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ABSTRACT

This report is one of three volumes that describe the second phase of a study that examined the implementation of four federal change agent programs related to education. Phase 2 of the study focused on what happens to local projects in the two largest change agent programs--ESEA Title III and ESEA Title VII--when federal funding stops. This particular volume presents an analysis of survey data collected in 100 Title III projects in 20 states, focusing specifically on the questions of implementing, sustaining, and spreading part or all of innovative project strategies after federal support ends. (JG)

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FEDERAL PROGRAMS SUPPORTING EDUCATIONAL CHANGE, VOL. VII: FACTORS AFFECTING IMPLEMENTATION AND CONTINUATION

PREPARED FOR THE U.S. OFFICE OF EDUCATION
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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PREFACE

The Rand Corporation is conducting, under the sponsorship of the U.S. Office of Education, a several-year, two-phase study of federally funded programs designed to introduce and spread innovative practices in public schools. These change agent programs normally offer temporary federal funding to school districts as "seed money." If an innovation is successful, it is assumed that the district will incorporate and spread part or all of the project using other sources of funds. The Rand study analyzes the effects these federal policies have had on local change processes.

The first phase of the research (July 1973 to April 1975) examines four federal change agent programs (Elementary and Secondary Education Act Title III, Innovative Projects; Elementary and Secondary Education Act Title VII, Bilingual Projects; Vocational Education Act, 1968 Amendments, Part D, Exemplary Programs; and the Right-to-Read Program) and addresses issues related to the initiation and implementation of these change agent projects. Specifically, this aspect of the study identifies what kinds of strategies and conditions tend to promote change in the school and which do not.

The final phase of the research (May 1975 to April 1977) examines what happens to local projects in the two largest change agent programs--ESEA Title III and ESEA Title VII--when federal funding stops. This phase focuses on the different forms that local incorporation or continuation may take and analyzes the institutional and project factors that promote or deter the sustaining and spreading of Title III and Title VII projects.

The study's findings are reported in eight volumes under the general title *Federal Programs Supporting Educational Change* (R-1589-HEW). A series of five reports describes the results of the first phase of the research:

Volume I (R-1589/1-HEW, *A Model of Educational Change*) provides a theoretical perspective for the Rand study by analyzing the current state of knowledge of planned change in education and by proposing a

conceptual model of factors affecting change processes within school districts.[1]

Volume II (R-1589/2-HEW, *Factors Affecting Change Agent Projects*) contains the analysis of survey data collected from a national sample of 293 projects in 18 states during November and December 1973.

Volume III (R-1589/3-HEW, *The Process of Change*) summarizes the findings and policy implications resulting from 29 case studies of change agent projects conducted by Rand staff members and consultants in 25 school districts during April and May 1974. These case studies were chosen from the original sample of 293 projects initially surveyed. Volume III also describes the role of state education agencies in selecting, managing, and disseminating the change agent projects.

Four technical appendixes to Vol. III describe in detail the federal program management approach, state education agency participation, and case studies for each of the programs in the study: Title III, App. A; Reading, App. B; Bilingual Education, App. C; and Career Education, App. D. Appendix A should be of particular interest to researchers or practitioners concerned with the introduction of new approaches to classroom instruction.

Volume IV (R-1589/4-HEW, *The Findings in Review*) summarizes the findings of Vols. I, II, and III, and also synthesizes extensive data collected by Rand on federal-level program strategy and management for each of the change agent programs. Volume IV also includes a discussion of alternative federal strategies for promoting innovation.

Volume V (R-1589/5-HEW, *Executive Summary*) summarizes the first phase of the research for a general audience.

The results of the final phase are reported in three volumes:

Volume VI (R-1589/6-HEW, *Implementing and Sustaining Title VII Bilingual Projects*), discusses the complex process of establishing bilingual programs in local school districts, with particular attention given to those aspects of the Title VII program and to those political influences that affect local implementation. The fieldwork, viewpoint,

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[1]Because of Rand's interest in advancing knowledge of organizational behavior in educational institutions, the research underlying this report was supported in part by an allocation of Rand corporate research funds.

and data interpretation build on the extensive empirical work done in the first phase of the study and reported in Vol. III, App. C (*Innovations in Bilingual Education*, R-1589/3-HEW).

The present report, Vol. VII, presents an analysis of the survey data collected in 100 Title III projects in 20 states. This volume deals specifically with the questions of implementing, sustaining, and spreading part or all of special project strategies after federal support ends.

Volume VIII (R-1589/8-HEW, *Implementing and Sustaining Innovations*) summarizes the findings from both phases of the study and, drawing on these results, describes the process of change at the local level--initiating, implementing, sustaining, and spreading innovative projects. Volume VIII also includes a discussion of policy implications that derive from this study.

SUMMARY

This seventh volume in the change agent series presents findings of the second phase of Rand's study of local innovation projects funded by federal change agent programs. The study's first phase dealt with the initiation and implementation of change projects. The second phase focuses on the continuation of innovations after the end of their federal grants and seeks to understand the long-run effects of the federal policy of stimulating local education reform by providing "seed money" to school districts. This study addresses three research questions:

- What does the continuation of specially funded projects mean and how should this process be assessed?
- What influences the nature and extent of continuation at the classroom level?
- How do districts deal with change agent projects at the end of federal funding, and how do their actions affect the long-term fate of the projects?

RESEARCH DESIGN

The research consisted of a nationwide survey of 100 Title III projects one to two years after the end of their federal funding, fieldwork in 18 selected school districts, and statistical analyses. The sample of projects, most of which were surveyed during Phase I, is not a representative sample of all former Title III projects; it contains primarily projects that the districts have continued, at least to some extent. Because of the extensive data base collected during Phase I, however, it is possible to compare the characteristics of discontinued and continued projects. Those in the sample cover a wide variety of innovations adopted in a wide range of local settings.

The survey queried 100 superintendents or key LEA officials, 171 principals, and 1072 teachers. The superintendent's questionnaire, administered as a personal interview, focused on district decisions

concerning the project's adoption and continuation. The principal's questionnaire, also a personal interview, elicited information on project design, the school's early involvement in the innovation, staff attitudes toward the project, and the project's effect on the school. Teachers filled out self-administered questionnaires that covered many topics, including the nature of the project--its implementation, its effect on teachers and students, and its continuation--and the school's characteristics and organizational climate. The teachers were also asked to take a short verbal ability test.

The data analysis used statistical techniques to explore the effects of the characteristics of projects and of the institutional setting on the continuation of innovations after federal funding ended. To obtain comparable measurements of project results across the array of innovations, we used teachers' assessments of project effectiveness (the percentage of project goals achieved), the change in teaching style or behavior, and improvement in student performance in both cognitive and affective aspects. The measures of continuation at the classroom level were teachers' assessments of the extent of their use of project methods and materials approximately two years after the end of federal funding. At the district level, the primary "dependent variables" were the continuation status of change agent projects and the likelihood that the district would maintain the project.

Because of the lack of theory about school district behavior and about the local process of change, the research aim was not to test hypotheses but to enable the formulation of hypotheses by developing a systematic understanding of continuation and the factors affecting it. Our operational measurements of both independent and dependent variables can be challenged, as can virtually all measurements of educational "input" and outcome; the selectivity of our sample raises questions about the generalizability of the findings; and the statistical procedures and the interpretation of the results are open to valid criticism and alternative interpretations. These caveats notwithstanding, the findings provide working hypotheses for federal, state, and local policy.

FINDINGS AT THE CLASSROOM LEVEL

Teachers' attitudes toward continuation depended on how effectively the project was implemented and on how much they changed because of it. Among the factors affecting continuation, it was therefore important to examine those related to implementation and teacher change. We identified three categories of such factors: federal input, project characteristics, and institutional setting. The following are our major findings for each category:

Federal Input

Differences in the amount of Title III funding had little consistent or significant effect on project outcomes or on continuation. Although federal money clearly mattered to local school districts in a number of ways--particularly, their ability to undertake a project at all--any change wrought in district practices depended on what the district did with the funds, not on dollar amounts.

Project Characteristics

Educational Method. The educational method or technique of an innovation had little effect on project implementation, outcome, and continuation. Because of differences in project implementation strategies and in local institutional factors, sirilar methods produced dissimilar results across sites. Generally speaking, therefore, no one method was more likely than another to fulfill its promise, particularly in the long term. In terms of the "success" of a federal investment, then, it mattered less what the project was than how it was carried out.

Scope of Proposed Change. Projects attempting a broad scope of change were not more or less likely to break down, and were somewhat more likely to be continued, than were less ambitious or more narrowly defined projects. Indeed, projects that required significant change in overall teaching style and that called for extra effort on the part of staff induced significantly more teacher change. Ambitious projects therefore were not a "liability" from a funding point of view. Clarity of project goals was important in the implementation of all projects,

however, particularly those attempting a broad scope of change. For such projects, staff uncertainty about what they were expected to do generated severe implementation problems and contributed to project demise once federal funding ended. Clarity of goals could not be "given" to a project staff at the outset, however; it had to be achieved in the course of implementation.

Implementation Strategies. The implementation strategies chosen for a project strongly affected its outcome and its continuation. In particular, well-conducted training in how to use project methods and materials enhanced implementation and improved student performance. (The quality of training, not the quantity, made a major difference.) Even good training appeared to have only short-term effects, however, unless it was given in combination with staff support activities. Specifically, when activities such as assistance in the classroom, the use of outside consultants, classroom observation, and staff meetings were done effectively (especially by giving practical support), they provided the feedback and timely assistance the staff needed in adapting project strategies to their own classrooms. Such assistance also helped create the climate and moral support necessary to motivate teachers to expend the effort that made projects work. The cruciality of well-executed staff support activities was evident in the strong positive effects they had, as a group, on all the dependent variables: percentage of project goals achieved, teacher change, improved student performance, and continuation of project methods and materials.

Teacher participation in project decisions enhanced implementation and heightened the chances for continuation. It did so because it promoted a "sense of ownership," especially when the staff developed part or all of their own materials.

Pay for training did not contribute to continuation and, in fact, was negatively related to the percentage of project goals achieved and total student change.

The local allocation decisions that are part of project implementation--that is, the number of project schools and the funding level per student--generally had no significant relationship to project outcome or continuation. (There were two exceptions: more concentrated funding

per student was positively associated with improved student performance; and the greater the number of project schools, the higher was the proportion of project materials continued.)

Institutional Setting

Organizational Climate and Leadership. Leadership was a vital factor at both the school and the project level. Effective implementation required a good project director and a supportive school principal. But continuation depended less on having had an effective project director than on the early and lasting support of principals. The organizational climate of the project--the quality of working relationships--strongly affected the percentage of goals achieved and project continuation.

School Characteristics. The *type* of school had little or no relationship to project outcome or continuation. The exception to this general finding was the difficulty encountered by secondary school projects both in achieving effective implementation and in promoting teacher change.

Teacher Characteristics. Teacher characteristics had major effects on project outcomes. Above all, teachers' sense of efficacy emerged as a powerful explanatory variable; it had major positive effects on the percentage of project goals achieved, improved student performance, teacher change, and continuation of project methods and materials. Teachers' years of experience, in contrast, had a consistent negative relationship to project outcomes; experience was negatively related to the percentage of project goals achieved, teacher change, and student improvement. Teachers' verbal ability was positively associated with improved student performance, but otherwise did not affect implementation, teacher change, or continuation.

FINDINGS AT THE DISTRICT LEVEL

The end of each federal Title III grant confronted school districts with a decision that many did not seriously plan for when they first adopted a project: They had to decide whether to continue a project in whole or in part, using district resources, or to drop it. The latter

choice was easy when the project had not been effectively implemented. Typically, however, the decision to discontinue meant that the district had originally taken on the project out of opportunism--more to take advantage of available federal funds than to deal with pressing educational needs--did not consider them central to the district's educational objectives, and gave them little institutional support during implementation.

