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AUTHOR Mielke, Keith W.
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ABSTRACT

A review of the contributions of evaluation to school television is presented, and some policy suggestions for evaluation programs are offered. The purpose is to assist the Agency for Instructional Television (AIT) in determining how to utilize evaluative research in conducting its projects and the focus is upon decision-making related to the production of television programs. Four categories of decision-oriented research are identified--background, formative, summative, and policy. Major recommendations include: 1) Each AIT activity should have a research and evaluation component; 2) AIT should focus upon decision-oriented and product-specific research and evaluation; 3) Background and in-house policy research should be an integral part of AIT; 4) Formative research should be conducted by an in-house staff and be organizationally subordinate to production; 5) Top priority for research resources should go to formative research; 6) Summative research, while necessary, is less important than formative research; 7) Utility to the decision-making process is the chief criterion by which research and evaluation is to be judged; 8) Summative research for outside consumption should be assigned to outside agencies; and 9) Original instruments should be used whenever possible for formative and summative research. (Author/PB)

POLICY BRIEF

SUBJECT: Research

PURPOSE: 1) Summarize the possible contributions of evaluation to school television

2) Recommend an evaluation policy for AIT

PREPARED BY: Keith W. Mielke

DATE: September 27, 1973

This POLICY BRIEF is provided to assist you in considering how the Agency for Instructional Television should employ research in its conduct of cooperative program projects. After reviewing the brief, you will be asked to recommend a research policy for use by AIT.

The AGENCY FOR INSTRUCTIONAL TELEVISION seeks to strengthen education in the United States and Canada through television and other technologies. Its primary function is to expand and improve the cooperative development of major program projects.

As an essential part of this function, AIT operates a COUNCIL FOR INSTRUCTIONAL TELEVISION. The Council permits you and those with similar interests to consult regularly on matters of mutual concern, identify common needs, and make recommendations for implementation by AIT.

DECISION-ORIENTED RESEARCH

in

SCHOOL TELEVISION

Prepared by

Keith W. Mielke

Professor of Radio-Television
and Mass Communications

Indiana Universi

(Currently on sabbatical, Dr. Mielke is working in ~~two~~ capacities: (1) as a Research Associate at Children's Television Workshop, developing and conducting formative research for a new project on health education; and (2) as a Visiting Scholar at Harvard University's Center for Research in Children's Television.)

DECISION-ORIENTED RESEARCH IN SCHOOL TELEVISION

Section I: Background

Introduction

It takes a variety of talents and a series of coordinated decisions to get a television program successfully through the interlocking stages of planning, funding, production, evaluation, distribution, and utilization. This paper deals with the *decisions* involved in that process, and more specifically, how research and evaluation can help improve those decisions.

There are two primary objectives for this paper: 1) to review what evaluation can contribute to school television; and 2) to derive policy suggestions for such evaluation programs.

The scheme employed here uses four categories to make distinctions among several kinds of evaluation activities: 1) background research; 2) formative research; 3) summative research; and 4) policy research. These categories will be defined, and their utility in decision-making will be discussed. For each category, some dominant policy issues will be presented.

Focus on Decision-Making

There is no shortage of literature that examines and contrasts the procedures, assumptions, and purposes of basic research and evaluation (or evaluative research).* These issues of similarity and contrast are quite

*In the appended bibliography, see for example, Glass and Worthen (1972) Guttentag (1971); Mielke (1973); Palmer (1972); and Phi Delta Kappa (1971).

interesting, and debate continues on where the various boundaries should be located. Much of the "basic vs. applied" research discussion can be avoided here, however, if there is an early agreement on what the role of research and evaluation should be for *this* organization and the projects it undertakes.

A policy recommendation that can serve to bypass much of the discussion and debate on the distinctions between basic and applied research is: *that AIT commit its research and evaluation resources exclusively to decision-oriented and product-specific research*, thus not engaging at all in in-house research designed to test general theories or hypotheses. This places top priority on meeting the specific decision-making needs of the organization and excludes from the research mission the objective of making a contribution to new generalizable knowledge.

