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ABSTRACT

In order to contribute to the refinement of methods for assessing the adequacy of program implementation, this study investigated data collection efforts made during the implementation of ALERTA, a bilingual, multicultural preschool curriculum model. Comparisons of results are made with those of previously conducted studies of program implementation in elementary schools. To aid comparison, the discussion is organized into four sections. The first section reviews a representative sample of the literature on innovative implementation in the elementary school. The review provides a framework for interpreting the following description of preschool innovation. The second section briefly describes the ALERTA program and presents the plan used for assessing the adequacy of its implementation. Also included in this section are samples of the descriptions resulting from data-gathering efforts. The third section discusses, in relation to existing research in the elementary school, strengths and weaknesses of the methods used to assess the adequacy of ALERTA's implementation. The fourth section concludes with recommendations offered to Follow Through planners considering assessment of the adequacy of program implementation. (RH)

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Assessing the Adequacy of the Implementation of a Program Innovation:
An Exploration of Methods Used in Selected Preschool Settings
in Relation to Research on Change in the Elementary School

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Williams and Cruikshank,

The continuing debate over the effectiveness and appropriateness of the Abt (1977) study of the impact of Follow Through programs has tended to focus on choice of instruments, methods of analysis of outcomes and the narrow range of outcomes selected for investigation. This orientation has somewhat obscured implications to be drawn from a provocative Abt finding, that of strong inter-site variations in the effects of the different program models. It is probable that such variations were caused by the local context of program implementation which either facilitated or impeded the intervention. House, Glass, McLean and Walker (1978) point out the importance of context in the interpretation of results, recommending that future evaluations be sensitive to local conditions.

Accepting that recommendation, NIE is making provision for the assessment of the adequacy and the dynamics of the implementation of new Follow Through models, prior to the models' participation in assessment of outcomes. Before sensitivity to the degree and process of implementation can be well exercised, however, two aspects of the work must be addressed:

1. Development or refinement of existing methods for assessing the adequacy of program implementation; and
2. Identification across settings and program types of additional factors which facilitate or impede the process of innovation implementation.

The value of examining both the adequacy and the dynamics of implementation is clear. Unless evaluators can be assured that an innovation is in place, they cannot confidently interpret data on its supposed impact. Less obvious, perhaps, is the fact that assessments of program implementation must both reflect and address the complex change process. They must also be flexible enough to be used to guide program and site decisions,

and implementation strategies) and summatively (to inform decisions on program continuance). The identification of factors in local contexts which impede or facilitate the process of program implementation is crucial for creating a common framework for interpreting data obtained from different settings and/or different program types. This latter issue is especially important in the work of tracing children's progress from preschool through the Follow Through experience in the elementary school.

The purpose of this paper is to contribute to the refinement of methods for assessing the adequacy of program implementation through examination of a specific instance of such data collection in the light of previously existing research. In 1976, the Administration for Children, Youth and Families (ACYF) in the (former) Department of Health, Education and Welfare, funded the development of ALERTA, a bilingual, multicultural preschool curriculum model.¹ Part of the conditions for funding was that the process of program implementation and the eventual degree of implementation at each of the cooperating Head Start sites be carefully and systematically documented. As no further guidance was given on the method of that documentation, the curriculum developers had leeway to experiment with a variety of techniques.

The extensive pool of project data now being analyzed is yielding two types of insights that may be useful to the Follow Through planning effort. On one hand, the interaction of local contexts with the processes of implementing ALERTA has shown some clear parallels with existing descriptions of innovation implementation in the elementary school. This is worth noting, as Follow Through

¹ALERTA was one of four such models funded. The other three are known as Nuevas Fronteras de Aprendizaje, Un Marco Abierto and AMANECER.

programs exist in elementary school settings, yet in some cases retain certain characteristics of the preschool programs that gave them birth. On the other hand, the methods of data gathering for the ALERTA program departed in significant ways from those generally used in the elementary school change research, thus opening avenues of possibility for the identification of some additional parameters to the process of change. The detail revealed may also be found to impact upon elementary (Follow Through) innovations, thereby having implications for future program design.

To facilitate comparison of the study of implementation in the two settings (federally funded preschool vs. municipally funded elementary school), this paper is organized into four major sections. The first section reviews a representative sample of the literature on innovation implementation in the elementary school, providing an initial framework for the interpretation of the description of preschool innovation to follow. The second part briefly describes the ALERTA program and presents the plan used for the assessment of the adequacy of program implementation. Also included in the second section are samples of the descriptions which resulted from the methods of data gathering undertaken. The third section of the paper discusses the strengths and weaknesses of the methods used to assess the adequacy of ALERTA's implementation in relation to existing research in the elementary school; and the fourth section concludes with recommendations for further exploration in the area of documentation of change.

Innovation Implementation in the Elementary School

The work on innovation implementation in the elementary school has fallen broadly into four categories: (1) examination of the complexity of change
(2) discussion of the (often overlooked) importance of the implementation

stage to the total innovation effort; (3) identification of factors facilitating or impeding the process of change; and (4) comments on the appropriateness of the methodology employed in the studies to date. In the sections that follow, a sample of the literature in each of those areas is reviewed to abstract the major currents pertinent to the present exploration.

The Complexity of School Change

Few who have actively engaged in change efforts would deny that effecting change is often a highly complex task. Yet, only recently have theorists directly addressed the complex nature of school change.