In contrast, the decision to continue was more difficult and complex, because it called for a district commitment in financial, organizational, and political terms. The end of federal funding usually brought sharply reduced project budgets, particularly for expensive projects. Innovations that had used soft money to lower the student-to-adult ratio (e.g., by hiring aides) were cut back to live within the district budget; projects that had spread their resources thinly across both elementary and secondary grades were severely reduced in scope. In most cases, districts did not provide supplementary funding for "continued" projects, which stayed in a "special" status rather than being incorporated into the district's regular educational practices. Two years after the end of the federal grant, they were still vulnerable to financial, organizational, and political instabilities.

Most continued projects followed either one of two patterns. First, some projects were *isolated*, in that district administrators simply left the projects up to school-level staff. The continuation of project-related changes in this case depended on the extent to which the project staff had assimilated project precepts and integrated them into their classroom practices. Such isolated changes face a precarious future, threatened by staff turnover, principal transfers, and financial pressures.

A second pattern of continuation was *pro forma*, in that district officials formally decided to continue the project but teachers did not use project-related activities extensively in their classrooms. This pattern came about in several ways, the most frequent cause being inappropriate or ineffective district-level continuation strategies. For example, when district officials simply "mandated" the installation of project activities in new sites, without first eliciting the support of staff new to the project, both teacher resistance and inadequate teacher

preparation often made project operations only superficial. Or, when district administrators failed to furnish the support necessary to maintain project-related change--securing the commitment of principals or supplying materials, for example--teachers were not able to continue the project fully.

In contrast to these unstable patterns, a minority of projects in our sample became *institutionalized*--that is, project-related change became integrated into regular operations at both the district and classroom levels. These projects shed their "special" status and *replaced* practices that existed before the projects began. The key to effective continuation is for district officials to see institutionalization as a process of "remobilization" and "reimplementation." They must realize that the perpetuation of a change agent project requires the early, active, and continued attention of school district managers.

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A large-scale research effort relies on the talents and interdisciplinary skills of many people. We were most fortunate in being able to draw on the expertise of an extraordinarily dedicated group of professional researchers. Gail Bass and Gail Zellman worked tirelessly to design, pretest, and revise the survey instruments; the critical comments of Mimi Baer and Richard Murnane contributed greatly to their efforts. Linda Prusoff and Joanne Wuchitech skillfully conducted a telephone survey of candidate projects. The Response Analysis Corporation efficiently administered the survey questionnaires thanks to the efforts of Melody Todd and James Fouss. Edward Pauly collaborated in all phases of the study, particularly in managing (with Brent Weaver) our complex data set, and conducting the statistical analysis for App. B; he avoided writing this report only by returning to academic life.

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All of these contributors have facilitated and improved this report without being in any way responsible for its shortcomings.

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Chapter 1
INTRODUCTION

This report presents findings of the second phase of Rand's study of local innovative projects funded by federal change agent programs. Its purpose is to explore the long-run effects of the federal policy of providing "seed money" to school districts as a stimulus to educational reform. To this end, we examined change agent projects one to two years after the end of federal funding.

BACKGROUND OF THE STUDY

During the 1950's and 1960's two important initiatives--the National Defense Education Act (NDEA) of 1958, and the Elementary and Secondary Education Act (ESEA) of 1965--defined a new federal role in local education. NDEA sought to stimulate curriculum development in subjects such as science that are directly related to the national interest. These efforts were pursued mainly through colleges and universities, not local school districts. ESEA initiated a much broader federal role, including large-scale federal support for special education for the disadvantaged and for bilingual education, encouragement of innovations in the public schools, and grants to strengthen state departments of education. ESEA also was intended to serve social and political goals, such as redistributing educational resources in the public school system and legitimizing the voice of parents and community groups in the governance of the public schools. ESEA, in short, signified an explicit federal interest in the *reform* of the nation's public schools.

The federal government, particularly the United States Office of Education (USOE), has pursued a number of policy strategies to promote educational reform. Cases in point are such programs as Title III of ESEA (innovative programs), the experimental schools program, Right to Read, Follow Through, and Title VII of ESEA (bilingual education).

One consequence is that federal funds now make up an important fraction of many local school district budgets, but their effectiveness in improving local educational practices is uncertain. Federally

sponsored evaluations reveal inconsistent and generally disappointing results.[1]

Despite considerable innovative activity on the part of local school districts and despite some successful, indeed nationally validated, projects, the evidence suggests that:

- o No class of treatments has been found that consistently leads to improved student outcomes (when variations in the institutional setting and nonschool factors are taken into account).
- o "Successful" projects have difficulty sustaining their success over a number of years.
- o "Successful" projects are not disseminated automatically or easily, and their "replication" in new sites usually falls short of their performance in the original sites.

Consequently, although federal support for local school services has become well established, the "decade of reform" that began with ESEA has provided few clear lessons about what went wrong (or right) and thus offers little guidance as to what an appropriate and effective federal role might be.

To aid in reexamining and redirecting federal education politics, USOE awarded a contract to The Rand Corporation in 1973 to undertake a four-year study of innovative projects funded by specified federal change agent programs. This research was to assess the effectiveness of these programs as stimuli of change in local practices and to suggest how federal policies could be improved. The study was not to be an evaluation per se; it was to concentrate on the basic processes that attend the local initiation of federally sponsored projects and attempt to understand what factors systematically and significantly affect this process.

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[1] Volume I of this study reviews the evaluation and other relevant literature up to 1974. Large-scale evaluations are a continuing activity of U.S. Office of Education (USOE) and National Institute of Education (NIE). Recent evaluations seem as controversial and as mixed as their predecessors. On balance, however, they do not seem to contradict the generalizations made above.

In particular, USOE wanted Rand to examine the following questions:

- o How are federally supported innovations in local educational practices introduced and implemented?
- o How are these innovations sustained and spread after the end of federal funding?
- o What factors in federal policy, in the nature of the change agent projects, and in the local institutional setting determine the outcome of innovations and their chances of being sustained and spread?

FINDINGS OF PHASE I

To address these basic questions, Rand conducted a two-phase study. Findings from the first phase of the research are presented in the first five volumes of the report, *Federal Programs Supporting Educational Change*, R-1589-HEW. The second phase is the subject of this volume.

Phase I (July 1973 to July 1974) studied local innovations during their last or next to last year of federal funding. It focused on project initiation and implementation. USOE specified four programs for inclusion in Phase I: Elementary and Secondary Education Act Title III, Innovative Programs; Elementary and Secondary Education Act Title VII, Bilingual Projects; Vocational Education Act, 1968 Amendments, Part D, Exemplary Programs; and Right to Read.[2] These programs differed in focus and management strategy, but had a common purpose: to stimulate and disseminate educational innovations.[3] They also had a common

[2] In FY 1974, the year of the major research activities of Phase I of this study, the approximate funding levels of the federal programs were: ESEA Title III, Innovative Projects, $150 million; ESEA Title VII, Bilingual Projects, $45 million; Vocational Education Act, 1968 Amendments, Part D, Exemplary Programs, $16 million; and Right to Read, $12 million. Although these programs have evolved further since 1974 (e.g., Title III has become consolidated into Title IV under the 1974 Amendments to ESEA), the discussion in this report refers to the programs as they existed when the projects were studied.

[3] Each change agent program had a distinct focus and management strategy. The largest, Title III, was designed to improve the quality

policy instrument: the provision of temporary funds (3 to 5 years) ranging from less than ten thousand dollars to several hundred thousand dollars per year. Although these amounts are small relative to the usual school district budget, they were intended to fund new educational services, not to support existing ones. Because we studied four programs instead of one, we were able to examine the local process of change in approximately 300 projects in a variety of institutional settings, and identify principal factors affecting project initiation and implementation.

The major conclusion reached in Phase I can be summarized simply:

> Federal change agent policies had their primary effect on the initiation of projects but . . . neither those policies that were unique to each of the federal programs nor those policies that were common to them had a strong influence on the implementation of local innovations. Federal change agent policies exercised limited leverage on the course of innovations because they did not critically influence those factors most responsible for effective implementation . . . .[4]

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of public education both by introducing model practices that were new to American education and by spreading existing successful practices to schools that were not aware of them. The competition for Title III grants of three-year duration was open to almost any kind of project that local schools wished to propose. In 1973-1974, the first year of the Rand study, 15 percent of Title III money was granted directly to local education agencies (LEAs) by the Office of Education, and the remainder was allocated to state education agencies (SEAs), who in turn made grants to LEAs. Other federal programs were more narrowly targeted and had more specific funding criteria. The USOE's Right-to-Read program strove to create a national educational priority for reading, particularly for disadvantaged students. The Right-to-Read demonstration projects, the program component addressed in Phase I of this study, included a prescribed planning and management strategy in an effort to facilitate effective implementation. Vocational Education, Part D, was designed to create exemplary programs to enhance career awareness and readiness. Congress, believing that many SEAs were unable to promote significant innovations, authorized USOE to fund local projects directly through the Part D program. Title VII (Bilingual Education) originally sought to provide model projects for the special needs of children whose English-speaking ability was limited. The program has subsequently acquired the further goal of maintaining and encouraging "cultural pluralism" in American public education, with strong political support from many Spanish-speaking people.

[4] R-1589/4-HEW, p. 24, hereinafter cited as "Vol. IV," as other volumes will be cited simply by number: "Vol. I, Vol. II," etc.

Three main factors affected the local process of change and thus the outcomes of innovations:

- o Characteristics of the institutional setting, particularly the organizational climate in schools and the motivations of participants at all levels of the district;
- o The implementation strategy employed by local innovators to install the project treatment; and
- o The scope of change planned or implied by the project relative to its setting.

The mere adoption of "improved" educational methods, practices, or technologies did not automatically improve student outcomes. The reason was that "project implementation, which is largely shaped by the institutional setting, dominates the innovative process . . . . This means that initially similar technologies installed in different settings undergo unique alteration and thus their outcomes cannot be predicted on the basis of treatment alone."[5] In short, internal factors and local decisions are more influential than "inputs" from the outside.

One implication is that federal policy should pay more attention to the local implementation process. (USOE and NIE have taken steps to do so.) Most projects that did not work failed either because school districts did not take them seriously--for example, when the major motivation was simply to take advantage of federal funds instead of to solve a pressing educational problem--or because school districts intent on reform nonetheless lacked the institutional capacity and skills to carry out an effective project. The primary feature of effective implementation could be called "mutual adaptation," in which the project is adapted to its institutional context *and* organizational patterns are adapted to meet the demands of the project. Phase I identified, in an exploratory way, local implementation strategies that promoted mutual adaptation.[6] A major objective of Phase II was to explore those strategies more fully

[5] Ibid.

[6] Ibid., pp. 18-20.

and to consider how federal policy might assist school districts to develop mutual adaptation.

RESEARCH QUESTIONS OF PHASE II

Phase II (May 1975-April 1977) treats questions that are in some ways more perplexing than those addressed by Phase I. USOE wanted to know what happens to innovative projects after the end of their federal funding periods (normally three to five years). Accordingly, two years after the initial field research, Rand revisited or resurveyed a sample of approximately 100 of the projects funded under Title III of ESEA,[7] to explore the longer-run effects of providing federal "seed money" to promote educational reform.

A major challenge in dealing with this issue was to pose the "right" questions. The question usually asked is: Are projects "continued" after the end of federal funding? This question, though appropriate, is far too simple. It assumes that when federal funding terminates, districts make a "go or no go" decision about the fate of the project. Sometimes they do, as our investigations at the end of the first phase and the beginning of the second phase of the study confirmed.[8] Yet we found that such decisions were usually foregone conclusions, made because projects had not really been implemented, often broke down completely, or were at best symbolically implemented.