This should not be interpreted as a lack of interest in theoretical developments or a lack of recognition of the eventual utility that AIT can derive from basic research. It is, however, a proper allocation of resources for an organization whose mission is not *per se* academic or even scholarly, but mission-oriented and action-oriented. School television activities pursued by AIT may offer enticing research opportunities to scholars both in and out of the organization. This may well generate a variety of overtures for full or partial sponsorship. The recommended *attitude* here is one of support, encouragement, and cooperation, but not as an official AIT activity, and not conducted under the financial sponsorship of AIT. Under this policy, appropriate AIT research activities would generate data that one or more decision-makers should find useful.

This orientation is entirely consistent with the definition of evaluation proposed by the Phi Delta Kappa National Study Committee on Evaluation: "Evaluation is the process of delineating, obtaining, and providing useful information for judging decision alternatives."(p.xxv) This basic definition makes a clean break from the traditional mission of basic research, setting evaluation on a path of its own.

Distinctions among various types of decision-oriented research

In principle, the domain of decision-oriented research is as broad as the domain of decisions that must be made. In complicated processes, such as developing, producing, and using televised instructional materials, that domain is broad indeed. Within decision-oriented research several distinctions can be made and several categories defined. For example, it may be useful to separate evaluations that should be done by an in-house team of researchers from evaluations that should be done on contract by independent researchers. In other cases, it may be useful to have chronological categories, such as pre-production, production and post-production research and evaluation.

These category schemes or any other category schemes should be subject to the criterion of utility. When they are not appropriate for an occasion, they should be modified to become useful, or they should be abandoned. It is hoped that this caveat will remove any sense of finality or reification from the four-category scheme actually employed here: 1) background research, 2) formative research, 3) summative research, and 4) policy research. It will be argued that background research and formative research should be done by in-house personnel, while summative research and at least some kinds of policy research should be done by outside, independent organizations. Chronologically,

background research is preproduction; formative research is done during the production period, while summative research (and probably policy research as well) would be conducted after production has ended.

Already implied in the development of the four-category array (background, formative, summative, and policy research) is the centrality of the television production process and the television product itself (i.e., the program). This is done in full recognition that the terminal objective is not to produce programs, but to effect learning and behavior change. In that small sector of the total milieu scrutinized here, the television program, the stimulus, is the basic point of reference. The chains of decisions around which the various types of research and evaluation will be developed in this paper are related directly to the planning, production, validation and utilization of television programs. The center of this small universe is television *production*.

Section II. The Four Categories

Background Research

If we were to run a survey on what school administrators instinctively think of as falling in the domain of instructional television research and evaluation, it would probably show that the activities called "background research" would not be included. A common notion is that researchers and evaluators come into the picture after the product is completed to evaluate the performance of that product. This is far too limiting, and indeed may not even be the most significant contribution that research and evaluation can make. A clear stand should be taken to recognize and create

opportunities for making better decisions as a consequence of research and evaluation inputs. Long before production is completed, indeed before production has even begun, systematic research is needed for the plethora of decisions that face the administrator at the planning stage.

The generic mission here is to reduce uncertainty in the planning process. It seems appropriate to include within the category of background research at least such activities as the assessment of needs that can be addressed properly via television, the assessment of a host of audience or student variables, the assessment of the physical system for production, distribution, and reception, and feasibility studies for tentative program ideas. These are all proper subjects for research contributions that are not tied to any particular program or product. (The many similarities to the processes of marketing research should not go unrecognized.)

It is recommended that background research covering such activities as those listed above be integrated permanently into the structure of the organization, if possible, rather than gearing up anew for each new project or each new potential source of funding. A modest but sustained effort in this area should provide a reliable information source to administrative planners on such questions as:

1. What are the perceived curriculum needs?
2. What is the condition of the distribution system?
3. Demographically, what is an accurate description of the potential audience?
4. Psychologically, what is the audience attitude structure toward topics A, B, and C?
5. What reception might we expect for a new series on subject X?

