A Study of the Use of Audio- Visual Aids in Teaching Life Science

Usha Singh
Principal In-Charge, V. B. College of Education, Bhagalpur, India

Abstract

The present research work is an attempt to study the scientific aspects of the educational psychology of some audio-visual aids used in education. In order that it may be as constructive as possible, the meaning of certain expressions must be clarified and the subject of study placed in the larger framework of how this book came to be written. We have not hesitated to stress the expression 'educational psychology' despite a seeming contradiction in terms caused by the fact that psychology is associated with science and education with the art of teaching. Studies in educational psychology cover a field which is quite clearly defined as the behaviour of an individual in the educational situation, 'behaviour' being taken here in the wide sense as the totality of physiological, psychological, and social reactions and interactions integrated by the personality.

KEYWORDS: Audio- Visual Aids, Teaching Life Science, Scientific Aspects of the Educational Psychology, Bhagalpur District

The use of new audio-visual techniques in schools has created a new educational situation which gives rise to new types of behaviour on the part of teachers as well as pupils. The present report is an examination of some of these new types of behaviour, and is best placed in the context of the use of audio-visual aids in primary school. New educational techniques, whether audio-visual or not, are usually discovered and introduced in a somewhat haphazard manner. The technique is tried-out before its full potential is understood, though it may be suspect. After this first trial, the use of the new instrument is gradually improved. Taking into account observations made by teachers in their classroom work (often more or less preconceived notions), technical and educational suggestions made by inventors, and straightforward possibilities revealed through use, there comes a we propose to adopt these definitions provisionally without further discussion of the meaning of each term point. After much trial and error where it becomes possible to define the main lines to be followed in using the instrument for practical educational purposes. It might be added that the length of this first period depends upon the amount of research that has been done and on the development of the science in general. Because the various fields of human activity are all interrelated and it is virtually impossible to speak of one in complete isolation from the others. We can say that it required a much longer time for the book to be pressed into service as an educational instrument than for the cinema to be so used, and that in turn it took longer for the latter to come into use than it has taken for television. Although each new technique has its element of originality. It benefits from the methods of study and experiment used with those that preceded it.

The study has been conducted in Bhagalpur district in Bihar state. These areas have been selected as representative of the defined category states. Among the states which have been identified under backward states with above average backward concentration, the selection of Bhagalpur district have been made, while under the same category with blow average backward concentration the selection of Bihar state. A brief description of the selected states and the districts where survey has been conducted is provided here in.

Another form of scientific research can be undertaken. It is not possible to study certain processes of perception or comprehension of an image on a screen if it does not come up to a certain standard of quality or if an educational film is shown to children at the wrong time. Before any experimental work can be done to analyze the various psychological reactions of children and study their comprehension difficulties. The necessary educational conditions must be carefully, though not rigidly organized. If we consider psychological reactions to be largely conditioned by the situation in which they arise. We will attach great importance to the teaching situation, and we must strive to understand it thoroughly in order to interpret experimental data correctly. Hence, it is necessary for an educational psychologist to be trained in both education and psychology so that he can make an accurate analysis of the educational and psychological elements of the experiment. In our opinion to isolate psychology from the educational situation is contrary to the general trend in the sciences concerned with man.

Research work of this nature should be undertaken in a spirit that is as scientific as possible, and we shall now define briefly what this attitude, to which we attribute primary importance, should be. As we have already attempted to show, there should be no opposition between practical teaching and scientific research in education. The art of teaching has nothing to fear from science; on the contrary, it has everything to gain in the way of improved instruments and better conditions. The essential characteristic of the scientific approach is a desire to make tests using standards which have been sufficiently well worked out and established after long and often laborious analytical work. Hypotheses are suggested from direct observation, from the result of previous experiments, through the intuition of the person carrying out the research, or arise from the general situation. The scientific approach requires that these hypotheses then be subjected to as strict a verification as possible, after establishing a precise experimental plan to be used in this verification, together with the technical methods, the qualitative and quantitative procedures of analysis, and the range within which an interpretation may be considered valid. Obviously perfection of this type towards which scientific research aspires is not always reached, and, depending upon the aim of the research and on the educational situation, we are apt to find any level of accuracy running from simple observation to rigorous scientific experimentation, where every factor is accounted for and measured. In such work, every technique known to scientific research should be utilized, including observation, measurement, questionnaires, projection tests, and various other types of data collection and analysis.

An examination of all the problems raised by the mass use of audio-visual techniques would require a work which would take us far beyond the limits of the present study. We have therefore somewhat arbitrarily set up a double limitation which we shall now explain briefly.

In this study, we have partly neglected radio and television, which pose a series of specific problems requiring separate treatment. This does not mean that these branches will not be taken into consideration whenever the occasion arises. Conversely, results obtained from the study of visual or auditory perception can be applied directly to radio and television. It has not been our intention, however, to cover all the problems linked with the reception of a series of outside broadcasts, the form in which they are presented and their duration, or the sociological phenomena involved. We have been concerned only with those audio-visual techniques which the educator may constantly have at his disposal in a classroom, or those devised or built by the teacher for his own purposes as a teacher. Obviously these limits are not as

clearly defined as they might be, and many of our conclusions will prove valid for the whole field of audio-visual techniques.

Moreover, in order to reduce our psychological considerations and not become involved in too many aspects of this' science, another limitation has been imposed. These concerns, age of the subjects being tested. We have eliminated the study of the psychological problems of very young children (under seven years of age), as well as those which make their appearance at the time of adolescence (12-13 years). Obviously such a division is artificial from a psychological point of view, but it keeps discussion from straying off into every possible aspect of psychology. We shall be obliged to refer to areas that we have eliminated, however, because it is impossible to have an exact understanding of certain psychological processes unless we understand them in their earlier and later phases.

