objective of the study was to examine the effect of demographic factors, cooking methods and food habits, educational levels and decision making patterns, economic and technological limitations affecting acceptability of solar cooker.

During this she surveyed the users and non-users of solar cooker. There were 636 families in the semi urban and urban areas and 370 families in rural areas.

Findings on the actual users :

1. The findings of the study revealed that the most influencing factors in making the decision to purchase solar cooker was 'fuel saving'.
2. It was also found that education, income and family size seemed to have bearing on acceptance.
3. The disadvantages perceived by the non users were too heavy, inconvenient to shift and long time duration required for cooking.

4. The major reasons for not buying solar cooker was unawareness of its place of availability, price of solar cooker, maintenance and repair.

Findings on non-users (Neighbours) :

1. The majority of non users were aware about the solar cooker and its functioning and the sources of awareness was through neighbour, newspaper, exhibition and demonstration, friends and relatives.
2. Again with the non users, size, and economic level of household were also found to have a definite bearing on acceptability of solar cooker.
3. The non users held that the greatest advantage of solar cooker was fuel saving device.
4. The reasons for not purchasing the solar cooker by the non users, who were aware and convinced of the utility of solar cooker were of its place of availability, too heavy and long cooking hours.

Griffin (1987) analysed the study on communication and the adoption of energy conservation measures by the elderly (homemakers) in Milwaukee.

The main objective of the study was to determine the relationship of communication to adoption of energy conservation behaviour among homemakers.

The findings of the study indicated that the younger

homemakers would adopt energy conservation behaviour faster than the older home makers. It suggested that the energy related content in the mass media bears stronger relationships with the perceived importance of the energy problem and energy conservation attitudes than with energy conservation behaviour. Energy communication media seemed to be used equally by both more and less educated respondents. The more educated respondents (Homemakers) had the knowledge about energy through the reading of news papers (Print media) and the less educated had the same by viewing the TV energy commercials. The study indicated the importance of obtaining customized information that can be applied to one's own circumstances.

1.3 Researches Related to Education and Communication Strategies

Puri, M. and Khanna, K. (1969) conducted a study on the role of an instructional film in subject matter learning, by students of rural schools to find out the amount of subject matter learnt through an instructional film.

The total sample comprised of 240 students, 60 from each four schools.

The findings showed that the film plus lectures method was the most effective treatment. The order of effectiveness was film plus lecture, lecture only, and film only. The film alone was effective as a method of teaching, and differences in learning between the sexes were found to be significant.

Kaur, J. and Khanna, K. (1970) conducted an experimental study on the Relative Effectiveness, of four selected visual Instructional Aids, to find out the relative effectiveness of four selected visual instructional aids with respect to gain in knowledge.

The sample selected comprised of eighty students of the VIth and VIIIth standard. The sample was restricted to girls students.

The findings of the study revealed that the visual instructional aids were effective in the learning and retention of the subject matter of nutrition. It was concluded, that the flannel graph puppets and chalkboard, were equally effective and superior to flash cards with respects to gain in knowledge. Regarding retention, all the aids were equally effective.

Machula (1976). carried out an experiment to determine, if different effective responses would result, from exposure to three different forms of media presenting the same content. The media involved this experiment were video, tape, audio tape and print. Out of three groups, one group viewed the video tape, another heard the audio tape and a third group read the printed transcript. A semantic differential consisting of fifteen scales, on seven concepts, was used to measure differences in effective response, and an objective test was administered to measure

cognitive learning. An analysis of co-variance between pretest and posttest scores of the cognitive learning showed that the subjects receiving the audio tape version, had learned significantly less than those receiving the other treatments.

Griff (1977) conducted a study on the effect of open broadcast and videocassette tape instructional television, upon selected students in the second, third and fourth grades in the east Texas State.

The purpose of the study was to determine the effectiveness of open broadcast instructional television, and video cassette tape instructional television. A sample of 120 students from second, third and fourth grades was selected for the study. The test of basic skills and attitude towards school inventory was used, and the test was applied to find out the significant differences between the means obtained from pretest and posttest scores.

The findings of the study revealed that neither open broadcast instructional television nor video cassette tape instructional television produced any significant improvement, in achievement scores, in the two major treatment groups. There was a significant improvement in posttest scores, of both open broadcast instructional television and video tape instructional television groups at the second grade level. There was no significant improvement in the achievement scores, of the

students according to sex as a variable. The students scores indicated, a significant improvement in their attitude towards school.

Muddu, V.M. (1978) conducted a study of the effectiveness of the use of motion picture, as aids in the teaching of biological sciences as compared to the usual methods.

The major objective of the study, was to study the effectiveness of the motion pictures, as aids in teaching biological science.

The sample students (30 students to each group) were assigned to the experimental and control group randomly. The two groups were taught the same topics in biology.