Sarason (1971) was one of the first to recognize the culture of the school and the individual as part of a larger social system. He sees change in terms of the existing regularities evident in the school culture:

...any attempt to introduce change into the school setting requires, among other things, changing the existing regularities in some way. The intended outcomes involve changing an existing regularity, eliminating one or more of them, or producing new ones. (p. 63)
...In practice, the regularities tend not to be changed and the intended outcomes, therefore cannot occur; that is, the more things change the more they remain the same. (p. 86)

Godlad (1975) concurs with Sarason's concept of the school culture and promotes an "ecological" model of education that "goes far beyond schools in seeking to embrace people, things and institutions in a systematic, interrelated whole." (p. 213) He favors the school as the optimum unit for change, emphasizing that the individual must be viewed within the social context of regularities within which he/she works.

Baldrige and Deal (1975) relate educational change to organizational factors as opposed to taking an individualistic approach. They note that:

...educational change engages all the subsystems that together comprise complex educational organization... These various organizational subsystems are related in systematic ways. Any subsystem can pressure another subsystem to change. (p. 10)

Thus, while the individual teacher, administrator or school may be a potential unit for change, all related subsystems must be taken into account for change to occur.

Kent (1979) points out that instituting needed reforms in their organizations is one of the tasks administrators are expected to perform. Like the others, he emphasizes the complexity of this task. Kent notes that, in addition to dealing with complex organizational and educational issues, the administrator must also "constantly keep in mind the political realities of their communities and school districts." (p. 239)

In summary, the culture of the school, with its interrelated subsystems, makes educational change a highly complex matter. Administrators are often caught between their responsibility for effecting change and their inability to change existing regularities within a complex social system.

The Importance of the Implementation Stage

The change literature supports the fact that the implementation stage is crucial to the success or failure of an adopted innovation. McLaughlin (1976) notes that implementation dominates the innovation process and its outcomes in the Rand Change-Agent Study of classroom organization projects. Warren (1976) cautions that as much, if not more, attention must be given to the mechanics of instituting a proposal as is given to the purpose for its introduction. The importance of implementation is supported by others, including Gross, Giaquinta and Beinstein (1971), Sarason (1971), Lieberman and Griffin (1976), Mann (1976), Fullan and Pomfret (1977), Loucks (1978) and Herriott and Gross (1979).

In spite of such support, little is known and understood about actual implementation efforts. Gross, Giacuinta and Bernstein (1971) point out the "paucity of knowledge about the implementation phase of the process of planned organizational change." (p. 8) And Mann (1976) summarizes the gap in the change literature as follows:

With hindsight it is easy to see that designing and disseminating change is not implementing change. What happens inside the school, at the service delivery level, is absolutely related to our success or failure, yet the gap in our knowledge about implementing change in schools is formidable. (p. 313)

Compounding the difficulties caused by lack of knowledge about innovation implementation is the fact that impact studies are often conducted before innovation implementation has been fully ascertained. Kessler (1978), in reviewing Sussmann's book (1977), calls attention to this problem by noting that Sussmann's emphasis on the implementation stage and process rather than on premature outcome assessment is welcome in a field dominated by an emphasis on adoption and measures of success." (p. 203)

In spite of this need for refinement of knowledge on innovation implementation, to date the Research and Development Center for Teacher Education at the University of Texas-(Austin) has been one of the few agencies to address the extent to which individuals have implemented adopted innovations. Reliable and valid instruments for assessing levels of use of an innovation by individual users (Loucks, Newlove and Hall, 1976) and for measuring individual stages of concern about innovations (Hall, George and Rutherford, 1979) have been developed through this extensive project.

It can be concluded that while implementation is a critical stage in the change process, relatively little is known about the phase. Since

this stage is often ignored by those conducting impact studies, one might legitimately pose the question: "Why should a non-implemented or only partially implemented innovation be expected to make a substantial impact?"

Descriptions of Implementation:
Factors Facilitating or Impeding
the Process of Change

While there is general agreement in the literature that additional knowledge is needed in the area of innovation implementation, it should be noted that many studies dealing with implementation in the elementary school have been undertaken in the past. Such studies are exemplified by Gross, Giacquinta and Bernstein (1971), Smith and Keith (1971), Bentzen (1974), McLaughlin (1976), and Sussmann (1977).

Certainly there is much of interest to be gained from past works. Gross et. al. (1971), for example, state four basic obstacles that accounted for the failure of their implementation effort. (pp. 196-198) These were:

1. Teachers' lack of clarity about role performance expected of them.
2. Teachers' lack of the skills and knowledge required to implement the innovation.
3. The unavailability of required materials and equipment needed for implementation.
4. Organizational arrangements existing prior to and during the innovation's introduction that were incompatible with the innovation (e.g., the rigid school schedule).

These researchers also stress the need for feedback mechanisms to deal with implementation difficulties as they arose.

Sarason (1971) emphasizes the importance of both programmatic and behavioral regularities in implementation efforts. He also stresses the roles of both the building principal and the teacher, viewing them both as individuals and as participants in the larger school/system culture.

McLaughlin (1976) notes that in the Rand's Change-Agent Study, "institutional receptivity was a necessary but not a sufficient condition for successful implementation." (p. 343) She does, however, cite mutual adaptation as a conclusive characteristic of successful implementations of classroom organization projects examined in the study, stating:

Where implementation was successful, and where significant change in participant attitudes, skills and behavior occurred, implementation was characterized by a process of mutual adaptation in which project goals and methods were modified to suit the needs and interests of participants and in which participants changed to meet the requirements of the project. (p. 341)

Bridge (1976) advocates parental involvement in the implementation of change at the school building or district level. Linking theory and research, Bridge suggests circumstances under which parents should be involved in decision-making, the kinds of issues that concern parents, and strategies for matching parents with suitable tasks.

Survey of the preceding literature and reflection on its implications highlight what appear to be four key variables in the process of change: (1) institutional receptivity and responsiveness; (2) administrative power to modify existing regularities in the organizational structure and willingness in other ways to participate actively in the steps toward change; (3) previous training and present attitudes, knowledge and skill of staff; and (4) the nature and extent of parental involvement. Together they present a useful initial framework for analyzing data arising from new implementation efforts. One should be cautious, however, not to view the variables in isolation from the research methods which have been associated with their identification, as those methods have sometimes tended to narrow the field of possible questions to be asked.

