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Review Article

A Review of Research done on visual Aids-Filmstrips and Slides *

by

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Introduction : From an educational point of view, it is important to know what kind of research has been conducted on the effectiveness of various visual aids in promoting learning, what valid conclusions can be derived from the mass of accumulated research data, and which of the prevalent beliefs about the effectiveness of these visual aids are supported by controlled observations and empirical data.

This information is needed by both the sponsors and producers of educational and training visual aids so that planning and production may be more efficient in terms of both process and end-product. It is needed by users of visual and auditory channels so that best results can be realised in mass instruction, training and public information. Research workers in the field need this information to avoid unnecessary repetition of previous studies and to help in the better formulation of problems and the better design of new experiments so that systematic knowledge of the principles of visual communication can be extended and refined. This is, in the final analysis, a very practical thing for practical people.

The purpose of this paper is to present such a summary of the visual aids research published in regard to filmstrips and slides. In concluding this review of research, a series of principles which appear to govern the influence of the same will be presented.

Review of Literature : Filmstrips and slides are among the most economical of visual meterials ; therefore, their effectiveness as compared with the more expensive motion pictures has frequently been studied. Early studies by Brown (1928), James (1924) and McClusky and McClusky (1924), comparing filmstrips and slides with the silent motion picture found in general that the projected still pictures were about as effective in teaching factual information as silent films.

Later, Goodman (1942) compared sound and silent filmstrips with sound and silent motion pictures in teaching four safety topics and found no significant differences among the four methods.

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Carson (1947) reported a study made by the Scottish Educational Film Association in which, long and abbreviated versions of filmstrips on American Cowboys were compared with a sound film on the same subject. As measured by choice tests, the two filmstrip groups were greatly superior to the sound film groups in learning information and concepts.

Vernon's (1946) experiment in teaching showed the filmstrips and film to be about equal in value. Gibson (1947) compared a group instructed through films with a lecture group for which the lectures were organised around a series of nineteen slides and with a group that read a well-written and well-illustrated booklet. The film group learned significantly more facts, the lecture and the manual groups achieving about the same.

Heidgerken (1948) found no differences among filmstrips, motion pictures and filmstrips combined when compared with motion pictures in teaching units in a course of nursing arts. Hovland (1949) and others compared the effectiveness of an army training film on map reading with an Army filmstrip that presented same content. The trainees learned slightly but not reliably more from the filmstrip.

Anderson *et al* (1951) compared three methods of teaching spelling in grades three to five: the Newlon-Hanna method, the pupil-coach method and multisensory method which used projected slides of the words. As measured by retention tests three months later, the three methods were about equal in effectiveness, with an advantage to the multisensory method in grade three. Abramson (1952) studied the relative effectiveness of two methods of teaching a year course in elementary mechanics to students in a large city high school where various socio-economic factors produced a general lack of interest in school work. He studied the value of the standard method of instruction (which combined recitation, demonstration, film, supervised study, and the laboratory exercise) with a method using the projection of pictorial ideographs as slides, each slide followed by several "thought" questions which focussed on certain elements and relationships in the slides. Achievement was measured by specially prepared tests given immediately and two months later. The slide group achieved significantly more learning than the control group on all three units of instruction on both immediate and the two-month retention tests.

Stampolis and Sewell (1952) compared the use of four filmstrips with lectures in teaching economic concepts to university students, the filmstrip method proving significantly superior to the lecture method in one case. Helliwell (1953) investigated the values of the filmstrip and the fieldtrip in teaching factual knowledge and found that the fieldtrip method was greately superior to the filmstrip, but the combination of the two methods was the most effective.

Slattery (1953) found filmstrips, both with and without student participation to be significantly superior to the sound motion pictures. Lasser (1954) tested the effectiveness of a filmstrip versus a film in teaching a simple

performance task. No significant differences were found except one sub-operation on which the film group did much better, presumably because the film had continuity. On several operations, neither medium was effective. Torkelson (1954) studied mockups, training-manual illustrations alone, cutaways and projected black and white coloured transparancies as aids in teaching the nomenclature and functioning of certain types of naval ordinance. Although the three-dimensional mockups and cutaways produced superior learning, the differences were so small in proportion to their high cost that their general use appeared to be unjustified. Kale and Grosslight (1955) studied the learning of Russian vocabulary under several conditions, including pictures plus titles *versus* titles only, motion *versus* still pictures, and sound *versus* silent pictures. They found that: (1) pictures of an object or act were an aid to learning vocabulary; (2) still pictures were as effective as moving pictures, and (3) pronunciation of the words by a narrator seemed to inhibit learning to write the words.

Zuckerman (1954) demonstrated how a reproduction filmstrips of a rough "story-board" for a training film could be used to predict the relative learning that would result on the completed film. According to a report of the UNESCO, filmstrips and slides were the most effective means in reaching large numbers of people and in making the deepest and most lasting impressions. Vergis (1954) found that addition of the third dimension to coloured slides had no significant effect in learning of factual information that was not dependent upon depth cues for understanding. However, the 3-D, slides were greatly superior in influencing the interpretation of size and form of objects in space. He concluded that the types of pictures best suited for 3-D projection are those that are specially chosen to communicate certain special spatial concepts. Butts (1956) studied the comparative effectiveness of captions on slides. He found that declarative and imperative captions were significantly superior to interrogative captions in helping students learn and retain information.

