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ABSTRACT

A research program is proposed which would establish a standard method of evaluating the effectiveness of educational television programs for elementary school students. Because of the rapid emergence of inexpensive video cassette recordings and cable television, and because research shows that children's comprehension and cognitive assimilation of skills, facts, and ideas is a far more intricate and problematical process that has previously been supposed, and because of the extremely high costs of quality television production, it is important to have a standard method of evaluating television curriculum. Only when evaluative data indicate a high degree of successful communication and comprehension can production costs be justified. (Author/KKC)

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# THE COMMUNICATIVE EFFECTIVENESS OF TELEVISION AS A TEACHING MEDIUM IN THE ELEMENTARY SCHOOL CLASSROOM:

## A Program of Investigation

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The purpose of this research program is to refine and implement a newly developed method for fulfilling a research task in elementary education which, despite its widely acknowledged practical importance, has not yet been satisfactorily accomplished. This task is to establish a standard method with which to evaluate the effectiveness of educational television programs intended to communicate curricular instruction to elementary school children in the classroom.

Pilot studies have shown that it is possible to make objective, numerical measurements of children's comprehension of factual information shown on classroom TV--even among kindergarten pupils too young to write their own names. A major effort of research and development is now required to establish this new technique as a standard method for conducting routine appraisals of new and existing TV teaching materials.

Importance

The increasing importance of attaining this objective as rapidly as possible is emphasized by the conflict between two major opposing trends in technology and in psychological studies of children's comprehension. The first trend is a function of rapid technological and industrial development which vastly increases the educational versatility of TV as an instructional medium. The second trend rises from recent research on children's language development which makes it increasingly clear that young children experience previously unrecognized critical difficulties in assimilating cognitive information.

Technology--The rapid emergence of inexpensive video cassette recordings and cable TV promises to stimulate an enormous increase in the technical versatility of TV as a teaching medium. In the past, classroom TV has been shackled by the rigidity of broadcast transmission. This rigidity restricts the individual teacher as well as entire school districts and geographic regions to single channel dissemination, to tight time schedules, and to materials selected by external decision-makers who are not in touch with the day-to-day learning needs of children as individuals and in small groups. Now, however, video tapes, cassettes, and cable TV are creating a totally new range of instructional flexibility.

Within the next decade it will become technologically feasible for tens of thousands of individual classrooms and

millions of individual students to gain access to an indefinitely large assortment of instructional programs--with a potential teaching impact limited only by the size of the assortment and the quality of the programs. It is doubtful if any technological development since the invention of cheap printing has held forth such a bright promise for the individualization and diversification of children's learning opportunities.

Twenty-five years of experience with broadcast TV have provided ample documentation that television can and does have a profound impact on children's social learning and behavior modeling. In terms of its inherent ability to educate and inform, television is probably the most powerful educational medium that has ever been devised. The Surgeon General's Report on Television and Social Behavior testifies that virtually every aspect of socio-cultural experience in contemporary American life is touched in some way by television's influence on children through mechanisms of incidental learning.

Comprehension Problems--The opposing psychological factors are based on a sobering body of new research which indicates that children's comprehension and cognitive assimilation of disciplined bodies of skills, facts, and ideas is a far more intricate and problematical process than had previously been supposed. Even bright elementary age children experience difficulty in understanding extended discourse

presentations. When their comprehension is subject to close scrutiny, it is apparent that they often make serious errors concerning the details, the sequential order of events, the implications of related facts, indeed even the language, unless the presentations are planned with far more than the usual care directed toward maximizing comprehension. One of the standard complaints of parents and teachers is that "the children just don't seem to understand what you tell them," and now research corroborates the view that this familiar grievance may indeed be justified.

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Paradox

It is an unfortunate paradox that despite the general acknowledgment of these processes of powerful incidental learning, practically nothing truly factual is known about how television can best be mobilized to convey specific combinations of orderly curricular information to specific groups of children at identifiable levels of development and educational attainment. The development of TV teaching in the classroom has made very little real progress commensurate with the tremendous potential of the medium. Most elementary TV merely replicates the process of traditional classrooms, and research tends to be confined to demonstrating the equivalence of the two.