Critique of Methodology

Gross et. al (1971) note that many criticisms can be made of the literature on methodological grounds. These researchers state that rigorous and systematic analyses of organizations undergoing change are not generally made in order to uncover barriers or facilitators to implementation:

Rather, written largely from the perspective of practitioners and/or active change agents, most explanations are based on highly subjective accounts of their experiences during an effort to introduce educational change. Typically, no supporting evidence is offered about conditions that are presumed to serve as important factors influencing organizational change. (p. 31)

Herriott and Gross (1979) criticize past research on the grounds of its limited nature. They note that testing hypotheses about educational innovations is not the framework that has greatest utility for managers of change efforts since such studies focus on only a few selected variables. They further state that such analyses:

...involve only variables relevant to the problem as it has been delimited by the investigator. Individuals responsible for the management of an educational change process, however, do not perform in such contrived settings. (p. 39)

Baldrige and Deal (1975) emphasize the need for practical experience as one of the three things necessary for understanding educational change. They state that "either practical implications have not been developed from important research studies, or unimportant research has unduly influenced the development of administrative guidelines and policy." (p. 5) Goodlad (1975) concurs, noting that in an ecological model, value judgments should be suspended until one has a data-base perspective about the situation at hand. He urges that "we seek to describe and, to the best of our abilities understand what it now does" before determining what functions the school should fulfill. Goodlad

sees this as a joint function of "external" researchers and "internal" inhabitants. (p. 203)

Lieberman and Griffin (1976), critiquing the work of Smith and Keith (1971), Gross et. al. (1971) and Bentzen (1974), promote an emergent research method that would meld the three points of view. They note that:

Extending and broadening our methodology and clarifying that extension and breadth will, it is believed, solve some of the problems of the lack of comprehensiveness noted... It must be understood that we do not propose an abandonment of systematic, rigorous, and, if possible, elegant research technique. We are arguing for the formulation of method which will reflect the phenomena being studied and, in effect, capture those phenomena fundamentally and accurately. (pp. 419-420)

Along with an emergent method, Griffin (1978) also cites the importance of formative evaluation as an on-going part of change efforts. This stance is supported by Gross et. al (1971) and Kent (1979). Griffin (1978) proposes two techniques to meet this need:

- (1) Direct observation by a participant observer who regularly and systematically records events of which he or she is a part or by a non participant observer who does not interact with the other persons in the process.
- (2) (Use of) informal interactions and events that occur outside formal meetings... captured by self-reports of participants in the forms of logs, diaries... (p. 132)

In "The Politics of Training Teachers in Schools", Mann (1976) notes that informal evaluation by staff and clientele was an important activity in most successful projects, and that those involved paid attention to it and changed because of it. Griffin (1978), stating that evaluation should consider participants' time and energy, also supports the value of "on the run" questions and answers.

Critiques of present methodology strongly support the case study as an appropriate research method in implementation studies. Gross et. al. (1971) cite five reasons for using the case study, including the fact that data can be collected over time, that research issues can be examined in natural settings, and that a rapport can be developed and maintained between the observer and the observed. These researchers note, of course, that case studies can generate, but do not test theories. Baldrige and Deal (1975) also advocate the use of case studies as a means of understanding "whys" of educational innovation and change. They too feel that this method has the ability to capture the highly complex nature of educational change. Herriott and Gross (1979) find the case study a highly useful method of examining the realities of planned change. They also note that it provides:

...the types of data needed to examine the dynamics of educational change attempts, a problem that requires longitudinal data, holistic perspectives, and an analysis of the reciprocal interplay among a complex set of variables. (p. 353)

It should be emphasized that while the literature supports the inclusion of qualitative measures in research designs relating to implementation, nowhere was it suggested that quantitative measures be abandoned. Rather, such measures might be balanced with others of a more qualitative nature in order to capture the complexities of the change process.

In summary, it can be said that many past studies can be criticized for their high subjectivity or limited methodology. There is a need for an emergent method, as described by Lieberman and Griffin, that captures the highly complex change process while also offering practical implications for managers of change. This should also include formative evaluation mechanisms that can be used for feed-back purposes during the implementation phase. Direct

observations, as well as logs and diaries were suggested methods of addressing this need. The importance of informal evaluation and "on the run" questions and answers was also established. A strong case for utilizing the case study as a means of describing change efforts was made since it has a holistic perspective that can capture the complexity of change over time.

Assessment of the Adequacy of the Implementation of ALERTA at Four Sites:
Methods Employed and Samples of Resulting Descriptions

The development of ALERTA was originally commissioned for the purpose of presenting Head Start programs throughout the country with a viable strategy for working with culturally diverse children. In the original proposal request, ACYF stipulated that the overall orientation to program development was to be one of identification of the strengths of minority populations and use of those strengths in the furthering of the learning process in young children.¹ It was also expected that community members (parents, Head Start staff and other persons with project-related expertise living in the community) would be directly involved in the curriculum development process as conceptualizers, materials developers and field testers, working in a partnership with the contractors.

The curriculum resulting from this interaction consisted of a nine-step process for tailoring early childhood learning experiences to the developmental levels, interests, language proficiency and specific cultural experiences brought by the children and their families to the Head Start center. Each step (or level of program implementation) was set out in manuals for the Head Start

¹This stipulation marked a move away from the deficit orientation which had characterized much of the earlier work in Head Start.

staff, administrators and parents, and was supported by a series of in-service contacts (workshops, classroom observations, one-to-one meetings, etc.). The model included a perspective on child development, a child-centered planning technique, strategies for fostering continued development in the first language and acquisition of a second, and resources for the integration of a multicultural perspective into the total learning experience.

