FINDINGS, CONCLUSIONS, EDUCATIONAL IMPLICATIONS

AND

SUGGESTIONS FOR FURTHER RESEARCH
CHAPTER 3

FINDINGS, CONCLUSIONS, EDUCATIONAL IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

5.0.0 INTRODUCTION

In the previous chapter results, interpretation, and discussions of the results have been presented. This chapter includes the findings, conclusions drawn, educational implications of the present investigation and suggestions for further research.

5.1.0 FINDINGS

The statistical data of the present study reveals the following findings:

(1) There is a significant difference between the mean achievement scores of video instructions followed by teacher's discussion mode group and demonstration mode group with F-value of 9.39 at 0.01 level of significance (Table 4.2). Hence the null hypothesis, "There is no significant difference in the mean achievement scores of secondary students in science, taught through video instructions followed by teacher's discussion mode and demonstration mode", is rejected. The t-value of 3.78 for VDM and DM groups is significant at 0.05 level (Table 4.3). This indicates a significant difference between the mean gain
achievement scores of secondary students in science taught through VDM and DM. The mean gain achievement score of 29.52 of video instructions followed by teacher’s discussion mode group is higher than the mean gain achievement score of 22.82 of demonstration mode group. This indicates that the achievement of secondary students when taught through VDM is significantly higher than the students taught through DM.

(2) There is a significant difference between the mean achievement scores of video instructions followed by teacher’s discussion mode group and video instructions mode group with F-value of 35.30 at 0.01 level of significance (Table 4.5). Hence the null hypothesis, "There is no significant difference in the mean achievement scores of secondary students in science, taught through video instructions followed by teacher’s discussion mode and video instructions mode", is rejected. The t-value of 6.86 is significant at 0.05 level (Table 4.6). This indicates a significant difference between the mean gain achievement scores of secondary students in science taught through VDM and VM. The mean gain achievement score of 29.52 of VDM group is greater than that of 18.05 for the VM group. This shows that the achievement of secondary students when taught through VDM is significantly higher than the students taught through VM.
(3) There is a significant difference between the mean achievement scores of video instructions followed by teacher's discussion mode group and students' learning through self-experimentation under the guidance of teacher mode group with F-value of 304.31 at 0.01 level of significance (Table 4.8). Hence the null hypothesis, "There is no significant difference in the mean achievement scores of secondary students in science, taught through video instructions followed by teacher's discussion mode and students' learning through self-experimentation under the guidance of teacher mode", is rejected. The t-value of 16.15 is significant at 0.05 level (Table 4.9). This indicates a significant difference between the mean gain achievement scores of secondary students in science taught through VDM and SLM. The mean gain achievement score of 29.52 of VDM group is greater than that of 11.52 for the SLM group. This shows that achievement of secondary students when taught through VDM is significantly higher than the students taught through SLM.

(4) There is a significant difference between the mean achievement scores of demonstration mode group and video instructions mode group with F-value of 9.38 at 0.01 level of significance (Table 4.11). Hence the null hypothesis, "There is no significant difference in the mean achievement scores of secondary students in science, taught through
demonstration mode and video instructions mode", is rejected. The t-value of 9.38 is significant at 0.05 level (Table 4.12). This indicates a significant difference between the mean gain achievement scores of secondary students in science taught through DM and VM. The mean gain achievement score of 22.82 of DM group is greater than that of 18.05 for the VM group. This shows that the achievement of secondary students when taught through DM is significantly higher than the students taught through VM.

(5) There is a significant difference between the mean achievement scores of demonstration mode group and students' learning through self-experimentation under the guidance of teacher mode group with F-value of 51.81 at 0.01 level of significance (Table 4.14). Hence the null hypothesis, "There is no significant difference in the mean achievement scores of secondary students in science, taught through demonstration mode and students' learning through self-experimentation under the guidance of teacher mode", is rejected. The t-value of 7.53 is significant at 0.05 level (Table 4.15). This indicates a significant difference between the mean gain achievement scores of secondary students in science taught through DM and SLM. The mean gain achievement score of 22.82 of DM group is greater than that of 11.52 for the SLM group. This shows that the achievement of secondary students when taught through DM is
significantly higher than the students taught through SLM.