Major "before and after" studies, such as those that

substantiate Sesame Street's first year, indicate general improvements in certain cognitive skills and operations. However, these studies tell very little about which elements of which programs contribute which factors of advancement to which children. And it doesn't detract from the vital importance of those studies to point out that the information they do provide is generated in an extraordinarily inefficient manner. The information is obtained only after the huge initial investment in the program has already been made and completely expended; there is no substantial degree of concurrent evaluative information on cognitive assimilation and comprehension being fed back into the development of the instructional program while the program is under development and most economically subject to improvement.

As Allen thoughtfully points out, "That students learn from televised teaching cannot be doubted, but the condition under which such learning takes place and the specific characteristics of televised presentations that bring this about are yet to be determined, and most research ignored such questions."

This standoff between the bright promises of technology and the limitations of present knowledge about children's comprehension makes the importance of the research program outlined here abundantly clear. The most formidable obstacle to the successful development of curricular TV for wider

use in the classroom is the lack of a reliable and economical method for evaluating the effectiveness with which instructional programs transmit skills and information to the children to whom the programs are directed. Without such a method, there is no way to determine economically whether instructional programs are attaining their objectives, and there is no way to avoid spending large sums of money on programs that later may be shown to have failed in their objectives by the uneconomical method of before and after testing.

Accountability

Because of the extremely high costs of quality TV production, the creation of TV teaching materials cannot and should not be undertaken without also obtaining short-term performance accountability data. Only when such data indicate a high degree of successful communication and comprehension can the production costs be justified. Without such explicit evaluation data, there is no way of knowing (and there is substantial reason to doubt) that TV instructional materials attain the first stage of their teaching goals--the goal of being understandable and understood. But with such confirmatory data, television teaching materials can gain an exceptionally high degree of economy through repeated use and re-use with very large numbers of children--thus bringing down the cost of each lesson per pupil to a

level competitive with orthodox teaching, plus all the benefits of television that orthodox teaching cannot attain.

Research Benefits

A demonstrably effective method for evaluating the specific communicative accountability of TV instructional materials holds the promise of many important benefits for increasingly efficient instructional practice and for educational policy in the next decade at every level of planning.

1. In the classroom and in classroom planning, teachers and supervisors would have access to data based evaluation in selecting instructional TV materials for use with the increasingly available video cassette and cable TV systems.

2. The assurance gained by accountability and the demonstrability of successful communication would liberate the almost infinite flexibility and potency of television as a teaching medium. No other medium can manipulate action, object, and speech in virtually any imaginable visual and auditory combination. And no other medium can as readily combine any visual event with any verbal description, make any conceivable transformation, alternative, or accompaniment, and offer limitless repetitions of these elements in pursuing limitless instructional goals.

3. Curriculum planners would have guidance in attaining objectives of individualized and diversified

learning opportunities for children within the framework of presently evolving models of classroom organization. Individual and diverse programing would be widely enhanced by the tremendous variety of instructional TV materials that can be expected to become available once reliable techniques for evaluating effective communication are established.

4. Producers and publishers would have guidance in preparing materials so as to maximize the effectiveness of visual and auditory communication. The capability to employ a short-term procedure with which to test, revise, and retest materials while they are in preparation offers opportunities for substantial production economies in what is at best a high-cost process.

5. School officials and state and national educational planners would have access to reliable information in making extremely important cost/benefit decisions involving millions of dollars in capital outlays for electronic hardware and millions of dollars in the purchase of instructional software.

Cost/Benefit

Measuring the effectiveness of the individual instructional program and general categories of instructional programs is the single most important critical factor in

determining whether the benefits of new video technologies and their instructional opportunities can be actualized.

If it can be shown that programs can be evaluated in their ability to communicate curricular materials effectively to specified target groups of children, then the efficiency of producing and employing instructional TV can be vastly increased and cost/benefit accountability becomes demonstrable. Where this accountability of program software cannot be tested or cannot be demonstrated, then the preparation and use of TV instructional materials and the tremendous capital investment in TV hardware remains highly speculative.

These costs are so enormous--in the range of hundreds of millions of dollars--that without reliable accountability justification it is doubtful that the investment will ever be made at an appropriate level of funding to realize the tremendous learning benefits inherent in classroom instructional television.

If that is the outcome, then the educational community will have failed to bring to fruition one of the greatest opportunities for children's learning it has ever had within its reach.