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[7] As will be discussed in a later section, Rand gathered information--by a telephone survey, field visits, or a full-scale field survey--on over 200 projects, of which about 15 percent were not in the original sample. According to an agreement with USOE, the final selection for quantitative analysis amounted to 100 former Title III projects, and former Vocational Education and former Right-to-Read projects were not studied. Moreover, Title VII, Bilingual projects were not included in the quantitative analysis because a change in Title VII funding policy meant that most (85 percent) of the projects in Rand's original sample received additional federal funds. Nonetheless, since the issue of how bilingual projects might sustain their activities is still important, these projects were examined using qualitative methods; the results are reported in Vol. VI.

[8] In Phase I we asked district officials and project participants whether they thought the project would be continued (see Vol. II, Sec. 5). Phase II did preliminary fieldwork in a small number of sites followed by a telephone survey of Title III projects involved in Phase I research; Chap. 2 below discusses this preliminary research.

Such failures both to implement and to continue tended to be predictable from the outset, especially for districts whose apparent motivation was the opportunistic desire to obtain federal money. Not surprisingly, such projects tended to disappear almost without a trace when federal funds ended.[9]

Districts interested in project continuation face a more complex problem than a simple yes-or-no decision. District staff have to figure out what components of a project are worth sustaining and spreading and on what scale, given the district's economic, political, and organizational realities. Questions abound. Has the project proved its worth and therefore should become a regular part of the district's educational program? Should project activities be cut back, remain the same, or be expanded? Should project methods be supported but project materials be dropped? Or vice versa? What should happen to project personnel--the project director, the staff, and the aides? Should new people and new sites be brought in? A major objective of Phase II was to examine what project, economic, and institutional factors systematically affected the choices that school districts made.

Phase I, however, had previously found that school district decisions are seldom implemented automatically or exactly as planned, and that another level of decisions also influences what happens to a project: The district's ability to sustain or spread innovations depends heavily on people at the school and classroom level.

The actions of teachers and principals may or may not reflect district level policy. This problem cuts two ways. For example, individual teachers may assimilate all or part of the practices of an innovative project independently of the formal district view of the project or, indeed, of the awareness of district officials. Because such assimilation can be both enduring and significant, it needs to be weighed as part of a project's long-term effect. Conversely, formal district decisions to "continue" a project may be meaningless if, either because of insufficient training or individual preference, classroom teachers

[9] The disappearance was so complete in a number of the sample projects that our telephone survey conducted one year after the end of funding had difficulty even locating project participants.

and principals do not follow district directives. It is crucial, then, to assess what really happens in classrooms and schools after the end of federal funding.

At this level, we are more concerned with a project's continuing effects on the everyday behavior of the staff than with the presence or absence of a formal project structure. To what extent do teachers continue to use the project's methods and materials? Have teachers or schools changed the way they operate as a direct or indirect consequence of the project? How do these changes affect student outcomes? Phase II addresses these questions and seeks to identify characteristics of the project, the staff, the schools, and the school district that influence the longer-term effects of an innovation.

The dual level of effective decisionmaking in school districts presents yet another implication for analysis. District level decisions to continue a project are not self-executing; they depend on decisions and preferences at the school and classroom level. Consequently, the analysis must be concerned with both the district level decision and with the strengths and weaknesses of the *strategies* selected by local officials to carry out their decision. For example, how can enthusiasm and commitment for a project best be generated at a new site? What support is necessary to sustain project activities at the original sites? How can the district best deal with the inevitable turnover or reassignment of the original project teachers and administrators? Phase II explored these questions not only because district officials need to find ways to sustain and spread innovations, but also because a key to improving change agent policies might lie in understanding ways in which districts can help themselves to continue changing after federal money goes away.

In summary, the findings of this report apply to the following questions:

- o What does the continuation of specially funded projects mean and how should this process be assessed?
- o What influences the nature and extent of continuation at the classroom level?
- o How do districts deal with change agent projects at the end

of federal funding, and how do their actions affect the long-term fate of the projects?

Chapters 2, 3, and 4 discuss the research design of this study. Chapters 5 and 6, respectively, present findings of the classroom level analysis and of the district level analysis.

Chapter 2

RESEARCH DESIGN AND CONCEPTUAL APPROACH

To examine the fundamental questions posed by USOE, Rand designed a research plan for Phase II that comprised several methodologies: a nationwide survey (using telephone interviews, personal interviews, and self-administered questionnaires) of former Title III projects; fieldwork in selected school districts; and statistical analyses. Using Phase I findings and the relevant literature, we developed a conceptual framework for analyzing the continuation of federally supported change agent projects after the end of their funding. This framework guided our data collection and analysis and enabled us to translate broad concerns into operational measurements. This chapter discusses the Phase II research design and presents our conceptual framework. Subsequent chapters will describe data collection and analysis and the selection and measurement of the variables used in the analyses.

THE RESEARCH DESIGN

When we began this study, information about how school districts implement and sustain change consisted primarily of anecdotal evaluations or highly aggregated input-output analyses. Policymakers could not use such information because it was either too particularistic or too abstract. Consequently, our initial research had to be exploratory. Hypotheses could not be tested; they first had to be generated. Moreover, the research design faced a "chicken and egg" predicament typical of exploratory research: On the one hand, to gather information we needed a systematic understanding (i.e., a crude theory) of the organizational realities of school districts; on the other hand, information about school district innovative behavior was a prerequisite to developing that systematic understanding.

To deal with these problems, Vol. I formulated a crude framework or simple model of the innovative process based largely on the social science literature about how organizations work. This literature also allowed us to identify a large number of variables that might affect innovation.

The research of Phase I examined many of these variables and intensively analyzed the early stages of the local process of change. We were thus able to narrow the original mass of variables down to a smaller number of crucial factors. Phase II therefore started out with an empirically grounded conception of how local innovations become implemented, hypotheses about a series of factors that might significantly affect the fate of federally funded projects, and an extensive data base.

However, "testing hypotheses" was neither our goal nor our methodology. The research of Phase I could not deal with continuation in more than a preliminary way because the projects we examined had not yet completed their period of federal funding. Therefore, we still needed to develop theory about how innovations are sustained, and we needed to generate hypotheses about what happens after the end of federal funding. Moreover, though the measurements of independent and dependent variables used in Phase I fulfilled their initial purpose of locating factors that matter to the outcome of change agent projects, in the second phase we had to formulate more refined and focused instruments.

Accordingly, in the overall plan of Phase II, we drew on the experience of the first phase to:

1. Formulate an empirically based theoretical conception of continuation and the local process of change;
2. Identify factors that might affect this process and thus the outcomes and continuation of innovative projects;
3. Collect data using the theoretical conception of the process of change as a framework and guide;
4. Specify a data analysis model that would posit relationships among measures of a project's impact and the various factors;
5. Analyze and interpret the data to provide guidance for policymakers and formulate a better theoretical understanding of innovations.

The remainder of this chapter deals with the first two tasks: our theoretical framework and the identification of significant factors in the change process. Chapter 3 describes the data collection activities and the sample of innovative projects; Chapter 4 presents the

classroom-level data analysis model and discusses how we measured the effect and continuation of the project. The findings of this phase of the research are presented in Chaps. 5 and 6 and summarized in Chap. 7.

THE ISSUE OF CONTINUATION

Our earlier research formulated an empirically grounded conception of the process of change and challenged several common approaches or assumptions about how federally supported local change agent projects worked or could be made to work. Two points of view seemed particularly unrealistic. First, much of the social science literature focuses on the adoption of innovations and virtually ignores implementation; the implicit assumption seems to be that innovations are self-executing--that once adopted, better technologies invariably produce better outcomes. Corroborating the work of an increasing number of other researchers, we have found that implementation, not adoption, dominates the outcome of innovative projects and that no educational technology automatically fulfills its promise. Accordingly, our Phase I research described the process of implementation and examined the factors that affected it.

Our Phase I research also challenged a second common assumption about innovations: that local school districts either did or should use a cost-benefit calculus in deciding about adoption or implementation, in the manner described by students of industrial research and development. We found that districts rarely used such an approach. Moreover, our description of implementation as essentially a complex, multilevel organizational process led us to believe that an R&D approach would not work. We hypothesized that the key to effective implementation is the adaptation of the project to its institutional setting and vice versa; the R&D approach seems ill suited either to describe such mutual adaptation or promote it.

The issue of continuation has received perhaps even less attention from theorists and analysts than the implementation of innovations. Aside from the important concept of routinization, the social science literature has little to say about what happens to innovations when

they are no longer new or "special" or experimental. Similarly, the "seed money" approach in federal policy either simply ignores the issue or assumes a pseudorationalistic model of school district behavior--namely, that once an innovation has gone through its federally supported trial stage, the district will discard those innovations that failed and adopt those that worked.

A cursory examination of continuation reveals that model to be both simplistic and inaccurate. For example, a study by the Ford Foundation suggests that even successful innovations have a way of disappearing after several years.[1] Many anecdotes in the field also tell of impressive innovations "burning themselves out." We need not recount these tales to make the point that innovations are not "self-sustaining." It cannot be assumed, then, that even when federal "seed money" leads to successful projects, they automatically "take root."

Similarly, one cannot assume that school districts use a cost-benefit calculus in deciding whether to continue or drop a project. The termination of federal funding does indeed represent a decision-point for school districts. When the soft money is gone, district managers must decide whether to turn the project off or support it with local funds. To some extent they base their decision on the educational value of the innovation, but that is not necessarily the most important factor. For example, we observed bilingual projects that would have to be considered ineffective under most definitions of educational effectiveness, but districts continued them anyway.[2] Clearly, political and bureaucratic considerations outweighed short-run cost-benefit measures of "success." Conversely, we have seen effective projects abandoned by districts, even when money or questions of other educational priorities did not seem to be a real issue. In short, just as it is misleading to think of adoption of innovations in R&D terms, it would be similarly specious to approach the district's decision about continuation in pseudorationalistic terms.

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[1] The Ford Foundation, *A Foundation Goes to School: The Ford Foundation Comprehensive School Improvement Program 1960-1970*, Office of Reports, New York, November 1972.

[2] Extra soft money was usually made available by federal or state funds for bilingual projects. See Vol. VI for a discussion of bilingual projects.

Moreover, the district's decision about continuing or dropping a project is just that--a decision. Decisions are seldom self-executing in any organizational context, let alone a school district. We have seen cases in which teachers "continued" a project in their classrooms despite a formal district decision to drop it. Conversely, we have seen teachers ignore or pay mere lip service to innovations mandated by official policy to be used in every classroom. In short, researchers need to look at what actually happens at the classroom level.

DEFINING CONTINUATION

The value of an innovation ultimately hinges on one question: Are the school district and its students better off for having adopted an innovation? Unfortunately, this question is too basic to answer, at least by systematic analysis. It has to be divided into manageable pieces that necessarily fall short of supplying a single answer. Two more specific but narrower questions help to define a research agenda: What were the effects of a special project? Will those effects continue over time?

A central consideration, of course, is change in student performance; but for that change to be attributable to a project, the project had to involve some change in what was delivered to students or the way it was delivered. In other words, teachers had to have changed their regular teaching style or behavior. Measuring "change" is a difficult operational problem. Conceptually, however, we simply mean that a teacher's regular pattern of behavior (including the use of technology and curriculum) at time t_1 is significantly different from the teacher's regular pattern of behavior at time t_o. Defining the key concepts of "regular pattern of behavior" and "significant difference" in operational terms is a challenge no researcher has fully solved. Our concept of change subsumes three types of alterations in the teacher's regular pattern: *adding* a new behavior, *modifying* existing behavior, or *replacing* old behavior.