The findings of the study were : 1. There was a significant improvement in the posttest performance of students in both the groups over the pretest. 2. There was significant improvement in posttest performance over pretest performance in higher range of scores particularly in the case of the experimental group. 3. There was a definite improvement in the pass percentage in case of the experimental group. 4. The sound pictures helped to a great extent, to the above average students, to comprehend the subject matter in biology. 5. The use of films in teaching of biological sciences helped in, more learning in lesser time, and, better retention of what was learnt. 6. Instructional films stimulated the scientific interest of the

students. 7. Instructional films had immense potentialities in teaching, and provided the elements for various visual experiences, which in turn made the lessons more vital and further made the language used in lessons more meaningful.

Stanton (1979) attempted to investigate comparative effectiveness of two messages (simple and complex) and three media conditions, (audio, written and video) for facilitating information gain in learning. 90 undergraduates were randomly assigned to six conditions. Each treatment group received a complex or a simple message transmitted by audio cassettes, audio-visual cassette or written study sheet. A two factor analysis of variance indicated a significant effect for media and not for the messages. Scheffe tests were performed to compare audio and video, video and written, and written and audio media for both simple and complex messages. It was found that video is more effective than audio in the retention of simple information. No difference was found between the complex audio message and the complex video message. The simple video message was not found effective than the simple written message. Written is more effective than audio in the retention of simple information. No difference was found between the complex written message and the complex audio message.

Chetanlal, N. (1982) did a study to find out the relative effectiveness of graphic aids, and projected aids enriched with

museum experience in teaching food and digestion to VII standard students.



The major objective of the study was to find out the significant differences in the knowledge, change in opinion and change in practices in relation to sex, academic achievement and socio-economic status.

Findings showed that there was significant overall gain in knowledge regarding food and digestion as a result of teaching. Mean scores of experimental group exposed to projected aids enriched with museum were higher than the mean scores of group taught with no teaching aids.

The mean scores of girls - boys and high achievers low achievers differed significantly. There was no significant difference in relation to SES in the gain in knowledge.

There was no significant change in the opinions and practices of VII standard students as result of teaching food and digestion through different aids.

Seth, Indu (1983) conducted a study of the Effectiveness of Educational Television on the Educational Development of primary school children.

The major purposes of the study were to inquire into the effect of educational television, on the educational development of primary school children, in terms of language development,

acquisition of information related to ETV programmes and scholastic achievement, and provide the feedback to administrators and producers on different aspects of ETV programme.

The sample comprised of 12 randomly selected schools run by Delhi Municipal Corporation.

The study generated following major findings.

- * Language development of children, exposed to ETV, was higher than those not exposed to ETV.
- * The ETV group was found higher on acquisition of information related to ETV programmes than the non-ETV group.
- * The scholastic achievement of students exposed to ETV programmes, along with intervention was higher than the ETV and the non-ETV groups.

Kothari, R.G. (1985) conducted an investigation into efficacy of different instructional media in teaching mathematics to the pupils of class IX in relation to the selected variables.

The major objective of the study was to investigate the efficacy of instructional media I visual projection over instructional media II activities and experiment in terms of achievement in relation to certain variables.

The experiment was carried out in two schools. Four groups of Class IX pupils having 30 pupils in each group were selected for implementing the instructional media while the other four

groups were treated as control groups.

The results clearly indicated that the instructional media namely visual projection was comparatively more effective than any other media like activities and experiment or even programmed learning material. The low achievers were comparatively more benefitted by programmed learning material than the high and average achievers.

Desai, K.V. (1985) conducted an investigation into efficacy of different Instructional Media in the teaching of science to the pupils of Class VIII in relation to certain variables.

The major objective of the study was to compare the achievement of pupils in science learning through different instructional media and the traditional way of teaching.

Four equivalent groups with respect to motivation towards schools and reasoning ability were prepared. In each group there were 25 students. Each of the groups were taught separately through programmed learning, slides with discussion approach, experimental approach and the traditional approach.

The major implication of the study was that there is not one method of teaching science. The programmed learning approach, slide with discussion approach and the experimental approach was more effective than the traditional way of teaching science. Media are effective in science education.

Gangoli, S.G. and Gurumurthy, C. (1985) made a comparative study of the effectiveness of openended approach of doing Physics experiments versus Traditional approach at higher secondary stage.

The primary objective of the study was to compare the effectiveness of doing experments in physics at the higher secondary stage by the open-ended approach vis-a-vis the traditional approach.

This was an experimental study wherein the experimental group followed the guided open-ended approach, and the control group followed the traditional laboratory approach for doing the experiments.

