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AUDIOVISUAL TECHNOLOGY: MOTIVATOR OR ENTERTAINER?

by

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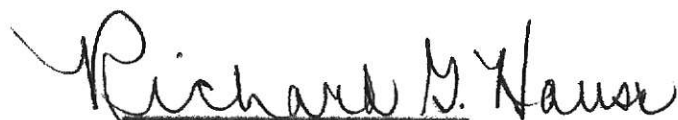
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INTRODUCTION

My task which I am trying to achieve is, by the power of the written word to make you hear, to make you feel--it is, before all, to make you see. That--and no more, and it is everything. If I succeed, you shall find there according to your deserts: encouragement, consolation, fear, charm--all you demand--and, perhaps, also that glimpse of truth for which you have forgotten to ask.

Joseph Conrad in Preface to
The Nigger of the Narcissus

Joseph Conrad knew the importance of total involvement of the reader. With only the written word, his task was a difficult one. How he would exclaim over the media available to teachers today!

Eckhardt (1973, p. 48) has described mass media as the whole electronic birdbath, from McLuhan's lightbulbs, lasers and computers through radio, television, film and records, to all the little goodies on Mission Impossible. In short, the whole I-don't-have-any-more-orifices-left-on-my-body-to-plug-this-thing-into trip.

With all of this technology available, why is there a cry for "relevance" by the students? Why do the teachers complain of a lack of motivation for effective learning in the classroom? When both the teacher and the student longingly wait for the three o'clock bell to release them from the four classroom walls to media that brings exotic lands, play-by-play sports events, interviews with famous people, or music to fit a mood--then something is missing from the curriculum.

The decision to turn toward media is practically inborn. As stated by Goldman and Burnett (1971, p. 73) the United States Office of Education in 1970 found that "pre-school children spend 54 hours a week watching television." The generation now in school has never known the absence of television, stereos, and elaborate recording systems. Marshall McLuhan (1970, p. 64) in Culture is Our Business explains the feelings of the youth. "Gray at three," he states, "they have witnessed adult violence and confusion in every part of the world. At the age of six, they are met with texts and tests, 'See Dick run, See Jane jump . . .' And they drop out."

STATEMENT OF PROBLEM

Teachers tend to shy away from audiovisual materials insisting that it is more economical to learn by authority. (Torrance, 1970, p. 1) The majority of teachers are probably willing to use more effective teaching methods. Can it be statistically proven that audiovisual materials are motivational tools toward more effective learning rather than just a "film every Friday" event? What are the benefits for the teacher? What are the benefits for the student?

STATEMENT OF HYPOTHESIS

A. Audiovisual materials when a part of behavioral objectives will have a positive (motivational) effect on senior high language arts courses.

B. Audiovisual materials when a part of behavioral objectives will have a negative effect in senior high language arts courses.

C. Audiovisual materials when a part of behavioral objectives will have no effect in senior high language arts courses.

RATIONALE FOR HYPOTHESIS

It is my belief that a search through literature of the past four years will show Hypothesis A to be true. My rationale for this statement is based on the opinion that many students have been turned off by the constant threat of failure. Those who cannot or do not want to play the "memory" game turn to areas where they can be successful. For many, these areas may be destructive. Audiovisual materials, especially those involving student production, can be a means of self-expression. Goldman and Burnett (1971, p. 32) state that "possibly 18.5 million Americans over the age of 16 are functionally illiterate." This does not mean that sign language is to be encouraged over the printed page. By learning to develop a capacity to select and respond to mass media around them, the student can successfully select and respond to the printed page. Without the use of appropriate audiovisual materials, thousands more will join the "functionally illiterate."

OPERATIONAL DEFINITIONS

A behavioral objective is "a description of a pattern of behavior (performance) we want the learner to be able to communicate," as stated by Mager (1962, p. 3).

Audiovisual material is a broad term to include "improved devices and techniques for bringing the best, the most relevant, and the widest range of experiences to students." (Kemp, 1968, p. 5)

Motivation is the "condition produced by external or internal needs, which energizes, selects, and directs the learning of an individual." (Seila, 1972, p. 197)

Language arts refers to a wide range of activities related to literature and composition but not restricted to them. It involves all forms of self-expression.