A change in a staff's classroom practices thus constitutes an effect of the project; but unless it persists, the project will of course have no effect on future students. *We therefore define the continuation*

of a project in terms of the persistence of its effects--that is, the persistence of the change in teaching patterns or in the delivery of service caused by the project.

Persistence of effects is not the same as persistence of the project itself. Innovations, particularly effective ones, mutate during implementation; the implemented project can differ sharply from its original form. Even the term "implemented project" is a misnomer that should read "the implemented project as of time t_1." We would expect the project to evolve continuously as both a reflection of and a means for its persistence. Therefore, by persistence, we do not mean maintenance of the status quo of the project after the end of federal funding. At the end of federal funding, the district and the staff may further alter the project--e.g., drop some components, add new schools, reallocate personnel, streamline procedures--so that the project bears even less resemblance to its original design. Thus the concern of federal and state officials about the continuation of the *adopted* project seems to misspecify the problem.[3] The real concern should be to figure out how to sustain, spread, and improve the desirable effects of the project.

Continuation of a project's impact is not the only concern of federal or state officials, however. Specially funded projects can produce worthwhile results even if they are discontinued. We have seen several projects abandoned because school officials and staff felt the innovations did not "pan out," but a healthy consequence has been that the staff and middle management learned what they can and cannot do.

For example, one project we observed consisted essentially of the application of a packaged reading program. This project "failed" partly because it did not allow for mutual adaptation during implementation and because teachers did not develop a sense of ownership and commitment.

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[3] See Jerome B. Brightman, "The Continuation Rate of Three-Year ESEA Title III Projects," *A Report to the President's National Advisory Council*, December 15, 1971; Norman E. Hearn, "Innovative Educational Programs: A Study of the Influence of Selected Variables upon Their Continuation Following the Termination of Three-Year ESEA Title III Grants," Ph.D. diss., George Washington University, Washington, D.C., 1969; and Anthony N. Polemeni, "A Study of Title III Projects after the Approved Funding Periods," Ph.D. diss., School of Education, St. John's University, Jamaica, New York, 1969.

The project was terminated, but school officials and teachers learned some hard lessons about implementation. Two years later the district adopted another reading program, and found that the early failure had paved the way to a more effective project.

How does one predict whether project-related change will persist? One way is to examine the status of the change two years after the end of federal funding--the empirical point of reference for this study. This approach makes sense because many projects are quickly dropped, either at the close of federal funding or perhaps a year later. However, though the rate of decay slows down after a year or two, the remaining innovations--those not weeded out--can still fade away. This calls for a conception of persistence that acknowledges the continuing vulnerability of even successful projects. A one-year survival is not enough.

Accordingly, we assume that project-related change will persist only if it is no longer vulnerable to being dropped, and that this stable state occurs when the change has become *integrated into the school system as a standard or characteristic feature of the district's operations.* For the sake of providing a single term to denote this cumbersome definition, we use the word *institutionalized.* In short, we assume that project-related change will persist insofar as it becomes institutionalized. (But our definition does not imply that an institutionalized change is itself not subject to change.) Therefore, the Phase II research collected and analyzed data with the objective of understanding why and how educational innovations become institutionalized.

CONCEPTUAL APPROACH TO STUDYING INSTITUTIONALIZATION

To guide our data collection and analysis, we formulated a conceptual approach based on two premises:

1. Institutionalization is one phase of a complex organizational process of change.
2. Institutionalization occurs at two levels--the individual teacher and the school system--and the process is different for these levels.

The process of institutionalization can lead to a variety of

consequences, including the continuation of the project at the same level, a reduced level, or an expanded level; organizational effects (e.g., the reassignment of personnel or the reallocation of resources); and political effects (e.g., parent satisfaction or disaffection). From the outset of the research, we hypothesized that the extent and nature of continuation depends on *how* institutionalization takes place. Field observations made it apparent that institutionalization cannot be understood without taking into account the "history" of the project. We repeatedly saw that what happened early in a project profoundly affected what happened later. Institutionalization must be seen as but one phase in a complex local process of change.

Figure 2.1 is a schematic diagram of a model of the local process of change that ensues from the adoption of an innovation. The model assumes that the course of a local innovation--including its continuation--results from the interplay between a constantly evolving project and an institutional setting itself subject to change prompted by the innovation or by a variety of internal and external forces.

The process can be analytically separated into three phases--mobilization, implementation, and institutionalization--that are closely interrelated in practice. Thus, some activities and decisions associated with each phase flow chronologically, as Fig. 2.1 illustrates. For example, mobilization includes the inception of the project in the district; implementation includes the translation of the innovation into an operational reality; and institutionalization includes the transformation of the innovation from its special project status. In addition to this linear sequence, the phases are interconnected by complex and not well understood feedback relationships, symbolized in Fig. 2.1 by the double dashed arrows joining the three phases.

This model, discussed in more detail elsewhere,[4] guided Rand's data collection and analysis. In particular, we used the model to identify and collect data on factors that potentially influence projects' effects and continuation; the next section discusses these factors. Moreover, as Chap. 4 indicates, the model served to define the dependent variables

[4]Volumes I, III, and IV discuss an earlier formulation of the local process of change. Volume VIII explores implications of the model.

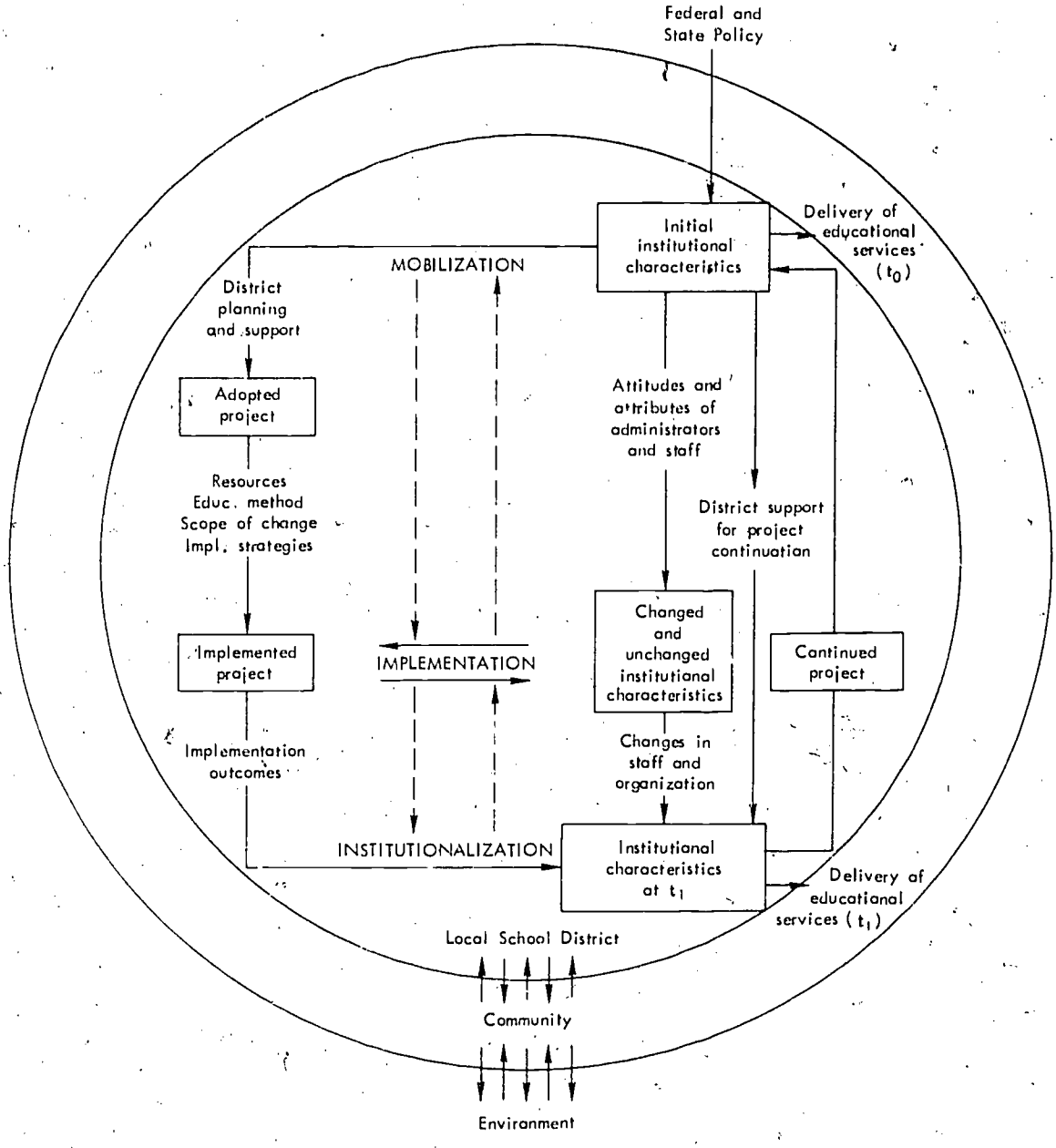

Fig. 2.1--Model of local process of change

(project effect and continuation) in operational terms, and to specify the data analysis scheme used in the statistical analysis of the effects of the factors.

The second premise of our approach--that institutionalization occurs in distinct ways for the individual teacher and for the school system--follows from the organizational structure and function of school districts. What may be a trial project from the standpoint of a district official can be a different matter to the teacher who implements it. The very act of putting an innovation into practice can constitute a learning experience that produces an enduring change in a teacher's pattern of behavior or expands a teacher's use of materials. In other words, the teacher institutionalizes some personal adaptation of the project's methods or materials; we use the term *assimilation* for this form of individual institutionalization.

Unless teachers assimilate its methods, a continued project cannot be fully institutionalized. But another condition also must be met: The project-related change must be integrated into the normal operations of the school system. Unless the project sheds its "special" status, it will face constant challenges. For example, its budget may be trimmed or eliminated. Or, project staff may turn over without new staff being assigned to or trained for the project. Or, principals and project directors may depart, leaving leadership problems behind them. Or, central support activities may be denied to project participants. A project is institutionalized, then, only when the district's budget process, personnel allocation, support activities, instructional program, and facilities assignment *routinely* provide for the project's maintenance. We use the term *incorporation* for this form of system institutionalization.

In summary, project-related changes are institutionalized only insofar as teachers assimilate them *and* the district's standard operating procedures incorporate them. We have taken pains to make these distinctions for two reasons. First, the two processes--assimilation and incorporation--have different dynamics that are influenced by different factors: Assimilation can be described by a model of individual learning; incorporation should be analyzed as an organizational process

composed of many decisions made by many actors. Second, assimilation can occur without incorporation, and vice versa. This "loose-coupling" between the necessary components of institutionalization means that innovations can be continued without being institutionalized.

With these theoretical conceptions in mind, we collected data about project effects at both the classroom level and the school system level. Chapter 5 presents an analysis of the factors affecting project continuation at the classroom level (i.e., assimilation). Chapter 6 examines continuation at the district level (i.e., incorporation) and explores how the relationship between the two levels affected institutionalization.

IDENTIFYING FACTORS AFFECTING CONTINUATION

Our earlier research on how school districts attempt to make innovations work taught us an obvious, though often ignored, lesson: No single, simple, or sure way can be found to effect change. Nor is any single factor the key to success, whether it be money, new techniques, new superintendents, or new materials. Rather, the local process of change consists of the sum total of many everyday decisions made by many people dealing with the peculiarities of their situations. Consequently, we collected data on a variety of factors and explored--by means of statistical analyses and field observations--how much weight each had in determining effective implementation and continuation. This section explains how the theoretical framework discussed in the preceding section helped to identify the major factors affecting innovation.

Figure 2.1 suggests that an innovation becomes a part of the ongoing operation of the school district, which in turn is embedded in its community and environmental setting. The nature of the school district, the community, and the environmental forces have pervasive effects on why a change project is begun and what happens to it. Some of these influences are measurable and can be analyzed systematically; others are either not measurable in any practical and reliable way or are so idiosyncratic as to make comparisons from district to district meaningless.