The curriculum process and the manuals were developed during the first year of the project (1976-1977). While the program was being field tested in 1977-1978, the need for eventual assessment of the adequacy of program implementation was addressed through initial review of research on innovation implementation in the elementary school, and subsequently, through design of a plan and instruments for data collection during the replication phase to come. The third year of program operation (1978-1979) saw substantial revision of the curriculum materials on the basis of the initial field test and the replication of the program in two Head Start centers which had not participated in the original material development. It was over the last five months of the replication phase that the assessment of the adequacy of program implementation was undertaken and a large part of the data was assembled. ACYF decided in June of 1979 to extend funding for one more year to support dissemination of the curriculum models, and the program developers were able to gather some additional data from other sites that fed into the analyses already begun.

The synopsis below includes discussion of the derivation of the methods used for data collection during the program implementation stage at the several replication sites, sample descriptions arising from the collection, and notes on the difficulties experienced in the use of particular techniques. Comments on the strengths and weaknesses of the methodology employed in relation to that used in earlier research, and recommendations for further work

in the design of tools for implementation assessment will be reserved for the final sections of the paper.

Methodology

At the beginning of the second year of the project, the curriculum developers could not yet see the total pattern of interaction upon which the success of the implementation would depend. They were aware, however, that institutional receptivity (including consistent provision of appropriate facilities and materials), administrative commitment to the innovation, and staff and parental attitudes and skills would be likely to prove as significant in the preschool setting as they had in the elementary school. The developers therefore started their design of protocols and schedules with those four factors in mind. In addition, they added to the indicators of the program's implementation the degree and nature of children's engagement in the types of activities which the curriculum was meant to promote.

The developers were also clear that a variety of techniques would be needed to address the different facets of the information to be collected. The receptivity of the institutions involved could in part be assessed through a survey of the resources provided. The gauging of the attitudes, knowledge and skills of the administrators, staff and parents, however, as well as the tracking of the increasing proficiency of the children in areas particular to the program goals, required assessment approaches unique to each circumstance.

Initially it was decided that five types of assessment would be employed: (1) survey of facilities/resources; (2) review of current documentation (plan books, daily schedules, logs, child progress folders, etc.); (3) observation of the children at work; (4) observation of staff parents and administrators at work during both "regular" days and workshops or meetings; and (5) interview

of administrators and staff. A separate set of protocols or schedules was designed for each purpose.

Survey of facilities/resources. It was expected that one measure of the adequacy of the curriculum's implementation would be reflection of the developmental, bilingual and multicultural perspectives of the program in the learning environment. An environmental survey was designed through an analysis of a objectifiable curriculum elements (e.g., room arrangements, furnishings, manipulable materials, design of learning centers, choice of children's literature, music, art, etc.) and was conducted at three separate times (beginning, middle and end of the total assessment period) in each of the cooperating classrooms.

Review of current documentation. Incorporation of environmentally/culturally appropriate content in both adult-directed and child-initiated activities was in part assessed through periodic inspection of daily and weekly planning forms and observational notes kept on the children. Whether or not the curriculum's objectives were being addressed was determined through review of the folders which were expected to be kept on each child as part of the implementation process. Use of a child-centered perspective (through provision of time for child observations and team planning) and the structures for language learning were noted in the planning of daily and weekly schedules.

Observations of the children. Child observations during the first part of the assessment period were anecdotal, reflecting the type generally accepted in the Child Study literature. Observers from the curriculum developer team were in the cooperating classrooms for one-half day once every two weeks throughout the assessment period. Children to be observed during each visit were randomly selected within each language proficiency cluster,¹ so that the full range of

¹Standard clusters at the beginning of a center's use of ALERTA are monolingual Spanish speakers, bilingual Spanish-dominant speakers, bilingual English dominant speakers and monolingual English speakers. (Languages other than Spanish and English can be substituted into the pattern.) By the end of the program year, all of the children are expected to be bilingual to some degree.

change in language use could be observed. Each observation was converted to a narrative report and grouped with others of given time periods and locations for later analysis of patterns and trends in the children's development. It was assumed that the children would with increasing frequency display attitudes and behaviors related to the curricular objectives.

Observations of staff, parents and administrators. Procedures for observation of staff, parents and administrators at work were drawn largely from ethnographic research techniques. Specific attitudes and behaviors directly related to the tasks of curriculum implementation were, of course, noted. Considered equally important, however, were the patterns of interaction observed among staff, parents and administrators, which subsequently permitted a "mapping" of the culture of the center similar to that urged by Sarason (1971) and Goodlad (1975). A particular focus of this effort was the identification and tracing of any change in the "existing regularities" of the work setting in response to curriculum implementation. The observations were done in each cooperating center for one-half day once every two weeks during the assessment period.

Interviews of administrators and staff. Structured interviews of administrators and staff were included in the research design for two reasons. First, a method was needed for assessing the knowledge of the curricular principles that had been acquired during the course of the implementation. It was of interest to the curriculum developers to see if there was a close relationship between knowledge of the program and skills in its use.¹ Second, such interviews might

¹ While such a relationship would seem to be without question, Wetzel's (1969) work at the University of Arizona (Tucson) shows it to be a moot point. A considerable amount of work remains to be done on definition of the circumstances under which a direct relationship can be observed.

serve as a kind of self-report, revealing otherwise hidden perceptions of the change process while also providing another type of the formative evaluation encouraged by Mann (1976) and Griffin (1978). The interviews were conducted individually with all of the administrators and staff during the final week of the assessment period.