Dozens of questions of this order can be submitted to empirical treatments designed and administered by a team of researchers.

It should be affirmed here (although it applies equally to all categories of research and evaluation covered in this paper) that the data from research and evaluation efforts do not *per se* make the administrative decisions, nor do they even dictate a particular conclusion or interpretation. That is, research input is one source of information alongside several sources of information and guidance that the administrator uses. With or without benefit of research input, the administrator must make decisions; the goal is to improve those decisions through carefully designed background research.

Formative Research

Formative research is the first of the four categories covered here to involve a specific program or project, and it should be initiated very early in the developmental phase of that program. Formative research is typically defined in comparison with summative research, as research or evaluation administered during the formative stages of a product (a television program in this case) that provides feedback to the production staff, enabling them to modify and improve the product before the final production decisions have been made. Formative research is pretesting programs early enough in the process to take corrective action. Summative research, by way of contrast, assesses the impact of a program or series as a whole, comparing observed effects with the effects desired or anticipated (as stated in the behavioral goals and objectives). Formative research is to summative research what repeated midcourse guidance and corrective tutoring is to the final grade for

the course. Seen in that light, the importance of the formative research function should be readily apparent.

Continuing the analogy, one can speculate on the most rational decision in a choice situation: if you could only have one or the other, either repeated midcourse guidance and corrective tutoring *or* end-of-course evaluation with final grade, which should you choose? Although one may rightly reject the imposition of such "either-or" conditions in reality, the question is nevertheless instructive for the placement of priorities, and priorities are required when the resources for research and evaluation are limited, as they always are. The value position taken here is that once the agency has committed itself to a school television project, the *top priority for research resources should go to formative research.* There should always be a summative research component of some dimensions, but without an active formative research component, isolated summative research may be little more than an autopsy.

As you already know, production of television programs is a complicated process in which innumerable assumptions about audience attention, comprehension, and other reactions must be made. Expertise in the production process is needed so that a fair share of these assumptions will turn out to be correct. Experience shows, however, that expert judgments alone (that is, expert predictions of audience reactions) are frequently *wrong.* Ultimately, there is no substitute for a try-out of the program with representative audience members.

In formative research, as in the other categories, the way to find out where the research effort *should* be is, at least in large part, to work back from the decision-making needs of the person(s) to whom the research results will be addressed. This search has a logical and a human relations component. In formative research and evaluation, the consumer is the production staff and the decisions are production decisions. The production staff must be motivated to make use of the research results; they must be able to understand the research results; and the research results must address the production decisions appropriate to that group of consumers. Insights into the nature of producers and production can be used to generate guidelines (a) for motivational steps that can be taken, (b) for the form and purpose of research reports, and (c) for the type of questions for which data are sought.

Consider first the motivational issue. Above all, there must be mutual respect, understanding, trust, and goodwill between research and production. Without dwelling unduly on the theme of being "nice" to one another, suffice it to say that this social factor is probably far more critical than any methodological or policy factor in determining success or failure of a formative research effort. Researchers should understand that producers have ego invested in their creations, and it can be threatening to have the program criticized by the research staff. There is little hope of getting good data or influencing the improvement of productions if goodwill and mutual respect are not in evidence. The essential climate of goodwill is quite fragile.

The following practices, witnessed at Children's Television Workshop, are offered here as policy recommendations for AIT as well: 1) To the *maximum*

extent possible, the consumer of formative research should be involved in setting the formative research agenda. In other words, the producers should specify what it is they need to know, and the researchers, if they can, should provide relevant data on those issues. (Note: This does not suggest that the research agenda should be restricted to those questions generated from production; it does state that real attempts should be made to answer responsibly any research question posed by the production staff.)

2) The fact that research is working in the service of production, and not vice versa, means that research performs an advisory function, with the final decision-making power properly belonging to production.