The findings of the study were :

1. The students of the guided open-ended group showed better performance in the achievement test and in the skill test than those of the traditional laboraotry group.
2. Students of the experimental group were found to be superior to students of the control group in -
 - (i) high and low intelligence level groups,
 - (ii) high and low SES level groups, and,
 - (iii) high and low creativity level groups.
3. Within the experimental as well as control groups, high intelligenct, high SES and high creativity students differed markedly from students of low intelligence, SES and creativity.

4. In both groups, girls were found to be superior to boys.

On the basis of the results discussed, it was concluded that the guided open-ended approach was superior to the traditional laboratory approach in developing the content matter and practical skills in physics.

Dhamija, N. (1985) conducted a comparative study of the Effectiveness of Three Approaches of Instructions - Conventional, Radio Vision and Modular Approach on Achievement of students in social studies.

The major objective of the study was to compare the achievement of students of Class VII in social studies, geography, civics, history when taught through three different approaches viz. radio-vision, modular and conventional.

The sample comprised of 90 students belonging to one school. These students were selected based on their intelligence. Three schools were selected for the study.

The major findings of the study were :

1. The programmed learning approach was more effective than the traditional way of teaching science.
2. The slide with discussion approach was more effective than the traditional way of teaching science.
3. The experimental approach was more effective than the

traditional way of teaching science.

4. In the teaching of science, the experimental approach was the most effective of all approaches.
5. The programmed learning approach and slides with discussion approach were equally effective.
6. The use of instructional media indicated the possibility of improvement in the methodology of science teaching, raising the standard of science education in secondary schools and development of taste and interest in the younger generation for the subject of science.

The major educational implication of the study is that there is not one method of teaching science. The teacher should be experimental-minded and should use different approaches in the light of different objectives. Media are effective in science education.

Barve, M.V. (1986) conducted a study on preparation and testing of the filmstrips for the teaching of science - a course in standard IX and a study of their comparative effectiveness in the teaching learning process as compared to the traditional practice.

The major objective of the study was to prepare a film strips on the selected topics from the science course of standard IX, to teach the selected units of science course of standard IX by using these film strips and to compare the

effectiveness of teaching with the help of filmstrips and the traditional practice of teaching science in relation to the selected variables. The students for the experiment were chosen by the incidental sampling method.

The major findings revealed that film strip was more effective than the traditional method of teaching the facts, principles and concepts in science. Secondly, film strips and the traditional methods were equally effective for teaching abstract concepts in science. Film strip was an effective teaching aid for all level of learners i.e. low medium and high achievers. Film strip was more effective method of teaching for both sexes.

Goswami (1986), studied the video utilization by selected homemakers of Baroda city and their opinions regarding its impact on family life.

The main purpose of the study was to find out the video utilization pattern of the selected homemakers and the impact of video as an enhancer or an obstacle on family life.

The sample of the study comprised of one hundred and twenty families of Baroda.

The findings revealed that majority of the respondents bought video in their family to have recreation at their own convenience, and high percentage of homemakers considered the

impact of video as an enhancer in performing the social activities. It was concluded that an effective imaginative and carefully directed video viewing could help in developing a climate of acceptance of video as a medium of education.

Joshi, U. (1987) conducted a study on effectiveness of Teaching a Course Introduction to Home Science Education and Extension through multi-media strategies to the first year Home Science students of the Faculty of Home Science, Baroda, in relation to the selected student characteristics.

The major objective of the study was to evolve two multi media strategies to teach Introduction to Home Science Education and Extension, and to study the difference in the effectiveness of the two multimedia strategies in relation to the selected students characteristics.

The major findings showed that there was no significant difference in the achievement of the students on two multi media strategy 1 and strategy 2. Both the strategies were found equally effective. The main effect of each of the variable was found significant except for attitude towards multi media strategy. Mean scores revealed that students with high intelligence, high competence in English and from science stream of study achieved higher compared to the students with low intelligence, low competence in English and from general stream of study at higher secondary school level.

Chandra, Shah and Thomas (1987) carried out a study on television teaching project sponsored by Indian Space Research Organisation in the Department of Education and Extension, in Faculty of Home Science, in order to impart family life education to urban and rural women and adolescent girls through video film.

The aim of the study was to find out knowledge gain, and change in opinion of urban and rural women and adolescent girls when instructed through video films on selected content. To find out effectiveness of video films using approaches persuasive approach and informative approach.

The sample of the study consisted of lower socio-economic, Gujarati speaking women and adolescent girls of urban and rural schools.

The findings in relation to knowledge, opinions and reactions revealed that informative approach was more effective and adolescent girls gained more through video tapes. On the whole, the tapes were reported to possess a good educational aspect.

Laul, V. (1989) conducted a comparative study of video cassette alone as well as along with handouts regarding adequate nutrition of low cost in Lal Bahadur Shastri School, Harni Road, Baroda.