Figure 2.1 also indicates that three classes of factors directly affect the extent to which an innovation causes a change in the school district's delivery of educational services:

- o Federal and state policy
- o Characteristics of the innovative project
- o The institutional characteristics of the local school district

Conceivably, federal policies could influence the course of innovations at many different points, but most policies do not. Whether by design or by happenstance, their leverage is generally limited to the beginning of projects, as Fig. 2.1 illustrates by the arrow connecting the federal input to the project's initiation. Specifically, the Title III program explicitly assumed that the sheer provision of "seed money" could help districts to implement and sustain innovations. We shall be examining in Vol. VIII the possibility of directing federal policies toward other aspects of the process.

Whether the project's beginnings were stimulated by federal policy or generated primarily by district concerns, innovations go through a complex interplay between project and institutional characteristics. The preceding section identified three phases of that process--mobilization, implementation, and institutionalization--and pointed out that what happens during the first two affects what happens in the third. Therefore, to identify factors affecting continuation (which is a product of institutionalization), we examined the "products" of the earlier phases.

Mobilization

The primary tasks in mobilization are planning-related activities--e.g., defining a problem or need, seeking "solutions" in terms of new educational methods or approaches, locating funding opportunities, formulating a proposal to do a project, and generating local support for the proposal. The results can be regarded as two broad "products": an adopted project and institutional attitudes toward it.

The adopted project consists of a series of more or less specific

decisions on what is to be done and how to do it. Project designers usually have an idea about an innovation that they saw, heard, or read about and now wish to implement in their district, school, or classroom. Whether one person or many participate in the design, the resulting project is usually a synthesis of a variety of ideas (often including current educational fads). This synthesis typically bears but slight resemblance to its progenitor or any other project. Characteristically, then, the adopted project is an amalgam of innovative ideas and instructional goals that we call the *educational method or treatment* of the project.

The local choice of an educational treatment incorporates district and educational aims or objectives; it also assumes, often implicitly, expectations about the staff--e.g., what new behavior will be required of them, how and how much they will be expected to change, and so on. We call these new staff requirements the *scope and complexity* of the change effort.

The designers must also make a set of decisions about how to implement the innovation, which we call *implementation strategies*. They include implicit or explicit choices about allocation of resources, selection of sites, staff, target group, project governance, involvement of parents, staff development, selection and development of materials, and evaluation procedures.

In summary, mobilization encompasses an educational treatment, a scope of proposed change, and an implementation strategy. Phase I of the research suggested that the choice of an educational treatment in itself has only a limited effect on project outcomes because similar innovations can be implemented in different ways with varying effectiveness. However, the scope of the project and the implementation strategies chosen had major effects on what happened. Accordingly, Phase II collected data on these three project characteristics not only to reaffirm the earlier findings but to see whether similar results hold for continuation of projects after the end of federal funding.

Mobilization engenders another consequence, often overlooked. The central office staff, the principal, and teachers develop attitudes of enthusiasm, support, indifference, or opportunism toward the coming

innovation, which seem to be crucial for the fate of innovative efforts. These attitudes establish the "legitimacy" of the project, define the priority accorded it in the district, and determine people's commitment to the project.

Broadly speaking, we found that these attitudes conformed to one or the other of two patterns: opportunism and problem-solving. The "opportunists" seemed to be motivated primarily by the desire to reap the windfall of federal funds. Our Phase I research concluded that their projects were poorly implemented as a consequence. An early task of the Phase II research was to collect data on the status of "opportunistic" projects after federal funding ended. We suspected they would not be continued, and our suspicions were borne out (see Chaps. 3 and 6).

The "problem-solvers" took the projects much more seriously; in these cases, school districts appeared to welcome the help of federal funds in dealing with central educational concerns. The projects they adopted were more likely to be implemented effectively because they enjoyed institutional support and a high level of teacher commitment. Because we hypothesized that institutional support also affects continuation, Phase II used field interviews and survey questionnaires to ascertain the initial attitudes of central offices, principals, and teachers. As will be discussed below, we found that institutional support did improve the effectiveness of implementation and was a strong determinant of continuation. We also found that some locally chosen strategies were better than others for generating such support.

Implementation

Our previous research suggested that implementation involves the *adaptation* of the project to its setting and vice versa. We reported, in Vols. II and III, on the difficulties that arise during this adaptive process and explained how school districts either overcame these problems or failed to adapt.

Phase II focused on two additional issues: First, how does the way the project was implemented affect its continuation? Because projects typically mutate during implementation, it is useful to

distinguish the original form of the project from its form three to five years later; we call the latter the *implemented project*. To get a sense of its characteristics, we collected data on such factors as the extent of teacher participation in implementation decisions, the principal's attitude toward the project, and the percentage of project goals realized.

The second issue we examined concentrated on implementation in and of itself. Rather than considering the implemented project and its effect as an "input" to continuation, we also viewed them as "outcomes" in their own right. Our key questions for analysis therefore were: Do the factors that influence implementation and the project's effect on teachers and students have similar effects on continuation? Do different factors play different roles in achieving a "better" project as compared with sustaining the project and, if so, are there policy tradeoffs to be concerned with?

We were well aware that people at the central office, school, and classroom levels played distinct roles. For example, central office people can be heavily involved in mobilization when political and bureaucratic choices must be made, but they tend not to deal in the day-to-day adaptation decisions characteristic of implementation. To determine how the involvement of central office staff members affected continuation, we collected data about their roles, attitudes and attributes before, during, and after implementation. We gathered similar data about principals and teachers. In particular, at the school and classroom level, we collected information about three types of variables: the school's *organizational climate*, the school's *demographic characteristics*, and *teacher characteristics*.

Institutionalization

Institutionalization can begin before the close of federal funding and ends long after it. The original staff can assimilate the innovation's methods during the first few years of the project's implementation, or assimilation may occur more slowly, particularly for complex projects subject to staff turnover. Similarly, the project may be incorporated at the outset into the district's procedures (viz., those

procedures involving budget, personnel, staff support, instruction, and facilities). For example, initial plans about alternative schools, particularly those involving desegregation, may require facility construction, support activities, and personnel assignments that become institutionalized as they are implemented. But this case is rare, as Chap. 6 argues. Typically, district officials postpone decisions about the fate of a project until that stage of the budget cycle when the "soft" money from the federal grant runs out. We believe this "formal" district-level decision resembles the original decision to adopt the project (with the difference that "adoption" this time entails the use of district funds). For example, the decision to continue a project, like the decision to adopt, is based on local bureaucratic and political considerations as well as assessments of the educational value of the project. Chapter 6 analyzes the factors affecting this decision.

Phase II also assumed that a project's passage between continuation and institutionalization sets in motion yet another cycle of mobilization and implementation. Figure 2.1 depicts this cyclical process by showing an arrow going from institutionalization back to mobilization. In other words, our data collection and analysis did not equate continuation with institutionalization, just as adopting a project is not the same as implementing it.

Phase I found that the implementation strategies chosen critically determined the course and outcome of implementation. Accordingly, we examined the strategies selected by local district officials at the continuation stage to see if they were similarly powerful in determining the extent of institutionalization. Based on interviews with school district officials, Chap. 6 suggests that some strategies are more effective than others for that purpose.

Summary

In summary, institutionalization is the process by which a continued project gains permanence. The extent to which a continued project is assimilated by teachers and is incorporated into the district's standard operating procedures depends on a variety of institutional and project factors that are inputs to or products of the prior local

Table 2.1

FACTORS AFFECTING PROJECT CONTINUATION IN THE CLASSROOM

Federal input: project funding

Project characteristics
- Educational method or treatment
- Scope of proposed change
- Implementation strategies

Institutional setting
- Organizational climate
- School characteristics
- Teacher characteristics

history of the innovation. We therefore gathered information on two types of variables. First, data were collected on variables reflecting project design choices and characteristics of the institutional setting, which we hereafter call *factors* or independent variables, because they can be affected by policy or can be taken into account in planning. Table 2.1 lists the factors studied in Chap. 5's analysis of continuation in the classroom. Second, data were collected on project "outcomes" that were interim to continuation--e.g., how effectively the project was implemented. These variables can be called dependent variables because they are the product of the interplay among the project and institutional factors. Chapter 4 presents our assumptions about how the factors and dependent variables are related at the classroom level, and also discusses our operational measurements of the classroom level dependent variables. Chapter 6 provides similar information about district-level independent and dependent variables.

Chapter 3

DATA COLLECTION AND THE NATURE OF THE PROJECTS

The basic data collection plan of Phase II called for revisiting and resurveying many of the 194 Title III projects analyzed in Phase I. Our goal was to conduct a survey of 100 former Title III projects one to two years after the end of federal funding. Using a telephone survey to supplement the extensive data base gathered about these projects during their last or next-to-last year of federal support, we chose a sample that would provide the maximum amount of information about continuation. Our model of the factors affecting the process of change called for analyses at both the classroom level and the district level. Accordingly, the survey consisted of separate questionnaires administered to teachers, principals, and superintendents. To help in designing the questionnaires, and to explore aspects not amenable to quantitative analysis, we visited 18 of the districts and conducted personal interviews with project participants and school officials.

This chapter discusses the data collection activities in more detail, and then describes some characteristics of the projects in our sample.

SAMPLE SELECTION FOR PHASE II

The sample for Phase II was drawn primarily from projects surveyed in Phase I, which had collected data in two ways:

1. A nationwide (18-state) survey of a sample of 293 projects in their last or next-to-last year of federal funding, 194 of which were sponsored by Title III of ESEA. For each project, we interviewed an average of nine members of the school district (the superintendent, the federal program manager, the project director, two principals, and four teachers). We mostly used closed-ended questionnaires that explored a wide variety of topics but focused on project initiation and implementation.

2. Field studies of 29 projects from a survey sample. These field studies, consisting of observations in classrooms and interviews with a wide variety of project participants and LEA officials, focused on the local process of change.

This extensive data base provided a unique opportunity to select a sample of innovations that we already knew a good deal about. According to an agreement with USOE, we had sufficient resources to investigate 100 of these 194 projects. We could have selected a random sample of the Phase I projects, which would have included a large number of discontinued projects, but since the study's primary concern was to explore how policy might influence the continuation and spread of innovations, it was more appropriate to choose projects for survey analysis that were actually continued, at least to some degree.

Therefore, to reduce the sample to 100 former Title III projects, we conducted a telephone survey of the 194 eligible Title III projects originally surveyed. Using a largely closed-ended questionnaire, we asked school district officials in each of the sites to describe what had happened to the project, whether it was being continued, and, if so, which schools were now using the project in any form.

The responses revealed that about 30 percent to 40 percent of the projects in the original sample had been completely discontinued by the district; former project schools were not using the project's methods or materials one or two years after the end of federal funding, and we sometimes had considerable difficulty even locating former project participants. Checking back on the original survey information about these projects, as well as using telephone reports from former project participants, we found a clear reason for their disappearance: The projects were not implemented effectively, and in many cases were hardly implemented at all. Participants reported that implementation was either extremely difficult or was merely symbolic because the project's goals were peripheral to their educational concerns. In short, most of these projects were probably "add-ons," adopted more to receive federal funds than to solve pressing educational problems. Chapter 6 examines these and other reasons for discontinuation at the district

level. It uses the data collected in the telephone survey and in Phase I to compare the attributes of discontinued and continued projects. In the Phase II survey, we collected no further data about these discontinued projects for several reasons. First, as far as we could tell from selected pretest visits, from the telephone survey, and from Phase I data, most teachers in these projects were no longer using project methods or materials in their classrooms.[1] Second, we had collected enough data in Phase I about the limited classroom implementation of these projects to explain their discontinuance. We accordingly decided to include in the Phase II survey only projects that were continued and appeared to have had direct effects at the classroom level. In summary, we studied district *discontinuation* using information collected during Phase I, and studied *continuation* at both district and classroom levels using newly collected data from Phase II.