It was expected that work in each of the five areas would need to be refined as the assessment of implementation (and the implementation itself) proceeded. In fact, Lieberman and Griffin's (1976) "emergent method" was beginning to be utilized even though the developers were not aware of that formulation during the early phase of their work. The particular procedures employed were allowing parameters of the implementation process not considered in the original research design to show themselves. Those emerging parameters in turn, were dictating changes in some of the data collection methods, in order to capture more of the complexity of the "deep-structure" processes of change.

Most immediately, a refinement was seen to be needed in the observational technique being used to record the development of the children. The reciprocal relationships between the child and the classroom environment, child and child, and child and adult were showing some fascinating shifts which needed to be more systematically recorded and analyzed. Consequently, a double matrix tally sheet was designed for rapid noting of the nature and frequency of such interactions. The vertical axis of the matrix remained constant, referring to the setting or class of individuals that evoked the interaction, as follows:

1. On Target Setting Set:
 - a. The child selects the area
 - b. The materials in the area being used in setting specific ways, eg., in the block area, blocks used for building

2. On Target Teacher Set:

- a. The teacher selects the area
- b. The teacher presents the materials
- c. The teacher selects the children
- d. The children will perform the activity that the teacher specified.

3. Child Initiated:

- a. The child selects the area and/or activity
- b. The child performs an activity other than what that area designates, e.g., playing in the block area with a table game.

4. Transition:

- a. Interaction which takes place while waiting for another activity.

The following constitute child/child and child/adult interactions:

1. Physical (Tactile) contact
2. Verbal exchange
3. Non-verbal communication
 - a. Physical stance
 - b. Gestures

The horizontal axis of the matrix had two variations (1) description of classroom area (e.g., family corner, block area, art area, library, etc.); and (2) reflection of the structure for language development and acquisition (e.g., small group work, Spanish as a first language; small group work, Spanish as a second language, etc.). Classrooms implementing ALERTA were expected to show a balanced scatter of interactions across the four categories outlined above, across areas of the room and in use of the structures for language learning. The matrix was used in place of the earlier anecdotal observations during the last six weeks of the assessment period.

Another data collection technique which rapidly showed itself to need substantial revision was that of the administrative/staff interviews. Subjects clearly viewed the interview as a test, even though it was held in what was thought to be an easy, conversational manner. Consequently, they did not

appear to be so relaxed in sharing their knowledge as had been hoped they would be. During the 1979-1980 program year, the interview was abandoned in favor of using a list of indicators of program implementation. The indicators were originally prepared by the curriculum developers, but were supplemented by the staff, parents and administrators at each site. The list was used in workshops by the cooperating groups as a self-evaluation device. Conversations that spontaneously arose as each group dealt with the various items on the list proved to be far more accurate gauges of the knowledge of individuals than the interviews had ever been.

Turning to the earlier research, one should note that Griffin (1978) has urged that assessments of program implementation be flexible enough to be used formatively as well as summatively. The importance of the double purpose of the assessments to the eventual success of the implementation of ALERTA should not be underestimated. All of the measures described also acted as channels for input from the participants (including the children). That input was constantly fed back into the curriculum development or revision process, thus insuring that the crucial mutual adaptation cited by McLaughlin (1976) could occur. The adaptation observed at one of the sites in particular struck the developers forcibly. In their Annual Report for 1979-1980, they noted:

The ALERTA originally envisioned by the curriculum developers is not exactly the ALERTA seen at Center B. What is there is a curriculum that has at its roots the principles and theoretical precepts of ALERTA, combined with the center's own personality, character and style. We have seen a mutual assimilation and adaptation. The curriculum and center are one. (p. 20)

The formative nature of the various methods of assessment also allowed for the data to be analyzed in stages, so that changes could be made in the program or the work setting as appropriate to patterns of interaction revealed.

Following are descriptions which arose from the assessment of the adequacy of program implementation, but which also were used as a basis for revision of program process, curricular content or institutional procedure.

Sample Implementation Descriptions

Research in the elementary school has indicated that four factors (institutional receptivity; administrative support and active engagement with the innovation; staff attitudes, knowledge and skills; and parental involvement) interact to facilitate or impede program implementation. The same four factors were seen to be operative in the preschool setting, and the categories proved useful in organizing data for analysis. Within category, it soon became evident that both complementary and different types of insights were coming from the various methods of data collection used.

Institutional receptivity/responsiveness. The analysis of institutional interactions in the implementation process drew upon data gathered through three of the measures described above: the environmental survey, observation of the administrators at work and review of current documentation at each site.

Use of the environmental survey tended to reveal whether or not administrative agencies were being responsive to program needs. At one site, review of the survey data led the developers to comment in in-house notes:

At this point in time, 26 curriculum elements are present or beginning to be evident in Room 2 (criterion for implementation = 29 items). More should have been observed, given the amount of time and guidance that the staff has received on preparation of the learning environment. Conversation with the staff revealed that the teacher has three times requested the educational director to purchase the learning materials identified at the last workshop, but that as yet, the director has not acted. According to the director, the problem is that funds for materials purchase have not been released by the local funding agency.

Notes on the observed interaction between administrators and the local funding agency at another site brought to light a rigidity on the part of the agency, which impacted heavily on the rate of program implementation:

Great difficulty was experienced on the part of the center directors in obtaining the additional release time requested from the Agency in order to carry out the full complement of training required for program implementation. Permission for additional days requested in August 1978 was not received until March 1979, and the directors rightly felt that they could not close the center for extra training days in the absence of that permission. By juggling their existing training allotment, the directors managed to schedule three days in a row for preservice training in September. As the full preservice workshop is five days long, that arrangement put the staff two training days behind at the beginning of their work. In order to make up for the two training days appended to their regular one-day inservice in September, the directors did not hold inservice training sessions in either December or January, the very time when extended contact with the curriculum developers would have been most useful. (Third Annual Report, 1979-1980, pp. 35-36.)