We do not intend to consider all the problems of scientific research in the social sciences; after summarizing the various forms which the activities of the research worker take. We shall merely point out and enumerate the main difficulties. The object of these few pages is to make the reader aware of the extraordinary complexity of the situations which we are about to examine and induce the necessary caution in accepting or rejecting the ideas presented later.

Research techniques are thus as varied in the psychology of the use of audio-visual aids as anywhere else. The research worker does not hesitate to go from the individual to the group, from the normal subject to the abnormal, taking in the maladjusted on the way, from the simplest observation to experiment involving the most elaborate scientific techniques.

Although it is easy to describe this research in broad outline, in practice there are certain difficulties which we must not fail to mention. Only what is measurable is scientific. The limits of scientific research in audio-visual matters would be very narrow. It is easy to think: up experiments. But what are we going to measure? It is often difficult to evaluate the effect of a record or of a film on a subject, and it is not easy to see how the research worker is going to measure the effect. The emotional or intellectual impact can be considerable, and a film may have decisive consequences on the conduct and on the subsequent behaviour pattern of a subject without it being in any way easy to submit these consequences to an elaborate scientific analysis. In the various matters explored we must not expect to find the mathematical wealth which scientific research provides elsewhere; here again we encounter the difficulties which have hindered the development of certain aspects of experimental education.

Similarly, going back to the distinctions of classical psychology, it is evident that in certain cases the effectiveness of audio-visual techniques can be appreciated in terms of intelligence. Logic, and 'clear and distinct' acquisitions; in many other cases, however, it is the affective zones, the emotions and feelings, which have been touched and transformed. Moreover, we know perfectly well that it is in fact the whole personality of the subject which has been subjected to the effect the educator wanted, and even if this effect is more clearly visible in one respect than in another, it nevertheless sensitizes other areas of the psyche.

In actually evaluating the results, the problem can be put otherwise by making a distinction between conscious and unconscious effects. When a questionnaire is used after a film, part of the conscious effects of the film are studied, since the subject relates the question asked of him clearly to the content of the documents he has been given, and the effects are the easy to determine. All the action which takes place at a level below the level of consciousness remains, however, and

its effect on subsequent conduct will be no less. We know now that our actions are not determined only by clear and rational motives and that our behaviour is the result of many influences amongst which the unconscious variables are not the least.

It must be added that, too often also, it is considered enough to study the individual effects of teaching techniques. These effects are the easiest to observe and measure, but we should not neglect the social effects seen as interpersonal effects or group effects. It should be mentioned here that methods of evaluating such effects have not been greatly used and consequently are not highly developed.

We have referred to the difficulties met with assuming that every use of audio-visual techniques was pedagogically valid without raising the question whether it was legitimate to make this assumption. Scientific research sometimes comes up against a barrier which we must consider as insurmountable. In teaching-and we must regard audio-visual techniques simply as an aspect of teaching every experiment represents an action, and we have no right to act if our action presents the slightest danger to the subjects affected by it. The research worker is also limited in what he can do by his role of educator, and no research should be undertaken unless it has.

It is not enough to obtain qualitative and quantitative results. The aim of scientific research is not to obtain figures for their own sake. The main point is the interpretation of the results with a view to either confirming or rejecting the hypotheses submitted for verification. In certain situations, it is possible to use concepts already elaborated in psychology, sociology, and education and apply them to the new teaching situation brought about by the use of audio-visual techniques. A kind of pre-prepared grid is applied, and the educational, psychological, and social processes are then studied through this.

Conclusion:

The above observations on methods, difficulties, and some of the major problems of scientific research in the educational psychology of audio-visual techniques will help to make the reader familiar with some of the leading ideas which will serve as basic laws throughout this inquiry. They might be listed as follows:

1. Contact should be maintained between scientific research and its application in the teaching situation.

2. In view of the complexity of all educational situations. Prudence should always be exercised when it comes to interpreting results and giving advice to users; what is valid and excellent for certain subjects can be disastrous for those in another environment.

This long introduction has indicated the necessity for dealing more completely with the audio aspects of the audio-visual situation. If audio research seems of less immediate consequence to educational psychologists than work carried out on the visual side, the opportunity can still be taken to draw attention to the scope it provides for scientific activity.

Reference:

1. E. J. Wood (2001) Biochemistry and molecular biology teaching over the past 50 years, Nat. Rev. Mol. Cell Biol. 2, 217–221.
2. J. D. Bransford, A. L. Brown, R. R. Cocking, Eds. (2000) How People Learn: Brain, Mind, Experience and School, National Academy Press, Washington, DC
3. Wilbert McKeachie, Marilla Svinicki, Marilla Svinicki, Barbara Hofer (2006).

4. McKeachie's Teaching Tips: Strategies, Research, and Theory for College and University Teachers / Edition 12
5. Barbara Gross Davis (2009). Tools for Teaching /Edition 2 ; ISBN : 978-0-7879-6567-9.
6. L. Dee Fink (2003). Creating significant learning experiences.
7. P. Ramsden (1992). Learning to teach in Higher Education /Edition 2
8. Ken Bain (2004). What best college teachers do ISBN : 9780674013254
9. Ernest Boyer (1990). Scholarship reconsidered : priorities for the professoriate
10. Angelo, T.A. & Cross, P.K. (1993). Classroom Assessment Techniques 2nd ed.
11. Robert B. Barr and John Tagg (1995). From Teaching to Learning - A New Paradigm for Undergraduate Education. Change 27,12-25.
12. William B.Wood et al. (2006). Scientific Teaching, Science 304, 521–522.