3) There should be a continuing in-house educative function going on between research and production, each enlightening the other about its special areas of expertise and how the other party can best use that expertise.

Consider now the research report. Given the reference to the needs of decision-makers, there are implications both for the content and the style of formative research reporting. The content must relate to the producer's *actual* decisions (that is, must relate to things within the producer's power to *change*). This area of potential change is, of course, program design and production. Formative research should speak to those still manipulable issues in program design and production. Implications for style should be governed by the methodological sophistication of the consumer, the production staff. The jargon and statistical presentations appropriate for other researchers are usually inappropriate for producers.

The level of specificity in formative research reports, with the focus on specific production decisions for specific programs,

tends not to be very relevant to those not directly involved in the project. To make these reports interesting to "outside" readers would require considerable rewriting and would change their function. A policy recommendation is that formative research reports retain their original purpose of serving the decision needs of production, and not be altered to meet the interests of other readers. An open information policy is recommended for all research reports, but only for reports in their original form, as prepared for their original function.

As it relates to program design and production, formative research also has a role to play in the formulation and selection of objectives. One procedure is for content experts to state in general terms what they believe are realistic goals and then for formative research personnel to translate these goals into measurable objectives, subject to approval by the original content experts. The ability or inability to devise acceptable behavioral measures for general goals may well be a significant criterion in deciding whether or not to include that goal in the mission for the program. Early pre-testing on the achievability of certain objectives could also influence the design of the program.

As will be discussed shortly, operationally defined objectives are also an essential part of the summative research operation, where the interest is not in program design and improvement, but in determining the degree to which the objectives were met. Although functionally quite distinct, there can be some interplay between formative and summative research.

In general, however, the formative research agenda should be distinct because of its improvement orientation, that is, its concentration on the

domain of manipulable factors under the control of production. Of course, the production staff must be concerned with the assessment of behavioral objectives, but a final "report card" on how well the program performed may offer no insight whatsoever on how to improve it the next time around (if there ever is to be a next time). Many formative research questions will tend to resemble closely the questions a good producer-director would be naturally considering anyway in the design and production process -- e.g., Is this enough reference to the previous programs for the students to make the logical connections to this program? Will the students detect the subtle humor in the closing scene, or will that be confusing to them? Given a battery of such questions, it should be evident that, to be responsive, considerable methodological ingenuity and variety are required on the part of the in-house formative research staff. *It is recommended that both background research and formative research be conducted by in-house research staff, sensitive to the particular needs of AIT and committed to long-term good relationships with AIT personnel.* With formative research responsive to the real needs of production, production can be an enthusiastic supporter and consumer of research.

Summative Research

As defined earlier, summative research assesses the extent to which a program (or series) has reached its objectives. Summative research probably resembles the most common expectation of what research and evaluation is about. It is conducted because decision-makers need overall performance data. Did I spend my money wisely? Does this program merit additional funds for revision? Should this program be scheduled for next year? These are decisions that need the summative research output.

Typically, many of the consumers of summative research are outside the organization. A recommended policy is that *all summative research for outside consumers be conducted by research groups outside AIT, for reasons of detached objectivity and credibility.* It is further recommended that *the design and measuring instruments for all contracted summative research should be approved first by in-house AIT administrators to insure that all relevant objectives are measured in an appropriate manner.* After AIT has approved the research procedures, the outside research agency should be autonomous.

Unfortunately, it is still too common to find situations where summative research is an afterthought. Researchers have had to resort to monitoring a completed program, inferring what the objectives or producer's intent must have been, and then writing summative evaluation items on that basis. This should not happen. The planning of summative research should begin as soon as the planning for the program begins. If there are to be pre-test/post-test comparisons as part of the summative research, it is obvious that the research must be in the field before the first airing.

There are arguments for incorporating standardized instruments into summative research and arguments against. Supportive arguments include:

a) You thereby get a measuring instrument that has been field tested;

b) You have a common basis on which the performance of other groups can be compared; and

c) There are national norms established for many of these instruments.