To construct the Phase II survey sample, the original sample of 194 former Title III projects was narrowed down to 95 candidate projects, each of which still existed, in some fashion, in its district. To reach our design goal of analyzing 100 projects, we needed to add 20 projects for a total sample pool of 115. (The extra 15 projects were necessary to compensate for an expected district refusal rate of about 13 percent.) We selected 20 former Title III projects not in the original sample, using information derived from project materials and telephone interviews with state and local education officials. Table 3.1 shows the distribution of the 100 projects across 18 states where Rand's research was conducted.

The original group of change agent projects was not a probabilistically representative sample of all federally sponsored projects, but rather was a purposive sample that covered a broad range of innovations

[1] We know of no teachers who went on using the project in these cases of total discontinuation, since we did not choose to spend our limited research budget to verify classroom discontinuation beyond the procedures described above; it is possible that these projects were being used in the classroom to some extent. This possible underestimate of classroom continuation introduces a potential for bias of an unknown degree into Chap. 5's classroom level analysis.

Table 3.1

NUMBER OF SAMPLE PROJECTS BY STATE

State	Number of Projects	Number of Schools
California	20	36
Colorado	3	5
Connecticut	7	11
Florida	4	6
Georgia	4	8
Illinois	10	20
Kentucky	1	2
Massachusetts	3	6
Michigan	4	5
Missouri	4	8
New Jersey	10	14
New York	5	9
North Carolina	15	24
Ohio	3	8
Pennsylvania	2	4
Texas	2	4
Washington	3	6
Total	100	176

NOTE: The sampling pool also included two projects from Arkansas and two from Pennsylvania.

in a wide variety of state and local settings. Consequently, the projects analyzed in Phase II do not constitute a statistically representative sample of all past Title III projects. Indeed, because we did not survey projects that were totally discontinued, the Phase II survey sample undoubtedly contained a higher proportion of "successful" innovations than would a probabilistically representative sample. Nonetheless, even among continued projects, one would expect a wide variation in the nature and extent of their continuation. Such variation did occur in our sample, as subsequent analysis will show, and thus we could examine what happened to many different types of innovations in many different local and state settings.

Given the purposive nature of the Phase II survey sample, generalizability of the findings is subject to question. Moreover, the method

of sample selection may have introduced errors into the analysis that would bias the results. Though these methodological difficulties must qualify any specific finding, they are not as severe as to invalidate the overall import of our exploratory analysis of what promotes continuation and why.

FIELD RESEARCH AND SURVEY DESIGN

The Rand staff visited 18 sites before or after the administration of survey questionnaires during January 1976. The purpose of the prior visits (during the spring and fall of 1975) was to formulate a conceptual framework of continuation as well as to conduct survey instruments. Following two waves of pretests (conducted by Response Analysis Corporation and Rand during fall 1975) and the administration of the survey by Response Analysis Corporation, the Rand staff visited additional sites in the spring of 1976 to explore areas not adequately covered by the surveys (e.g., school district decisionmaking).[2] Most of our on-site visits (which averaged about 3 person-days per project) were to locations that had been previously visited--often several times--during Phase I. Our detailed familiarity with these districts, their staff relationships, and project characteristics greatly facilitated our research activities: classroom observation, group and individual discussions with project participants and community people, and interviews with LEA officials. We believe that such sustained contact with the realities of innovations--their problems as well as their triumphs--is necessary to understand the process of change and to interpret statistical analyses of factors affecting the process.

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[2]To supplement this field research, the Rand staff also visited several projects that were using USOE's Project Information Packages, exemplary innovations being disseminated by USOE, and visited several innovations that were started and funded solely by LEAs. This research gave us a basis for comparing different approaches to initiating and supporting innovations. Our strong impression is that, despite some noteworthy differences, all these types of innovations face similar difficulties, go through a similar process of change, and are affected by similar local factors. To examine strategic questions of sustaining innovations, meetings were also held at Rand with various LEA officials.

The survey itself questioned three classes of respondents--superintendents, principals, and teachers--for whom we designed three different survey instruments. The superintendent's questionnaire contained a number of open-ended questions and was administered as a personal interview that lasted between twenty and forty minutes. It focused on district decisions concerning the beginning and the continuation of the project and on general information about the district. The superintendent also was asked to evaluate the principals of one or two schools in our sample. A total of 100 superintendent questionnaires were administered.[3]

We also interviewed 171 principals for an average of about forty minutes.[4] Their questionnaires elicited information on the project's design, the school's early involvement in the innovation, staff attitudes toward the project, and the project's effect on the school. Principals were also asked to evaluate a sample of as many as eight project teachers.[5]

From the 171 schools, 1072 teachers filled out self-administered questionnaires that covered a wide variety of topics, including the nature of the project, its implementation, its effect on teachers and students, the nature and extent of project continuation, and the school's organizational climate.[6] They were also asked to take a short verbal ability test (94 percent of the sample did so).

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[3] In 12 percent of the cases, a high district official was interviewed instead of the superintendent because of (a) refusal (2 cases), (b) size of the district, which meant that the superintendent was unlikely to be familiar with the project (7 cases), or (c) the superintendent's recent appointment to the district (3 cases).

[4] A second telephone survey in the fall of 1975 gave us exact information on the schools currently using the project in some form and on how long the principals currently at the schools had been there. Both current principals, and to a limited extent, former principals were interviewed. Insofar as possible, two project schools from each district were eligible for the sample; in the case where a district had more than two schools that had had the project for at least two years, a random sampling procedure was used to select the schools.

[5] In those cases where more than eight teachers were eligible in a school, a random sampling procedure was used to select the teachers rated.

[6] As many as eight teachers who had two years experience with the project while it was federally funded were asked to fill out

In summary, we revisited and resurveyed Title III projects one to two years after the end of federal funding. Using our existing data base and a telephone survey, we selected a nationwide sample of projects and respondents comprising:

1. 100 former Title III projects that were "continued," to some extent, after the end of federal funding.
2. 100 superintendents or key LEA officials, 171 principals at schools where the projects had reportedly been continued, and 1072 project teachers.

Subsequent sections will discuss survey questions and respondents' answers.

THE PROJECTS IN THE PHASE II SAMPLE

The original sample of 194 projects included about 45 not intended for the classroom, for example, school or district administrative changes such as Management-by-Objectives, and enrichment activities such as drug education programs. We eliminated these nonclassroom projects whether they were continued or not (most of them were dropped immediately at the end of federal funding), and focused exclusively on classroom innovations that had been more or less seriously tried.

These innovations were extraordinarily varied. They differed in the grade levels they covered--71 percent of project teachers were in elementary schools, and 29 percent in secondary schools;[7] their target

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questionnaires by RAC interviewers (the return rate was 97 percent) in each project school; if more than eight teachers were eligible, a random sampling procedure was used. However, in four schools having a large number of project teachers, all eligible teachers were given the questionnaires.

[7] Because school systems across the country differ in the way they define the grade-level composition of their schools, the division between elementary, junior or middle schools, and senior high schools is not comparable nationwide. The exact distribution of projects according to the grade levels they covered in our sample of 171 schools was:

Primary grades only	25%
Upper elementary grades only	8
Both primary and elem. grades	38
Secondary grades	24
Both elementary and secondary	5

groups--e.g., 19 percent of the projects were aimed at students whose achievement was below most students in their school; the selection of the school site and the staff--e.g., 16 percent of the projects involved all schools in the district and 38 percent of the schools had all their teachers participating; the size of the projects--e.g., the number of project schools varied from one site to 44 sites, with an average of five project schools in a district, and the number of students per project averaged about 300 pupils with some projects being single classrooms of 20 students and others involving all the students in a school (as many as 1150); the characteristics of the host school district--e.g., 38 percent of the projects were in cities, 30 percent in suburban areas, 11 percent in towns, and 21 percent in rural areas. The largest city school district had an average daily enrollment of almost 750,000, and the smallest rural school district had 385 pupils.

Perhaps the most interesting variation was in the substance of the innovations. At the most general level, the projects were very similar; all focused on classroom-related problems and can be seen as serious attempts to change student performance. To achieve this common purpose, however, local school personnel identified a broad variety of project strategies. Some projects comprised highly specific techniques that focused narrowly on student achievement. For example, an individually prescribed elementary school instruction project pretested elementary students and then identified materials that could help them master items they had missed on the pretest. A similarly designed mastery learning project used a set of behavioral objectives in combination with coded teaching materials--games, books, TV tapes, and so on. Other projects sought to improve student performance by focusing on students' self-concept and school-related attitudes. One teacher described the latter kind of project as "an attempt to modify students' attitudes toward the school, community, the staff and peers by concentrating on a values-rich curriculum."

Some projects took a more indirect and general approach. For example, some projects concentrated on general staff development and training activities not explicitly tied to the classroom. One such project offered training in diagnostic and prescriptive methods; it

consisted of study and discussions with teachers over thirty school-months, with weekly three-hour meetings. Another project focused on staff training; it was "designed to make teachers and administrators more aware of the feelings of children and teachers. Evening seminars were offered for interested teachers and administrators in which the group was introduced to methods of effective education and practiced these techniques with each other." Other projects elected to involve parents as an indirect strategy to change student performance. One project offered both Parent Effectiveness Training and Teacher Effectiveness Training; the teachers received video-taped self-evaluation and inservice training on effective parent conferencing. Another project emphasized home-school relations and hired aides as home-school coordinators.

Yet another group of projects aimed for comprehensive change in classroom practice, with the explicit goal of improving student attitudes and achievement. These projects were much less specific than the more narrowly focused achievement projects (such as mastery learning) and made project training an integral part of the changes being implemented in the classroom. The following teacher description is representative of projects of this nature:

> The program was designed to aid teachers in the process of individualizing instruction in the areas of language arts, math, social studies and science. The program focused on enhancing student academic growth as well as their self-concept and feelings about school. In order to accomplish individualization in these areas, classrooms were reorganized and teachers developed learning centers in their rooms for each subject area. Students were taught to use new instructional materials many of which were developed by project teachers; activities varied depending on the level of the child. Teachers were given training in setting up these new classroom procedures and materials and in teaching to objectives designed for the child's level of ability. A computer was used to assist the teacher in the area of recordkeeping and progress reports to the parents.

All the projects, then, addressed central educational needs of the students in one way or another. None were concerned with ancillary or "general enrichment" activities. Some projects focused directly on

specified academic deficits or on student attitudes and motivation related to achievement. Other projects attempted to improve student performance by changing the behavior and supplementing the skills of teachers and parents. Still other projects were concerned with student performance in both cognitive and affective areas, striving for comprehensive change in classroom organization, climate, and activities.

All this variation was not accidental. The original sample was deliberately chosen to span a broad range of projects in many different institutional settings. This approach enabled us to collect information about innovations that clearly differed in their outcomes and in factors affecting the outcomes. For example, some projects were conducted at several schools in a district, others at only one school; we therefore were able to analyze, using statistical methods, the effect that the number of project schools had on continuation. In short, variety in project characteristics and institutional settings allowed us to generalize--within limits--about the factors affecting project impact and continuation.

Generalization exacts a price, however. For example, because the innovations varied markedly in the substance of their educational method, we were able to explore whether some types of educational treatments were consistently implemented more effectively than others and more likely to be continued. The price exacted, however, lies in the precision of our generalizations. We would like to, but cannot, make statements like "Reading Program A is better than Reading Program B."[8] Instead, we had to group the innovations in our sample according to the types of educational method they represented and, consequently, limit our generalizations to inferences about these abstract types.