Two video cassettes persuasive and informative prepared by Chandra, Shah and Thomas (1987), Department of Home Science Education and Extension, Faculty of Home Science, M.S.University, Baroda, under the television teaching project sponsored by Indian Space Research Project Organisation, were used in this study.

A handout was prepared by the investigator which was based on the same content. The sample of the study consisted of 224 pupils from the school belonging to the lower middle or low socio-economic status. It was homogeneous group.

The tool used for data collection was paper pencil test for knowledge gained and practice changed. The collected data were statistically analysed by the use of paired t test.

The findings revealed that both informative and persuasive video cassettes were found effective for knowledge gained among the girls and boys, but boys showed more gain through persuasive video films, whereas for change in practice girls responded very well to informative video film.

It was concluded that persuasive informative video cassette alone or along with handouts was a good medium for knowledge gained and practice changed regarding adequate nutrition at low cost. The students of 6th standard were benefitted through video cassette and handouts in classroom situation.

Gupta, A. (1990) conducted a study on production and validation of a video film on selected voluntary organizations working for women in Baroda city.

The main purpose of the study was to produce and validate a video film on selected voluntary women organizations in Baroda and to study its effectiveness in relation to age, educational level and size of the family. It also studied the reaction of the respondents towards video film.

The sample of the study consisted of 50 women of low socio economic status from police headquarters of Baroda city.

The findings of the study revealed that there was high significant difference in the pretest and posttest mean scores which confirmed the validity of the film. The film was found suitable to younger and older age group, low and high educational level group, small and large family size group. Hundred per cent of the respondents showed very high interest in the income generating activities.

Damers and Shrigley (1990) conducted a study on the effect of videotape and written channels of communication on the science attitudes of preservice elementary teachers.

The purpose of the study was to assess the effect of written and videotape channels of communication on the attitude change of preservice elementary teachers towards the teaching of science.

The sample consisted of 66 preservice elementary teachers, was randomly assigned to either videotape or written treatment using the coin flip method. The data revealed that there were no significant mean score differences among videotape and written across the three tests administered i.e. pretest, posttest and retention test. The results suggest that the effect of those two channels of communication on science attitudes were equivalent when presented to junior and senior college students, in this case preservice elementary school teachers.

In a parallel study by Miller (1985) a videotape message was compared with an audiotape version (the soundtrack of video tape). Here the mean scores of the three groups (videotape, audiotape and control) across three administrations (pretest, posttest and retention test) were not significantly different.

The combined results of the two studies suggest that audiotape, videotape and written channels of communication are equally effective. The only major channel commonly used was not tested here was face to face, a live communication, which Myers (1987) claims to be more effective than the other three channels. The live channel can be handicap if the treatment has to be repeated to several groups and the speaker varies the message for whatever the reason, including the effect of practice.

Gupta, A. (1991) produced a video film on puppetry to

instruct the Home Science college students and testing its effectiveness in terms of gain in knowledge, Vadodara.

The main purpose of the study was to produce a video film on puppetry to instruct the Home Science students and to measure its effectiveness in terms of gain in knowledge in relation to familiarity with puppets, exposure to television and video and academic achievement. It also studied the reaction of the student and teachers towards the video film produced on puppetry.

The sample comprised of two categories. Category 'A' consisted of fifty five undergraduate students of second and third year of Department of Home Science Education and Extension, Faculty of Home Science, Vadodara.

Category 'B' consisted of eight teachers from Faculty of Home Science, Vadodara. Four teachers were from Education and Extension Department, one teacher from Foods and Nutrition Department and other three teachers from Department of Human Development and Family Studies.

The major findings of the study were that there was high significant difference in the pretest and posttest mean scores which confirmed the effectiveness of the film. The film was also found highly effective to the respondents with high and low familiarity with puppets, more and less exposure to television

and video, good and poor academic achievement. There was no significant difference found within the pretest mean scores and posttest mean scores of the respondents with high and low familiarity with puppets, more or less exposure to television and video, good and poor academic achievement.

Overall findings regarding reactions of the respondents showed that 62.5 per cent of the teacher respondents had highly positive reactions, whereas a little less 40 per cent of the student respondents had highly positive reactions towards the video film lesson.

CONCLUSION:

An overview of the past researches on education and media revealed that use of media in education is gathering momentum. The various teaching techniques are being tried out at different level of education.

The educational practitioners as well as the researchers have started developing instructional media. It is further indicated that the instructional media when used for different age groups, subjects and situations ensures better learning.

The review revealed that it is impossible to arrive at the conclusion regarding the type of strategy and its effectiveness in changing knowledge in general and science education in particular.

Although there were large number of studies conducted to explore the independent effectiveness of the selected media at school level.

Therefore the most important area for future research is to determine the relative effectiveness of each educational media appropriate for science education.