Fortunately for the eventual outcome of the implementation process, not all of the interactions observed at this level presented constraints on use of the program. In the summaries collected to prepare the Annual Report, 1979-1980, it was noted that

One of the most important reasons why the center (a third site using the program) and the curriculum became increasingly part of each other was that the administrators were able to work with their Board as strong advocates of the program. Thus, they were always able to secure dates for workshops and observations far in advance and did not run the risk of scheduling conflicts which would have undermined the training.

Sometimes review of current documentation at a center was equally revealing of the nature of agency/center interactions. At one site

...profiles of the children's progress found in the individual child folders gave the impression of all having been done at a particular point in time (rather than over the span of time expected). The results were profiles that did not appear representative of the children's present capabilities. (Third Annual Report, 1978-1979, pp. 29-30.)

Investigation of the circumstances under which the profiles were being filled out highlighted another problem. There was no provision for staff planning/evaluation time in the daily schedule set by the local funding agency. Thus, ongoing recordkeeping posed real difficulties for the staff.

Each of the descriptions cited above was used in the assessment to define the contexts within which the implementation data should be interpreted. They were also used, however, to suggest structural or procedural modifications which could enhance program implementation. In actual fact, once the difficulties were identified, some agencies did move in directions more facilitative to the innovation.

Administrative support/engagement. The role of the administrators in the program implementation was partly revealed through the institutional interactions discussed above. Further information on the administrators was collected through continuing observation of their work, interviews and observation of their use of the list of the implementation indicators, as well as through review of current program documentation at the center.

At one site it was observed that the English-speaking staff sometimes displayed a negative attitude toward the increasing use of Spanish in the classrooms as the program was being implemented. The director of that Center surmised that what the staff members were actually expressing was discomfort with their own lack of facility in a second language, which they perceived as putting them at a disadvantage. With the assistance of the curriculum developers, the director secured funds to enable those staff members to take a course in conversational Spanish, if they wished. It is interesting to note that all the staff members did take the course, and that antagonism toward the use of Spanish in that Center greatly diminished.

Equally potent for the eventual outcome of the program implementation were the instances in which administrators showed a tacit lack of support for the innovation. In the course of one ALERTA implementation, the curriculum developers were

...somewhat taken aback to experience difficulty in securing dates for the five days of preservice training. The workshops were scheduled, but repeatedly cancelled without substantial explanation by the center administrators. It was not until the end of October that the dates were finally set for the sequence... Another delay of two months in the subsequent scheduling of the inservice (follow-up) sessions brought the ALERTA team to a frank discussion with the center directors of the probable consequences of their actions for the program implementation. (In-house narratives for the preparation of the Annual Report, 1979-1980)

Though discernment of the pattern on non-engagement of the administrators came as a result of the assessment of program implementation, the observation was able to be used formatively as well. Open discussion of the difficulty led to its partial resolution and some movement on the part of staff toward higher levels of program implementation.

Another sort of insight came from the interviews of administrators. For example, at a center which was experiencing a marked difficulty with certain aspects of program implementation, the developers noted:

Throughout the interview, the director spoke easily and accurately about the program's theoretical foundations. She frequently had trouble, however, giving specific examples of ways the underlying principles could be applied in the daily work of the classrooms. This turnabout was exceedingly interesting to the ALERTA developers, as it helped explain the gap that had been observed to exist between the efforts of the classroom staff and the effort of the director. (Third Annual Report, 1978-1979, p. 32)

The role of the administrators in implementation became even more apparent when they were leading their staffs in self-evaluation of the adequacy of their program implementation, using the list of indicators developed by the ALERTA

trainers. The attitudes which the administrators displayed toward their own achievements and set-backs, and their skill at posing alternative ways to reach an agreed upon goal were closely observed by their staff. Recorded descriptions show a number of instances where staff modelled on the behavior of their directors.

As in the assessment of institutional considerations, review of current program documentation proved useful in discovering administrative attitudes toward the existing regularities of their setting. Early in the program assessment, at one site, the developers remarked:

At present, no individual child folders are being kept by the teaching teams in the classroom to record progress in achievement of the goals and objectives. Folders are kept in the front office as they always have been, and an assessment on a form previously used by Center B is done about a month after the children enter the program. It is not clear what use is subsequently made of the data on that form.

As Sarason (1971) would have predicted, implementation in the area of record keeping did not proceed until the administrators willingly abandoned the old structure and stated that the new procedure was to have individual child folders in the classrooms immediately available to the teaching teams. Had the implementation assessment not been going on, it is unlikely that this obstacle to record-keeping would have come to the administrator's attention.

Staff knowledge/skills/attitudes. The knowledge, skills and attitudes of staff affected all aspects of program implementation; and all the measures used in the assessment reflected facets of that influence. The environmental survey showed the staff members' ability to make their center exemplify the curriculum's basic perspectives. On-going observation of the staff at

work and staff use of the list of program indicators frequently revealed attitudes of which individual staff members may not have been aware. Review of current documentation was an especially helpful way to assess both the staff's conceptualization of the program's purpose and their management skills.

Finally, the interviews tended to uncover the schism between knowledge and skills which had been suspected from review of previous research.

The four descriptions below give examples of the types of information that came from use of those measures. Once again, indication is given of their formative use.

In the Environmental Survey, Room 2 had 33 elements present (criterion for implementation is 29), while Room 1 had 22 elements at best. In Room 2, all areas were open and available to the children; in Room 1, two of the areas were closed. Another difference lay in the provision of science opportunities (there were several types in Room 2) and in use of the "rotating points of interest." Both rooms need additional attention to their library corners. Realizing this, the educational director has been making a strong effort to seek out and order appropriate books. (Third Annual Report, 1978-1979, p. 37.)