The educational method or substance of an innovation generally consists of an amalgam of instructional techniques pieced together to fit the interests and concerns of the project's designers. Goals, means, and strategies are all mixed together. The product, as specified in proposals or more refined plans, tends to be an innovation virtually

[8]Although we have data with which we could make at least reasonable evaluative judgments on each project, we decided to forgo doing so for the sake of formulating general principles that would be applicable to most projects.

unique to its district. To group these "unique" innovations into comparable types of educational methods, we collected data from project teachers about the range of educational techniques used on the projects, and devised an analytical classification using statistical methods.

The survey asked teachers to check off the educational techniques employed in their project. Table 3.2 enumerates the educational techniques and lists the number of times each technique was mentioned. Considering the lack of clarity and diffuseness of educational treatments, it is not surprising that teachers never characterized their project in terms of a single technique. It is fortunate that they

Table 3.2

EDUCATIONAL METHODS OF PROJECTS

Special projects may use a variety of different techniques. For the techniques listed below, please circle the letter preceding each technique you used as part of the project in this school during the period of initial federal funding.	Number of Times Mentioned
Individualized instruction	700
Behavioral objectives	641
Criterion-referenced testing	335
Diagnostic and prescriptive methods	554
Differentiated staffing in elementary schools	132
Paraprofessional staff (teacher aides, etc.)	495
Team teaching	312
Instructional specialists in addition to teachers	364
Counseling and guidance specialists	245
Multi-age grouping (at least 3 grades together)	115
Nongraded student evaluation procedures	272
Open education	192
Learning centers	493
Cross-age tutoring	206
Performance incentives for students	296
Teacher-student contracts	340
New curriculum	348
Educational technology (computers, etc.)	133
Development of new materials	550
New management techniques at the school level	254
Field trips	300
Parent involvement in the classroom	254
Use of community resources	284

did not. It would be confusing and almos meaningless to identify a project as a "parent involvement project" without specifying what combination of techniques was used in conjunction with parent involvement. The data, when analyzed by correlations among the various techniques, clearly suggest that certain techniques went together in practice. Moreover, it seems reasonable to hypothesize that likely combinations of techniques were united by underlying and more general educational methods. Since there were relatively few likely combinations of techniques, we suspect that these general educational methods were also few in number.

These theoretical premises suggest the use of factor analysis, a statistical procedure designed to reduce a large number of elements, such as diverse educational techniques, into a smaller number of underlying dimensions. The validity of factor analysis, apart from technical considerations, rests on whether the factors, or underlying dimensions, have any valid interpretation or meaning. Our factor analysis of the data of Table 3.2 indicates that the interpretations of the factors were meaningful and provided an efficient means for analytically describing the educational methods of innovative projects in the Rand sample.[9]

Table 3.3 displays the results of a factor analysis designed to discriminate a small number of underlying or general educational methods. Five analytical types of educational methods emerged:

- *Individualization techniques*, innovations involving student-centered procedures, methods, and materials for dealing with the learning needs of each pupil individually; specific techniques include criterion reference testing and diagnostic-prescriptive methods.
- *Classroom organization change*, projects including teacher-centered innovations designed to alter the usual pattern of

[9] This report does not discuss the statistical details of the factor analysis. The factor analysis enables a comparison among the educational methods of the diverse and idiosyncratic projects based on similarities among the projects. However, this statistical procedure cannot make "apples out of oranges." Therefore, subsequent analysis controls for some other project features that cannot be characterized by the factor analysis.

Table 3.3

FACTOR ANALYSIS OF EDUCATIONAL METHODS

Educational Technique	Rotated Factor Loadings[a]					Commonality
	Community Involvement	Individual-ization	Specialists	Classroom Organization	Curriculum Revisions	
Individualized instruction	.201	.681	-.200	.154	.035	.568
Behavioral objectives	.150	.451	.135	.095	.104	.263
Criterion-referenced testing	.006	.564	.088	.111	.375	.479
Diagnostic and prescriptive methods	-.034	.760	.029	.089	.138	.606
Differentiated staffing in elementary schools	.062	.097	.286	.651	-.084	.526
Paraprofessional staff (teacher aides, etc.)	.425	.428	.138	.198	-.066	.426
Team teaching	.247	.095	-.013	.668	-.085	.523
Instructional specialists in addition to teachers	.196	-.007	.633	.090	.171	.476
Counseling and guidance specialists	.132	.048	.687	-.020	.050	.495
Multi-age grouping (at least 3 grades together)	.228	-.140	-.116	.599	.344	.562
Nongraded student evaluation procedures	.093	.195	.048	.625	.213	.485
Open education	.436	.156	-.174	.452	.062	.454
Learning centers	.534	.414	-.088	.183	-.005	.497
Cross-age tutoring	.334	.227	.176	.450	.164	.423
Performance incentives for students	-.059	.381	.446	.310	-.254	.507
Teacher-student contracts	.231	.367	.169	.385	-.123	.380
New curriculum	.117	.071	.332	.235	.578	.518
Educational technology (computers, etc.)	-.132	.190	-.037	.044	.642	.469
Development of new materials	.361	.273	.267	-.036	.407	.443
New management techniques at the school level	.024	.401	.302	.281	.100	.341
Field trips	.744	-.020	.176	.148	.007	.606
Parent involvement in the classroom	.706	.215	.085	.198	-.002	.591
Use of community resources	.758	-.057	.224	.161	.030	.654
Sum of squares	2.857	2.677	1.715	2.628	1.419	11.295

[a]Loadings refer to the correlation between an educational technique and a factor of general educational method. The boxed entries indicate high loadings on a factor that serve to define the meaning of the factor. Commonality and sum of squares are statistical measures that indicate the technical validity of the analysis.

interaction between teacher and student (e.g., open classrooms) or teacher and teacher (e.g., team teaching and differentiated staffing).

- *Curriculum revisions*, projects for developing new curricula or introducing educational techniques to supplement the curricula.
- *Community involvement*, projects employing community resources or parent participation.
- *Specialists for student needs*, projects that used specialists and guidance counselors to meet students' needs.

The names of these categories of methods were chosen to reflect the combinations of techniques revealed in Table 3.3 and to suggest general methods widely recognized by educational specialists.[10]

The factors, or underlying educational methods, may be interpreted in several ways. Each project in the sample received a score on each factor. A factor score can be thought of as representing the "amount" of a particular educational method used in a project. For example, a score of 2.0 on the classroom organization factor means that the project design attached great importance to classroom organization change activities. (Factor scores are distributed as a standard normal distribution. A score of 2.0 represents two standard deviations greater than mean project score.) If an innovation scored high on classroom organization methods and scored low on the other factors, we would be justified in calling the project a classroom organization innovation.[11] Any project in the Rand sample can be described similarly in terms of its mix of the five educational methods.

Our subsequent analysis uses this factor-score description. In Phase I we found that the educational methods of a project did not explain much of the variation in project outcomes; Chap. 5 asks whether the same result holds for continuation. We also will examine the relationship between the choice of educational method and other project characteristics that might affect continuation. For this chapter's purpose--to describe the nature of projects in our sample--the most pertinent relationship is that between educational method and the amount of federal funding. Projects that focused heavily on individualization were the most heavily financed; otherwise, funding and educational method were not strongly related.

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[10] The statistical validity of factor analysis depends on technical considerations not discussed here. In general, the factor analysis of Table 3.3 has relatively good but not very strong statistical characteristics. Other statistical methods using nonparametric assumptions and clustering analysis yielded essentially similar factors. The fact that the categories defined by the factor analysis make intuitive sense gives us reason to trust its results.

[11] The high-scoring projects on the various factors were checked against fieldwork and other qualitative information and found to be generally consistent with our understanding of the substance of the project.

We did not find it easy to measure the amount of money available to a project. Depending on such circumstances as the type of innovation or the size and management style of the school district, it can be difficult to distinguish project funds from other monies available to a school that support the project indirectly. Rather than trying to determine the true "costs," we collected data (from official project records or answers to the Phase I survey) on the federal funding levels.

In measuring funding level, we needed to take into account all incremental monies spent on the project. Although Title III grants were intended to cover most if not all of the project costs, Title III was often not the only source of funds. Many local projects also obtained funds from state categorical programs, special LEA appropriations, or private foundations. Moreover, some LEAs "packaged" federal grants from such sources as Title I, Education Professions Development Act (EPDA), or National Defense Education Act (NDEA) to supplement the primary Title III innovative project grant. Consequently, to examine the effect of funding levels on project outcomes, we used the sum of the special grants from all sources employed to support local Title III projects.

Even this choice did not resolve our operational problem. The funds were awarded over a three-year period. What would be the best measure of the resources available to a project? The total sum of all funds over the three years? The average funding per year? The largest yearly funding level? We chose the largest yearly project funding level for a number of reasons.[12] First, a simple measure of the average grant received over several years could be deceptive because of significant year-to-year variation. For example, it was not unusual for a Title III project to receive $125,000 in support in the first year, $75,000 the second year, and $85,000 in the third and final year. Second, preliminary analysis uncovered no discernible patterns in project funding histories, thereby precluding generalization about trends in funding levels. Third, analysis of the effects associated with the largest single year of special project funding appeared particularly relevant

[12] In Phase I we used each of these measures in preliminary analysis; the largest yearly funding level proved to be the best measure. See Vol. II.

to the questions this study addresses. There has been considerable debate in policy circles concerning the existence of an "optimal" level of outside support, if local projects are "to make a difference." Too little money, many say, simply means inefficiency. Conversely, it is often argued that federal support of expensive projects is wasteful because districts are unlikely to be able to continue them once federal funding ends. By examining the relationships between the largest annual funding figure and outcomes of Title III projects--where federal support is explicitly seen as "seed money"--it is possible to see whether the size of the "seed" makes any difference.

The projects in our sample displayed a great range in their largest annual funding level--from $10,000 to $335,000--with most projects funded at around $100,000.[13] Although these amounts, which are absolute figures uncorrected for district size or budget, do not represent a high percentage of a school district's annual expenditure, they vary sufficiently to allow us to explore whether the *level* of incremental and uncommitted funds mattered for project effect and continuation.

We defer discussion of other project characteristics to Chaps. 5 and 6.

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[13] The distribution of funding was skewed in a lognormal shape, with most projects funded at approximately $70,000 for their largest annual funding level. See Vol. II for a more detailed discussion of this distribution.

Chapter 4

CLASSROOM DATA ANALYSIS MODEL AND MEASUREMENT OF DEPENDENT VARIABLES

An innovation may affect teachers, students, schools, and the district in diverse ways and at different times in the innovation's life cycle. The challenge for an exploratory analysis of the type Rand undertook was two-fold: to know what to measure as well as how to measure it, and to specify relationships among the various measurements. In short, we had to formulate a data analysis model.

The model described in this section deals with classroom-level issues; Chap. 6 treats district-level issues. The model was designed to generate empirically based hypotheses rather than test or estimate previously established relationships. Though the form of our statistical analysis resembles procedures used in hypothesis testing for nonexperimental data, it would be misleading to construe the findings as anything more than tentative. Our objective was not to establish hypotheses that could be formally tested, but to arrive at a deeper understanding of how to make innovations work. In sum, we designed our data analysis model to enable us to draw policy-relevant inferences and to arrive at better hypotheses (i.e., a better model) and more refined assumptions.

This chapter describes the model, operational measurements of the dependent variables, and limitations of the analysis.

DATA ANALYSIS MODEL OF PROJECT EFFECT AND CONTINUATION

We posited a simple, statistically tractable, causal model of how the variables suggested by our theoretical conception of the local process of change affect each other. Namely, we assumed that:

- An innovation can have four types of "outcomes" at the classroom level: an implemented project, changes in teaching style or behavior, changes in student performance, and continuation of the project's methods or materials.