(6) There is a significant difference between the mean achievement scores of video instructions mode group and students' learning through self-experimentation under the guidance of teacher mode with F-value of 16.70 at 0.01 level of significance (Table 4.17). Hence the null hypothesis, "There is no significant difference in the mean achievement scores of secondary students in science, taught through video instructions mode and students' learning through self-experimentation under the guidance of teacher mode", is rejected. The t-value of 4.76 is significant at 0.05 level (Table 4.18). This indicates a significant difference between the mean gain achievement scores of secondary students in science taught through VM and SLM. This shows that the achievement of secondary students when taught through VM is significantly higher than the students taught through SLM.

5.2.0 CONCLUSIONS DRAWN

On the basis of these findings, the following conclusions have been drawn:-

(1) Video instructions followed by teacher's discussion mode (VDM) was found to be superior to other three modes namely video instructions mode (VM), demonstration mode (DM), and students' learning through
self-experimentation under the guidance of teacher mode (SLM). The achievement of the students when taught through VDM was significantly higher than the achievement of the students when taught through VM, DM, and SLM.

(2) The relative comparison of DM, VM and SLM indicates that DM was superior to both the VM and SLM regarding the achievement of secondary students in science. The students who were taught through DM showed better achievement as compared to the students taught through VM or SLM. But on the other hand DM was found to be less effective as compared to VDM. The students taught through VDM showed higher achievement than the DM taught students.

(3) It was also observed that VM was superior to SLM. The students taught through VM showed higher achievement in science as compared to students taught through SLM.

(4) Out of these four modes, SLM was found to be least effective of all. The achievement of the students taught through SLM had the lowest achievement as compared to VDM, DM or VM taught groups.

To sum up, VDM was found to be most effective in terms of achievement of secondary students in science as compared to VM, DM, and SLM. DM was superior to VM, whereas VM in turn was found to be superior to SLM. The SLM was found to
be least effective of all the four presentation modes.

5.3.0 EDUCATIONAL IMPLICATIONS

The present study will undoubtedly enrich the existing stock of knowledge in the field of education. The study has important bearing on education in our country where verbal method or 'chalk and talk' method is still most widely used. This study depicts that there are new modes like video instructions mode and video instructions followed by teacher's discussion mode which may be useful in teaching science subjects at secondary level.

The findings of the present investigation have their implications for students, teachers, teacher educators, curriculum planners, media persons, administrators and education policy makers. The study made it clear that video instructions followed by teacher's discussion mode is most useful for teaching science subjects. The students taught through this mode can have new knowledge, lasting impact, and better concept formation through these electronic media because knowledge can be properly and systematically stored, developed and transmitted according to the learner's need. Video mode may be considered as a unique learning resource for the students which provides them access to knowledge and information in a more direct and concrete form. It provides the learning
resources through the construction of physical models, professionally designed graphics and animation, newsreels, films from various scientific laboratories, interviews with scientists etc. Video lessons can present such material in the form of visuals which is otherwise difficult for the teacher to arrange in classroom. The implications for the learners lies in the conveniency and availability of video lessons when required, repetition of lesson due to rewind/fast forward facility which results in mastery learning, the segmented recording enables the learner to reflect, analyse and restructure the information according to their needs. The video mode has proved to be an intellectually stimulating medium of providing instructions.