Arguments against standardized instruments include:

a) Many of them are not designed as a measure of program effects;

b) There is some possibility that an existing instrument could influence the curriculum by tailoring the objectives to fit the instrument; and

c) Most importantly, standardized tests may have minimal overlap with the

total configuration of program objectives. This hurts in two ways: for content on the test but not covered in the program, there will be no demonstrable effect of the program. For content on the program but not on the test, significant effects could go unmeasured.

The recommendation is that original instruments be used to insure precise reflection of program objectives.

Some objectives are easier to measure than others, and there may well be understandable pressure to lean toward the more readily measured outcomes in the program design. One can invoke the argument that if the objective can't be specified, then it has no place in the program or the research. Such a hard-nosed position could limit the curriculum goals to the capacity of the art and science of measurement. For television, which has a marvelous ability to communicate non-verbal information and to involve people emotionally, this would be an unfortunate limitation. Reasonable men and women should work out on a case-by-case basis the best compromise between two desirable outcomes: rigor of measurement and exploitation of the potential of the television medium. It might, for example, be reasonable to require behavioral measures for a majority of the desired outcomes, with other objectives being allowed far less rigor. Even an occasional shot in the dark with no measurement whatsoever should not be precluded. It should be noted that a greater ability on the part of researchers to measure the more elusive outcomes (affective variables, for example) would facilitate their formal incorporation into various curricula. If ATT is ever inclined, contrary to an earlier recommendation, to sponsor basic research, then such measurement research would be an excellent investment.

After recognizing and supporting completely the scientific values of rigor, clarity, precision, reliability, validity, and the like, one must also recognize that most research, even the best research, compromises downward from the lofty ideal. With great resources some compromise will be necessary, and

with limited resources, compromise is unavoidable. In decision-oriented research, one frequently is in the position of being able to increase the rigor of a study for a few thousand dollars more, but then deciding as a matter of priorities in resource allocation that the return is not worth the investment. How far downward one can compromise and still find utility in the data is a value judgment that should be made on a case-by-case basis. Again, the operative criterion is *utility* in the decision-making process. Frequently, the options available are to make the decision with no data at all or to make the decision with data that are considerably compromised from the ideal. In such a situation it is not uncommon for reasonable people to prefer some data over no data at all. The research data combine with whatever other formal and informal inputs the decision-maker can muster to influence the analysis and the conclusion.

Policy Research

Policy research, the last of the four categories of decision-oriented research to be covered here, will be easier to discuss if subdivided into two parts: (a) policy research tailored to the policy-making needs of AIT; and (b) policy research tailored to the policy-making needs of larger societal and governmental units.

The organizational machinery required for on-going background research, recommended in earlier [illegible] also be ideal for serving AIT's poli[illegible]akin needs. [illegible]ackg[illegible]rch, the data could help lay the groundwork [illegible] intell[illegible] specific school television materials. As in-house policy rese[illegible] could help provide basis for the sustained review, modification, and creation of general AIT policy. The two uses

of research data are, of course, highly interrelated. The policy research does not generate policy; it generates data that top level administrators should find useful in policy areas. The non-exhaustive agenda suggested for background research is equally well suited for policy-making needs.

In brief review, the suggested areas were assessment of needs, of audience variables (both demographic and psychological), and of physical system variables (production, distribution, reception), and feasibility studies for program ideas. At a somewhat higher level of abstraction, these activities can be thought of as a form of sustained system monitoring combined with predictive simulation models. System monitoring should yield multi-faceted status reports on the system in which AIT operates. In program planning, predictive simulation models should bring to bear logic and evidence in predicting the consequences of spending resources before actually committing the resources. In policy deliberations, predictive simulation models should bring to bear logic and evidence in predicting the future status of the system.

Consider several hypothetical (but, it is hoped, plausible) policy issues. The value of research input should be self-evident.