SIGNIFICANCE OF STUDY

Teachers are no longer the primary source of information. Learning takes place in all areas of life, not just in the classroom. Teachers must learn to work with media, not against it. Technology and mass media are not fads. Their success has proved that the printed page will no longer start revolutions. The study and use of media in the classroom can combat the indiscriminate use of media that envelopes the world. Motivation is a key to a successful school career and to a successful life. Audiovisual materials may provide the answer to motivation needs for many students. This study will provide a review of

statistical research intended to aid the teacher when selecting appropriate media for the classroom.

REVIEW OF STUDIES EVALUATING PROJECTED VISUALS

Televised instruction. For many schools the dream of televised instruction has become a reality. But as with most dreams, the value may be out of proportion. Allen (1968) found no significant differences in measured performance between students who were instructed over television and those taught directly. Allen stated that ~~form~~ many schools televised instruction has economic advantages of offering courses not available otherwise. Special speakers could be utilized without extra expense.

Many factors considered by some to be problems in televised instruction did not relate significantly to learning in this study. This included size of group, screen viewing angle, distance from screen, and size of screen.

Dwyer (1972, pp. 35-48) devised a three year study to determine which types of televised visual illustrations are most effective for promoting student achievement. In this study college students were divided into control and treatment groups according to which of the sessions they could attend. The experimental treatments were assigned at random. The control group received an oral presentation of the heart without visuals. The visualized treatments were the simple line presentation, the detailed drawing presentation, the heart model presentation, and the realistic photograph presentation.

It was found that the use of visualizations to aid in oral presentations was not an effective means of improving achievement of all types of educational objectives. The most effective visual illustration for achievement of a specific educational objective depends on the type of information needed by the student to achieve that objective. The simple line drawing gave the needed information rapidly. The model and realistic photograph tended to detract from the oral presentation. The detailed drawing contained information in excess to the amount of study time given.

In a second study (Dwyer, 1972, p. 38) increase in size of visual presentation did not improve effectiveness. A possible explanation for this was that "the increased size of the visual images produced a larger viewing area which required the students to spend more time searching for the relevant visual information being discussed orally."

In the third study (Dwyer, p. 40) television was used to investigate the instructional effectiveness of motion in visual illustrations. It was hypothesized that motion in visual illustrations would direct the students' attention and thus improve visual effectiveness. Slide/tape presentations were developed for television using the four types of presentations listed above.

In this study students who viewed the presentation with visuals achieved significantly higher scores on a comprehension test than did students who received only the oral presentation. The simple line presentation was found to be the most effective. The use of motion tended to hinder

effectiveness of the more complicated and realistic visuals.

In the last study (Dwyer, p. 42) television was used to determine the effectiveness of different types of visuals when questions preceded each visual illustration. The same five instructional treatments were used. Two important generalizations were made from this study. Dwyer found that the use of questions to direct attention on the more realistic visual displays was not an effective method for increasing students' achievement. But the use of questions to complement simple line illustrations was an effective technique for increasing student achievement.

In a study by David (1969) at Michigan State University, the overall distribution of grades for students who saw lectures live was not significantly different from those who saw the lectures on television.

Structured interviews were held with randomly selected students. A course-by-course inspection revealed that student attitudes in television sections were highly dependent upon the quality of the lecturer and the type of course being offered. Nearly all (90%) were willing to take additional television courses.

Motion pictures. Everote (1969, p. 88) quotes Thomas Edison as stating, "It is impossible to fascinate young minds with dull textbooks. I believe that the motion picture is destined to revolutionize our entire educational future . . . it will supplant the use of textbooks in our schools." Edison's first Kinetoscope was introduced in 1894.

Lacy (1972, p. 53) advocates the use of film to help young people

learn how to learn, how to respond sensitively and effectively to others, how to clarify their sense of who they are, and how to develop capacities to choose freely from a variety of alternatives--all in relation and response to the screen.

Learning "how to learn" with the aid of films was found to be a more effective method for students with a low IQ than those with a high IQ by Wittich and Fowlkes (1946, p. 66). One explanation given was that students with high IQ's were not sufficiently motivated, whereas students with low IQ's found novelty in the situation and freedom from inadequacies found in their reading habits. In viewing films, these students showed that they could be superior observers.

When both IQ groups were prepared for the film in advance, comparable gains were found. This indicated that pupils with high IQ's were not restrained from effective learning by films.