On the basis of their review of the research on filmstrips and slides, Hoban and Van Ormer (1950) concluded that the superiority of the motion picture probably resulted from the greater adaptability of movies for portraying interacting events, whereas the superiority of the filmstrips was probably due to the slower rate of development used in the actual presentation of the filmstrip to the audience.

Zyve (1932) found that: "Two days of teaching arithmetic combinations with the lantern slides gave approximately the same results that three days' teaching gave when using blackboard presentations". Parks (1940) disclosed that slidefilms were ranked first or second in usefulness in entomological study and motion picture ranked third.

In a study of filmstrips and their effectiveness conducted by the AAF, it was concluded that (1) a large percentage of training-aids officers and instructors indicated confidence in filmstrips as a major aid in teaching; (2) practically all instructors and training-aids officers indicated a real desire to use filmstrips more

extensively in training; (3) instructors were making only a partial use of available strips, primarily because of improper practices used in selection and integration of filmstrips into courses of instruction; (4) instructors and training-aids officers lacked training and experience in the use of visual aids and in teaching; (5) techniques and practices in selection and integration of filmstrips into the curriculum fell short as judged by generally accepted practices and criteria, and (6) the nonuse and/or disuse of filmstrips was caused primarily by shortcoming and defects in application of filmstrips to training problems. The most significant conclusion of this study was that instructions tend to indicate a belief in the value of filmstrips, and yet do not use them effectively.

Miles and Spain (1947) reported on a study made by the Signal Corps using two types of sound slidefilms designed to teach Signal Corps men the phonetic alphabet. The only difference between the two was that one required the audience to recite aloud at certain points. The audience-participation group proved superior to the nonparticipation group. Other conclusions were, that audience participation is especially valuable in getting across information if "(1) the material is difficult to grasp, (2) the men have little motivation to learn, or (3) the audience is composed of men on the lower intelligence levels".

Connon Hearne (1932) studied the factors that affect the influence of the meeting as a means of extension teaching. Data were obtained by field survey and by questionnaires answered in meetings. The subject was treated under three major headings: (1) factors affecting attendance at meetings, (2) influence of various presentation methods on adoption of practices, and (3) relative effectiveness of day and night meetings. The second most important problem concerned the comparative effectiveness of various methods of presenting subject matter at a meeting. It was concluded that the lecture supplemented by a suitable, well-made slidefilm was the most effective method of the five studied. This method was 1·55 times more effective than the lecture-alone method, thirteen per cent better than the chart, twentyseven per cent more effective than the added use of a local leader and thirtyfour per cent ahead of the discussion type of presentation.

Gerald McKay (1945), Extension visual aids specialist in Minnesota, conducted a study of the uses made of visual aids by the agricultural extension service in thirty-eight states. He states that at that time most emphasis was being placed on 2" x 2" kodachrome slides. The following conclusions pertinent to slidefilms were drawn; (1) most emphasis is being placed on building 2" x 2" kodachrome sets for distribution to the agents. There is a trend toward making these loan sets flexible enough so that each agent may add his own local picture to the set (2) slidefilms are, to a large extent, being displaced by 2" x 2" kodachrome slides, but slidefilms still have their place in such work as photographing, charts, graphs and drawings.

Summary: The listed below, principles then, have been found to govern the influence and value of filmstrips and slides.

1. Filmstrips and slides are effective means of communicating factual information and certain skills. However, a combination of these media with sound films or other materials is usually superior to any medium alone.

2. The extent to which filmstrips or slides embody *unique* pictorial content of good quality has a direct bearing on their effectiveness in teaching.

3. The filmstrip is easy and convenient to use, takes up little space and is easily stored, is inexpensive, is available either in colour or black and white and can be used at any desired place because pictures can be left on the screen as long as the instructor desires, the last point being of particular significanee in many teaching situations.

4. Other advantages of filmstrips which have a bearing on their usefulness in instruction are: the pictures are in sequence; the room needs to be only slightly darkened, and they are, in most cases, available for a wide range of grade levels and subject areas.

5. The sequential order and unity of the filmstrip constitute one of its principal instructional characteristics.

6. To secure effective results, the instructor must first select filmstrips which tell their story primarily through pictures rather than words. Second, by the pictures selected must be of such nature and quality as to contribute something atonce significant and unique to the learning situation.

7. Slides and filmstrips are still picture media; they are of great value in visual teaching situations when motion is of little or no importance of comprehension.

8. They are inherently suited to the convenient presentation of a great variety of visual materials such as pictures, cartoons, charts, graphs, diagrams, maps and tables. Virtually, anything that can be photographed can be put on slides.

9. Both have attention-focussing power of any projected image.

10. Both can be made locally, though slides are much more easily prepared than filmstrips.

11. Rate of development and level of verbalization (as in narration or comments) varies in filmstrips.

12. Static subject matter can be treated extremely well with slides. Slides allow for an extended discussion of any subject that demands it.

13. Film and filmstrip comparisions involve many variables, and the content and pictorial techniques vary in both media.

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