"To what extent should AIT diversify its media products over the next fifteen years?" Predictions on the future status of the system would obviously be required here for the decision-making process. "How will the needs of the school systems change?" "How will technological developments affect AIT?" And so forth.

"What are the major factors, the convergence of which should cause AIT to undertake production activity and the non-convergence of which should preclude AIT involvement?" Responsibility for such blockbuster policy issues resides with

the administrative decision-maker, but he or she should find it most useful to be able to check out empirically at least some of the multitude of assumptions that feed into such deliberations.

The research staff and the administrator should cooperate in breaking down the big policy questions into relevant questions that can be answered. The question "What should a rational person know before setting policy on this complicated issue?" should generate a host of items, some of which can, and some of which cannot, reasonably be assigned to research.

The policy needs of societal units that involve AIT activities are another matter. AIT should be a cooperative participant in contributing whatever it can to these other "outside" policy issues coming from responsible agencies, but would not actually conduct the research. Presumably, AIT would have a clear position and would serve as an advocate, for example, in government considerations of the role of educational media for the next decade. In another policy setting, AIT could share relevant experience as an expert witness (as, for example, in some state's deliberations about the pros and cons of sex education in the schools, or emotional health in the schools). In another setting, AIT may simply provide data, as for example, in response to a UNESCO survey.

Because of the impact of television and its multitude of effects (and side effects) -- some of which are considered positive and some negative, some of which are intended and some unintended, some controllable, some uncontrollable -- the AIT areas of activity will inevitably brush against policy issues in a variety of other agencies and organizations. These encounters offer opportunities for positive influence in a rather wide spectrum of policy.

Section III: Policy Recommendations

I have tried to broaden the typical conception of the role of research and evaluation in televised instruction to include research inputs at a variety of points in the system. By going under the rubric of decision-oriented research, a variety of other elements tend to flow logically from such a starting point: identification of research problems, the channels of communication, the chain of command, the consumer of research reports, the delineation of meaningful distinctions among types of research and evaluation, and the specification of research objectives, to list a few.

Research methodology was not considered at all, and a variety of terminological issues and territorial disputes were simply bypassed and left for another day. The purpose of the paper was to review/discuss the areas in which research and evaluation could make positive contributions to AIT, and to discuss some of the policy issues that relate to those potential contributions. For all such issues, there is a recommended position for your consideration and discussion.

In isolated form, here is a summary list of research polity recommendations, most of which were covered in the preceding text.

1. *Each AIT activity should have a research and evaluation component.*

2. *AIT should restrict its research efforts to decision-oriented and product-specific research and evaluation.* AIT should cooperate with but not sponsor basic or theoretical research. If, for whatever reasons, AIT *does* decide to invest in basic research, this research should be in areas that have high probability of practical pay-off, such as in new measurement methods to index non-cognitive effects.

3. *Background research and in-house policy research should be established as a permanent and integral part of AIT, transcending specific projects.*

4. *Formative research should be conducted by an in-house research staff, working in the service of production, and organizationally subordinate to production.* A prerequisite to appointing production decision-makers should be their willingness to work with formative research in the improvement of the product.

5. *Once AIT is committed to a production project, top priority for research resources should go to formative research.*

6. *There should always be some form of summative research, but funding here is secondary to a quality formative research program.*

7. *All research and evaluation is to be judged by the criterion of utility in the various decision-making processes.* This utility will be enhanced if the consumer can be involved in setting the specifications for

the research and evaluation projects. This holds for all four categories of research discussed in this paper.

8. *Summative research for outside consumption should be assigned on contract to outside, competent, research groups.* Control over the design of the summative research and the instruments used should remain in-house with AIT, but once approved, the outside group should be autonomous.

9. *In the vast majority of cases, original research instruments rather than standardized tests should be employed for formative and summative research.*

10. *Before information officers release or quote from research findings for publicity purposes (no matter whether background, formative, summative, or policy research is involved), a responsible research officer should approve the release to insure that the interpretation being conveyed is in fact correct and supported by the data.*

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