However in a later experiment quoted by Russell (1970) the opposite proved true. Persons of high IQ usually learned more from films than those of medium or low IQ. However, in some cases those of lower intelligence appeared to make a greater gain in learning, but not enough to surpass the learning of the superior students.

In need johnny read? Goldman and Burnett found that an increasing number of students displayed a lack of proficiency and a lack of interest in print-reading and

writing. These authors advocated the use of film and film study to alleviate the dilemma of dropouts.

A two year project by Hodgkinson (1970) did just as Goldman and Burnett recommended. Four different kinds of screen education courses were taught and evaluated. In general, tests showed that of the 419 high school students who self-elected to take the courses, they were significantly less than average in intellectual and academic ability and in those areas of self-knowledge that relate to performance and achievement.

The classes were evaluated by student questionnaires, classroom observations, student interviews, and a student self-assessment system. The results showed an increase of the students' basic skills in communication areas and more discriminating powers in visual and aural perceptions. Self-awareness was also significantly improved.

Slides. As found in televised visuals, the simple line drawing was the most effective learning technique for slides. Moore and Sasse (1971) studied the effect of size and type of projected slide image on immediate recall of the content. Slides of simple line drawings, detailed, shaded drawings, and photographs were used. Two hundred and twenty-eight subjects of average mental ability participated. Line drawings at all sizes produced the highest mean scores for the 3rd, 7th, and 11th grade students. Photographs at all sizes had the lowest mean score. The medium size picture of each type of slide produced the highest mean score within

that type. The small size pictures produced the lowest mean score.

Dwyer (1972, p. 23) worked with 1,054 students in grades 9, 10, 11, and 12. As in the above study, the simplest production was the most effective in the 9th, 10th, and 11th grade level. The oral presentation without visuals was found to be as effective on the comprehension tests. For the 12th grade students, the detailed, shaded drawing presentation was most effective. Oral presentation without visuals was more effective than the other two types of visuals.

A Visual Illustration Questionnaire (Dwyer, p. 32) was given to college students after completing a study similar to the above. The results indicated that students believed that detailed, colored drawings and colored model illustrations were preferred over black and white. Visual aids were considered to be an asset. They also felt that realistic illustrations presented too much information to be learned adequately.

In comparing the student evaluations with the actual results of the comprehension tests, it was suggested that student attitudes toward instructional media are probably not a valid indication of their instructional value. For example in many tests, oral presentation without visuals was as effective as the simple line presentation and more effective than the detailed drawing, model, or photograph.

Motion versus non-motion. One study (Houser and Adrian, 1970) compared the effectiveness of a motion picture versus a slide presentation in learning a motion and a non-motion concept. It was found that where motion is a defining attribute of a concept it is better to present that concept using motion picture. Motion picture was also found to be superior to slides when a non-motion concept was learned.

Taped instruction. Taped instruction was found to have a positive effect on problem-solving skills of 7th grade students by Sekyru (1970). He also found a positive relationship between increased amount of exposure to taped instruction and problem-solving ability. No assumptions were made regarding the long term effects of taped instruction in aiding problem solving.

A limited study by Galfo (1970) compared the effectiveness of slide-tape presentations to presentations where sight and sound are presented separately. Forty-four junior high students were randomly selected from high (117+), average (90-110), and low (85 and lower) intelligence. Although earlier research stated that auditory presentations presented simultaneously with visual object presentation would cause confusion, this study found audio-visual presentations superior to sight-sound separation.

Graphic presentation. The following results were from a study by Gloria Feliciano (1968) included in "Readings in Educational Media Theory and Research," edited by William

Allen. This study concerned the effectiveness of various forms or methods of presenting statistical information.

Feliciano found that :

1. Horizontal bar graphs produced significantly better scores than did long tables, short tables, or text by itself.

2. Using horizontal grouped bar graphs to reinforce the text gave significantly higher scores than did the use of short tables or long tables.

3. No significant difference in scores was found when text reinforced with short tables was compared to text reinforced with long tables. Both kinds of reinforcement were more effective than text alone.

4. Horizontal grouped bar graphs, even without textual reinforcement, resulted in better scores than the long tables with textual reinforcement.

In the above study 1080 test subjects were used. The subjects included high school students in Wisconsin, students in the Agriculture College of University of Philippines, and adult women in homemakers clubs in Wisconsin.