The implications for teachers and students also, can be expressed in terms of specific purposes which it fulfills. The video educational programmes can be intended as a support to the existing basic educational practices, proving as an additional resource for improving the quality of instructions. The educational video programmes may contribute towards the development of the professional skills of the teachers and improvement of their subject teaching. The video mode enriches the conventional modes of teaching by increasing the motivation to learn and making the topic more interesting and relevant. The teachers can be well trained in effective handling of the software and
hardware so that they can manipulate the message properly. There are many complex and dangerous experiments, serious operations, delay reactions and micro-scopic observations which cannot be performed and examined in normal classroom situations. A few of the examples are- nuclear and radioactive reactions, preparation of sulphuric acid, nitric acid, animal and plant physiology, anatomy and morphology, purification techniques, extraction of metals, genetic disorders, cell structure, cell division, communicable/noncommunicable diseases etc. The teachers can take the advantage of video mode to overcome these practical limitations. The teacher can support the verbal material with visual material so as to bring out facsimile of the topic. In science the teacher can fully utilise the potentialities of video mode in creating special effects in terms of time and space.

The teacher-educators can arrange demonstration workshops for providing training to the teachers and pupil-teachers about the nature of demonstrations which could be given through video, software to be prepared and exhibited. Seminars and extension lectures on video mode could be arranged to provide new and up-to-date information to the learners.

Video mode may be treated as a catalyst for curriculum
reform. With the advent of video mode in education, such topics can be included into the curriculum which were avoided earlier due to lack of resources and presentation modes. Through video mode, the students can have access to the advanced and specialised information and knowledge in their lower classes which was uptill now considered to be suitable only for higher classes like- morphology, anatomy and physiology of plants and animals, complex reaction mechanisms of organic and inorganic chemistry, diffraction, interference properties of light and sound waves etc. The curriculum planners can now stretch a further by including such topics at lower level in accordance with the intelligence, needs and capabilities of pupils. The necessary details of such topics can be provided by having interviews of great scientists, subject experts, film clippings from concerned laboratories and departments, which otherwise could not be possible to arrange in normal classroom setting.

The study has further implications for media persons also. The media persons and the technicians could produce software for the science subjects by consulting the curriculum planners and teachers. They can produce the material keeping in view the age, motivation, need of pupils, nature of content, attitude of students and teachers, duration of lesson, selecting the topic which
requires more visual experience. The technician may produce such software package which provides scope for the development of skill, attitude and interest in the pupils. The media persons may also organise the workshops to train the teachers, pupil-teachers, and teacher-educators regarding film recording, use of video camera, transfer of material from one cassette to another cassette, editing the recorded material, colour mixing, and sound etc. A thorough and adequate knowledge of the process helps the teacher in his teaching.

The study also has its implications for administrators as it expands the range of school system. The administrators and government can provide education to those, who unfortunately due to one reason or another have had no schooling. Also there are cases of remote low population density area where it is not possible to provide all the facilities which can be found in any large urban school. In certain cases a shortage of full, experienced and specialist staff has been found. Under these circumstances, the administrators can make the arrangement of video programmes by using the skills of specialist and professional teachers. The production of such programmes provides extra flexibility to the schools by making available scarce learning experiences to its pupils. The lessons or programmes based on standard curriculum can be distributed to the centres and
areas which have no adequate conventional school provisions. The administrators can arrange the necessary equipments like television, video cassette recorder, magnifying screen and a suitable place where the students can easily observe the video instructions. The administrators can supervise the proper handling, maintenance and storage of these electronic gadgets to avoid any misuse at any level.

5.4.0 SUGGESTIONS FOR FURTHER RESEARCH

The present study, the effect of four classroom presentation modes on the achievement of secondary students in science, is an attempt to explore a new field. There is an immense scope for further work. The findings of the present study may serve as an anchor point for further research possibilities in the field. Some suggestions in this regard may be offered as follows:-

(1) A similar study may be conducted in various other disciplines like social sciences, mathematics and arts.

(2) This type of experiment can be conducted at primary or higher levels of education.

(3) This type of study may also be done in public schools and convent schools.

(4) A similar experimental study may be conducted for the effectiveness of interactive video mode.

(5) A study may be undertaken to analyse the attitudes
of students, teachers and parents towards various presentation modes.

(6) This type of experimental study may be conducted to analyse the effects of interaction among various presentation modes, age, sex and intelligence.

(7) This study may also be conducted for the target group of nonformal education comprising of women, farmers and employees of organised and unorganised sector.

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