In classroom 6, the bilingual teaching assistant was observed for 30 minutes as she interacted with the children during the free-choice portion of the day. Almost without exception, the assistant used English when she felt it important to "teach" or transmit information. She used Spanish only for disciplinary action or special expressions of approval. Previously the assistant had indicated that she felt she was making full use of the ALERTA language strategies. She needs to hear the pattern in her use of the two languages (possibly through audiotaping a sequence), in order to understand how much she is departing from the strategy. (In-house notes for preparation of the Third Annual Report, 1978-1979.)

Review of the collected lesson plans for the room showed that the move toward cultural and environmental specificity has been gaining momentum over several months. Use of objectives for the children's learning which are incorporated into those plans show a skew toward the cognitive/language domain--an emphasis contrary to that picked up in examination of the individual child profiles. This was thought-provoking and made clear the fact that another step in staff training must be attention to each team's coordination of its own recording efforts. (Third Annual Report, 1978-1979, pp. 30-31.)

Members of the teaching teams were interviewed in May. Both team members in Room 2 (but especially the assistant teacher) were able to speak knowledgeably about ALERTA's language structure, child groupings, scheduling of the day, lesson planning, community resources, role of non-classroom staff and use of culturally specific material. Thus, eight elements were covered by the team in ways that reflected ALERTA's intent. (Nine elements covered is considered to be indicative of implementation.) The team in Room 1 was able to speak knowledgeably about seven of the elements (the discussion on lesson planning did not show the comprehension sought). This was a surprise, given the fact that there appears to be virtually no translation of principles into practice in Room 1. (Third Annual Report 1978-1979, p. 38.)

Most subtle and interesting to the developers were the descriptions arising from the tally of the nature and the frequency of the children's interactions. While the tally was originally designed to look at the children's progress, it was soon clear that the deep structures of the staff's use (or non-use) of the program (priorities, expectations of child behavior, etc.) were also being traced, as shown in the following examples:

When interactions were tallied in each of the classrooms, it was found that there was quite an even scatter over the four categories during the adult-directed portions of the day, and a spread over six classrooms areas during child-initiated periods. The area which seems least used is the woodworking area. It is almost never used by the girls in the classroom. Observations over several days showed the remaining areas to be tapped regularly. (Third Annual Report, 1978-1979, p. 45.)

Interaction analyses done during May in Room 2 indicated that there was an acceptable spread across the four categories of interaction, but that there was a heavy loading in three areas of the room (family corner, water/sand area and table games area). As with Center No. 1, more work needs to be done with the teachers on the curriculum possibilities of other areas of the room. Room 1 showed limited interactions of all types except during snack time, lunch and during the walk to the park. While in the classroom, almost all the children were doing table games. (Third Annual Report, 1978-1979, p. 39.)

Shortly before the children's Christmas break, the number and type of interactions were tallied for Room 2. The pattern recorded showed consistent use of the structure for language learning, (confirming the earlier observation of the same), and a rather heavy leaning toward use of three areas of the room-- the family corner, the block area and the table toys area. The loading indicated that the teaching team needed to think of ways of revitalizing the other areas of their classroom, to invite the children's more frequent use of them. (Third Annual Report, 1978-1979, p. 29.)

Parental involvement. Of the four factors interacting in the program implementation, parental involvement proved most elusive in the assessment. This situation was partly the fault of the method of data collection used (as will be discussed below); but it was also an artifact of the confusion experienced by staff and parents over the nature and purpose of parental involvement. What became abundantly clear through the observational technique used was that national Head Start policy on parent participation had been incompletely assimilated at the local level. Staff and parents often had diverging expectations of what constituted involvement; and the attitudes of some staff toward parents were ambivalent. In in-house narratives on one center's progress, it was noted:

It has been pointed out previously that a weak link in Center No. 4's overall program lies in its social services staff. Because of staff attitude and lack of follow-through on implementation-related assignments, the parent program has not been moving as quickly at the center as ALERTA would wish. Members of the ALERTA staff have been assisting the center directors in overcoming this difficulty by conducting parent workshops in a manner that provided training for all three members of the social services staff. It is hoped that the social service workers will be able to pick up and carry on the parent program soon. (In-house notes for preparation of the Third Annual Report, 1978-1979.)

At other centers, assessment was much easier because the parental involvement program was well developed. Parents volunteered regularly for work in the classrooms and met at least once a month for workshops or policy advisement discussions. In these circumstances, use of the participant

observation technique was both natural and fruitful, yielding detail important to consider in use of the program:

Discussions with parents who had been participating regularly in the monthly meetings showed a beginning ability to describe the specifics of the program and a good grasp of the rationale behind the bilingual, multicultural approach. All parents spoken with seemed pleased with Center No. 3's new program, except for one mother (from a Jewish family) who was upset the center had observed Three Kings Day. She felt that activities having a religious connotation should be avoided entirely. This incident gave both the center staff and the ALERTA developers much to think about.

The sample descriptions provided above indicate the flexible nature of the assessment techniques employed. In almost all instances, the data collected were able to be used for improvement of program use at the same time as they were being analyzed to determine adequacy of program implementation. Thus, a certain economy of effort was achieved and satisfaction given to both evaluators and consumers of the program. The assessment was not without its difficulties, however. The following section reviews the salient methodological problems experienced.

Problems Experienced with Methods of of Assessment Used

Two types of problems were experienced in the use of the methods described, those endemic to the nature of the task itself, and those specific to the schedules/protocols, designed for the assessment.