Audiovisual research and teacher behavior. Overhead projectors can affect the classroom verbal behavior of both teachers and students. Cabeceiras (1972) used the Flanders System of Interaction Analysis in his recent study involving 20 6th grade teachers with experience from one half year to thirty-eight years. Before this study all had expressed a favorable attitude towards audiovisual equipment. The classes were observed for four twenty minute periods. Identical audiovisual equipment and materials were made available to each teacher.

The results showed that teachers were much more indirect in using their influence without using any additional time to control students or to give directions when using the overhead projector. The students were allowed to do more of the talking with more of the students' ideas being accepted by the teachers. Less time was spent in lecturing and more time in praise and encouraging the student. Teachers avoided redundancy when the projector contained the information. It was generalized that the overhead projector may well be an instructional tool that improves the performance of both teacher and student.

Of interest to college professors who teach methods courses is a study by Smith (1972). The study was to determine whether college students who were exposed to many audiovisual experiences in their methods courses would use more in the first year of teaching than those students who had fewer audiovisual experiences. Twenty elementary social studies methods instructors at fourteen state colleges in Pennsylvania were interviewed and divided into two groups depending on the frequency of audiovisual use.

Two hundred and fifty or the 286 former students replied to questionnaires sent to them. The conclusion of the limited experiment was that the frequency with which beginning teachers use audiovisual materials in social studies is influenced by the media experience they had in the college course. The study was limited as only social study teachers were involved and the quality of audiovisual experience could not be controlled.

SPECIFIC CONCLUSIONS

The conclusions drawn from the data should be of significant interest to teachers for improvement in selection and preparation of audiovisual materials for classroom instruction.

1. Audiovisual materials do not guarantee improvement in student ability or teacher ability. It is dependent upon many factors.

2. Elaborate equipment is not needed for successful televised instruction. The benefits of this type of instruction are dependent upon the subject taught and the instructor.

3. Artistic talent and expensive materials are not related to improved learning conditions. Simple line drawings used to complement lectures are most effective in many instances.

4. Questions used to direct student learning are more effective than many audiovisual materials.

5. When students are prepared in advance, films may be an effective learning device.

6. Motion pictures are superior to slides in learning both motion and non-motion concepts.

7. Simple black and white slides are more effective than detailed, colored, or photograph slides in many instances.

8. Color does not guarantee improvement in the instructional value of audiovisual materials.

9. An increase in size of audiovisual presentations does not increase instructional value.

10. Student preferences are important considerations but are not valid indicators of instructional value.

11. Audiovisual presentations are superior to sight-sound separation.

12. Horizontal bar graphs are a better learning tool than long tables, short tables, or text alone. All types of graphs with text were superior to text by itself.

13. Teachers become more receptive to students' ideas when using some audiovisual materials.

14. The same visuals are not equally effective in increasing achievement for all grade levels.

15. If student teachers are exposed to meaningful audiovisual materials in their learning experiences, they tend to use audiovisual materials more in their classrooms.

DISCUSSION OF HYPOTHESES

Based on the research presented, Hypothesis A can not be verified unless the behavioral objectives for each learning experience which utilized audiovisual materials are clearly defined. In each area of research some form of audiovisual material was superior to the lecture method of teaching. However, this success was dependent upon its proper use in the classroom. This involves adequate teacher and student preparation. It can not simply be assumed that audiovisual materials will have a positive (motivational) effect on language arts students. The

survey of research showed that if the wrong type of audio--visual materials were used, the student was hindered in his learning.

However, it can be derived from the research that audiovisual materials have a high degree of interest for the students. Audiovisual materials may be a novelty to attract immediate attention. Students may become involved in the manipulative concepts of audiovisual materials. This was found especially true for students who repeatedly fail written assignments but find in audiovisual materials, a channel for success.

Audiovisual materials also provide experiences which might not otherwise be obtained. These materials are more economical than speakers, field trips, and new texts.

Another supportive factor to Hypothesis A is that audiovisual materials tend to produce a positive effect on the teachers which will in turn have a positive effect on the students. If audiovisual materials can turn a lecture type teaching method into one which allows more student interaction and more acceptance by teachers of student ideas, then this topic is certainly worthy of further research!

In support of Hypothesis B, research has shown that audiovisual materials can have a negative effect on students in language arts courses. Materials which are not suited to the level of the student, inappropriate to the unit of study, or contain excess and confusing information will hinder the learning experience. Materials which are hastily or inaccurately prepared by the teacher may cause confusion for the learner.