Reflection on their work at the end of the implementation assessment led the developers to conclude that Sarason (1971) and Goodlad (1975) had by no means exaggerated the complexity of the phenomenon to be studied. The observed process of change occurred on many levels and exhibited itself through many facets simultaneously. Even though the methodology had been designed with a certain awareness of the complexity of the change process, it still did not

address the complete dynamic of the situation. Analysis of the data revealed some important gaps in what had been meant to be a total perspective on the processes involved in use of the program. Notable among these was the paucity of information on the influence of parental knowledge, skills and support on the adequacy of the program's implementation.

Because the complexity of the interaction was fully appreciated only in retrospect, not all of the needed refinement of instrumentation and field technique was done before the data were collected. Thus, even those facets which were being addressed were not so deeply explored as they might have been.

Another general problem experienced was that, due to the need to meet contract requirements, assessment of the implementation's adequacy had to be carried out while the "mutual adaptation" process was still underway at the replication sites. For that reason, it was sometimes difficult to sort out effects and determine which were the more enduring patterns of interaction.

More specific difficulties lay in the construction of certain of the schedules and protocols used. The problem of setting criteria for judging adequate implementation of the various aspects of the program was never satisfactorily resolved. Criteria were set for each of the instruments (environmental survey, list of indicators, interaction matrix, etc.), but they arose more from common sense than from science. Again, the implications of mutual adaptation for criteria setting were not so closely examined as they should have been.

In the open-ended protocols (interview guides, parameters for classroom observation, etc.), there were problems in determining which factors observed should be more heavily weighted for the data analysis. The criticism of

Gross et al. (1971) regarding the intrusion of subjectivity in such qualitative analyses was not met to the complete satisfaction of the curriculum developers.

Finally, the specific method of review of current program documentation was not sensitive enough to the need for ferreting out the existing regularities of the setting which were impacting on the implementation process. Much more needed to be done for full use of Sarason's (1971) concept.

Strengths and Weaknesses of the Methods Used in Relation to Existing Research in the Elementary School

An analysis of the methodology used to assess the adequacy of ALERTA's implementation makes evident two basic strengths. First, the diverse methodological approach approximated the "emergent method" advocated by Lieberman and Griffin (1976). Qualitative measures utilized in the ALERTA assessment included anecdotal records of the children's development, field studies of staff and parents at work, interviews and reviews of current program documentation. This "soft data" was coupled with quantitative measures exemplified by tallies of the nature and frequency of interactions, and by rating of program implementation on the list of indicators which ultimately replaced the periodic interviews.

A second, equally important methodological strength was the use of a case/field study technique. Although modified for purposes of economy of effort, the use of this approach allowed data to be collected over time in natural settings. The longitudinal effort fostered a rapport between the observers and the observed-- a rapport that might not have been promoted within another methodological framework. The perceived strengths of the case/field study approach in the ALERTA assessment paralleled those described by Gross et al. (1971) for their elementary school study.

It was also felt that the case/field study technique offered a vehicle for capturing at least a portion of the highly complex change process. Baldrige and Deal (1975), in discussing the use of the case study in the elementary school, cite a similar strength. Because the ALERTA program developers did not undertake the assessment with preconceived questions regarding the process of change, the modified case study (as well as the other qualitative measures used) allowed details on factors facilitating or impeding innovation implementation to emerge from the data themselves. This descriptive procedure concurs with Goodlad's (1975) projection of an ecological model for assessment.

There were also some significant weaknesses in the methodology used. Assessment of the adequacy of program implementation was one task among many that the developers were undertaking simultaneously to fulfill the contract requirements. Consequently, their full attention could not be given to design of instruments and data collection. As has been seen, some of the richness of detail in the process of change was missed due to this limitation.

Another weakness was that the quantitative measures used were not validated, as had been done with those used in the research of Loucks, Newlove and Hall (1976). Thus, the instruments cannot yet be used for comparisons of data across settings and program types. These difficulties in conjunction with those summarized in the preceding section of this paper, present a variety of possibilities for future research in the field of implementation assessment.

Recommendations to Follow Through Planners

Considering Assessment of the Adequacy of Program Implementation

Review of the problems experienced with the ALERTA implementation assessment, and examination of the strengths and weaknesses of the design in relation to previously existing research suggest five recommendations for Follow Through planners.

Most immediately, program planners should consider the expansion of the usual time allotted for program development to include an additional phase specifically for gathering information on the adequacy of program implementation. This procedure would reduce the number of confounding variables to be sorted out from the implementation data.

Second, planners should ensure that both qualitative and quantitative measures are included in the design for implementation assessment. An ecological approach is clearly essential in meeting the reality of the complexity of change.

Third, the implementation assessment should include case/field studies as part of the qualitative data collection, with the provision that data collectors be trained in the essentials of ethnography.

Fourth, reliable and valid quantitative measures of program implementation (such as those originating at the Research and Development Center for Teacher Education at the University of Texas) should be utilized across settings and across program types whenever possible. Planners should provide time for newly-designed quantitative measures to be refined, so that the processes of establishing reliability and validity can at least be begun in the context of a specific implementation assessment.

Finally, planners should incorporate time for practice of the techniques of assessment selected, so that situation specific difficulties in the collection of data can be met before the implementation assessment phase begins.

One possible sequence responsive to these recommendations would be:

Year One

Development of program approach and materials. Design/choice of measures for assessing the adequacy of program implementation.

- Year Two Field-test of program in selected sites and formative use of measures for assessing program implementation, leading to program revision, refinement of the assessment measures and practice of all data collection techniques.
- Year Three First seven to nine months: Second field-test of the program at the same sites, to establish mutual adaptation and practice use of refined measures and techniques of data collection. Remaining three to five months: Assessment of the adequacy of program implementation.
- Year Four Summative evaluation of impact.

As noted above, subsequent evaluation of program impact would rest securely on a body of data which could contribute substantially to its interpretation. Thus, a measure of the criticism of previous impact evaluations could be avoided.

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