- The outcomes or dependent variables can be ordered by the time sequence of their occurrence, which also corresponds to their cause-and-effect relationships; some occur prior to others, and earlier variables can affect later ones, but not vice versa. Specifically, the statistical analysis assumes that implementation occurs first, followed by change in teachers, followed by change in students and by continuation of the project's methods or materials.
- All the factors or independent variables identified in Chap. 2 can affect any of the dependent variables.

Figure 4.1 is a schematic diagram of this theoretical "causal" model, which is called a recursive model.[1]

The model comprises the central components of statistical analyses, presented in Chap. 5, that are designed to determine the extent to which each factor (or independent variable) leads to better classroom outcomes--i.e., to effective implementation, teacher change, improved student performance, and project continuation. The approach is to present statistics that (a) "estimate" the weight each factor has in explaining variation in project outcomes, and (b) indicate the

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[1]The recursive model can be stated algebraically as:

$$Y_1 = f(X) + \varepsilon_1$$

$$Y_2 = f(Y_1, X) + \varepsilon_2$$

$$Y_3 = f(Y_1, Y_2, X) + \varepsilon_3$$

$$Y_4 = f(Y_1, Y_2, X) + \varepsilon_4$$

$$Y_5 = f(Y_1, Y_2, X) + \varepsilon_5,$$

where X is a vector of factors or independent variables, Y_1 is implementation effectiveness, Y_2 is teacher change, Y_3 is student improvement, Y_4 is continuation of project methods, Y_5 is continuation of project materials, and ε_i is an error term. Because the discussion in the text aims at a general audience, we avoid using such technical terms as "exogenous" and "endogenous" variables to explain the recursive system.

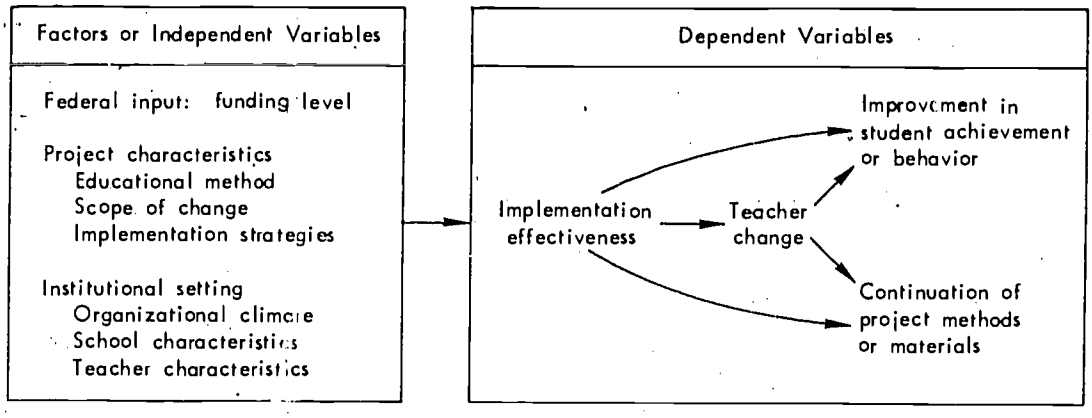

Fig. 4.1 — Classroom-level data analysis model

statistical significance of these estimates for the characteristics of our sample. In a formal sense, these statistics cannot be used to refute our model--i.e., to test whether some of the factors assumed by the model do *not* significantly affect project outcomes. Yet our policy purpose requires us to make such judgments, using the statistical analysis and our field experience, but we warn the reader that these findings are exploratory and tentative.

The remainder of this section discusses the model's underlying assumptions in more detail; the latter part of this chapter presents our operational measurements of dependent variables at the classroom level. Our assumptions derived from several empirical lessons we learned in Phase I. First of all, as we suggested earlier, because a project is likely to mutate during the implementation, its effectiveness after four or five years depends not only on its initial design but also on its evolution. In turn, its evolution depends on characteristics of the innovation and its institutional setting. In other words, the implemented project should be treated as both an independent and a dependent variable in a system of relationships. Consequently, the effectiveness of implementation will be analyzed, on the one hand, as a function of the factors identified earlier, and on the other hand, as a factor affecting teacher change, continuation of method and materials, and student improvement.

A second lesson concerns the project's cumulative effect on teachers after four or five years of project operation. Teachers may learn from and adapt to the project during implementation in ways the original designers may or may not have intended. Such changes in teaching style or behavior constitute an outcome of the project as it was implemented. Furthermore, improved student performance and continuation of project methods or materials depend on the teacher's style and behavior as they were both before and as a result of the project. Therefore, the change in the teacher's behavior can be classed as both cause and effect in the system of relationships determining what happens to an innovation.

Although change in the style and behavior of teachers is a major potential effect of an innovation, it would amount to "change for the sake of change" if it had no effect on student performance. We considered two serious methodological questions before we incorporated student performance into the model and analysis. First, the measurement issues are controversial--what should be measured and how to measure it--and we had to select measurements appropriate to this study; the next section discusses our operational choices. Second, one could question the appropriateness of measuring changes in student performance because an innovation takes considerable time to affect students positively. In fact, Phase I found that implementation difficulties during the first few years prevent a valid assessment of how the innovation ultimately might affect students. However, we believe student effects can be judged four or five years after an innovation formally began (the point at which Phase II assessed projects). Despite methodological reservations, then, this exploratory analysis considered improvements in student performance to be a separate project outcome (i.e., a dependent variable of the assumed system of relationships).

The data analysis also treats continuation as an outcome--but only as one of several. That cautionary distinction is wise, for it would be myopic to regard continuation as the only outcome or even the most important outcome of an innovation. Continuation is not always appropriate or desirable. For example, we observed in the field two opposite possibilities: One, an innovation may be discontinued even

though its other outcomes are notable (perhaps because it has served its purpose or the district is unable to "afford" to sustain the innovation); or two, an innovation may be continued despite poor results (perhaps because the district is subject to political or bureaucratic pressure). For those reasons, continuation should be weighed along with, and sometimes against, other project effects.

By using other outcome measures besides continuation--viz., improved student performance, teacher change, and implementation effectiveness--one can begin to get a sense of tradeoffs among desirable outcomes. For example, it may be, as the Ford Foundation discovered on projects they sponsored, that concentrating a project in one school maximizes gains in student performance but that spreading the project across many schools improves its prospects for continuation.

Thus far we have outlined the components of our data analysis model and why we chose them. We could have used other formulations, however, that would be consistent with our theoretical conception of the process of change. We could have used a "reduced form" approach that conservatively assumes that the "dependent" variables do not affect each other or that we lacked sufficient information to identify their interrelationships in any useful way. This reduced form approach means that the statistical analysis should "estimate" the effect of the factors on each project outcome separately, and then the estimates should be compared.[2] Because this conservative view has considerable merit, Chap. 5's statistical analyses were done in two ways: (1) using the

[2]The reduced form approach can be stated algebraically as:

$$Y_1 = f(X) + \varepsilon_1$$

$$Y_2 = f(X) + \varepsilon_2$$

$$Y_3 = f(X) + \varepsilon_3$$

$$Y_4 = f(X) + \varepsilon_4$$

$$Y_5 = f(X) + \varepsilon_5$$

where the algebraic symbols have the same meaning as in the preceding footnote.

simple recursive model of Fig. 4.1 and (2) using the reduced form that makes no causal assumptions about the relationships among the dependent variables.

However, we could have assumed a more complex causal system--e.g., that implementation caused changes in teaching, and that changes in teaching in turn affected implementation. To test such "simultaneous" relationships, we would need to collect data differently from the way in which we were able to. For example, we would either have to have collected data longitudinally or to have asked respondents to render such difficult retroactive assessments as how much they or their students changed during the first three years of the project as compared with the first two years after the project. Moreover, a fully simultaneous model would have required a sophisticated social science theory so that explanatory variables could be identified: Such theory does not yet exist.

In summary, the absence of a longitudinal data base and of any firm theory meant that it would have been premature and probably specious to assume more realistic but less tractable relationships than those indicated by Fig. 4.1.

MEASUREMENTS OF DEPENDENT VARIABLES

For the purpose of statistical analysis, the dependent variables--the multiple effects of federally funded projects--had to be measured in terms that were comparable across a variety of innovations and institutional settings. We could not use any single "objective" measure of student performance as a test of a project's performance. For example, the use of a standardized measure of achievement gains would have been inappropriate because projects in the Rand sample differed in such dimensions as their educational objectives (e.g., cognitive aims versus affective aims for students), their curriculum areas (e.g., reading versus mathematics), their grade level (elementary versus secondary), and their techniques (e.g., student-oriented individualization techniques versus open classroom approaches).

To obtain comparable measurements, we asked project teachers to assess the generalized effect of the innovation on themselves and on

their students. Their answers may be biased, perhaps tending to overevaluate the teacher's and project's performance, in which case they cannot be considered accurate. For example, the project teachers reported 67 percent as the mean level of achievement of project goals. Outside observers might report a lower figure; but whether or not the figure is biased, little harm was done because no use and no inferences were made from it per se. Our primary concern was not to judge project success but to explain the extent to which various factors affected outcomes. Responses that were systematically "optimistic" but otherwise accurate did not invalidate our approach.

To examine the nature of potential measurement errors in the dependent variables, Phase I included a validation study. Rand observers rated projects in 29 fieldwork sites (about 10 percent of the total sample) using the same instruments as those used by teachers, principals, project directors, and superintendents. The results, which are discussed in Vol. II, show that Rand observers rated projects systematically lower than did the participants. The "absolute" exaggeration or upward bias did not seem to be greater for some types of projects than others. This issue--whether the bias in the dependent variable is (a) only a systematic shift in the answers for all respondents or (b) also includes different amounts of exaggeration by different respondents--is an important statistical issue. If (a) were true, our explanatory type of analysis would be appropriate, within limits; if (b) were true, the validity of the statistical analysis would be questionable. Judging by the results of the validation study, we believe it is reasonable to assume, for exploratory purposes, that the variation in the operational measurements of our dependent variables was not severely contaminated by a general upward bias in the self-assessments.[3]

[3]Validity tests were not pursued in Phase II, except during pretest studies, because of research budget considerations. In the case of severe upward bias, a "ceiling" effect, or artifactual skewness, can cause a variety of errors. For example, the variation at the top end of the scale may be too collapsed to analyze. In preliminary anslysis, we used a variety of transformations and recodings of the data (e.g., using dummy variables) to test the extent of the ceiling

In summary, we used assessments by project participants to obtain comparable measurements of four project outcomes: implementation effectiveness, change in teaching, improvement in student performance, and continuation of the project's methods or materials. The error introduced by these operational measurements cannot be precisely determined, but preliminary tests indicate that the errors are not major enough to invalidate our exploratory analysis. The following section discusses the operational measurements of each of the four types of project outcomes at the classroom level.

Implementation Effectiveness

The Title III projects in our sample addressed a number of different project goals. We selected our Phase II sample to include only those projects that, a priori, could be expected to influence classroom activities and student performance (e.g., we eliminated projects such as cultural enrichment and drug education projects). Yet even within these sampling parameters, the projects display sufficient variation--e.g., from remedial reading to open education to individual mastery learning to programs designed to enhance students' school-related attitudes--to make direct comparisons between specific project objectives meaningless. As an index of effective project implementation, we used a measure of the extent to which projects met their own goals, different as they might be for each project. Specifically, we asked teachers, principals and superintendents to estimate the percentage of project goals that were achieved.[4] This question is obviously

problem; the formulations presented in the text were the most appropriate. In pretesting we found that using a scale of seven (ordinal) categories rather than five categories greatly reduced ceiling effects. Nonetheless, the operational measurements remain subject to this problem.

[4]The specific question and statistics for the distribution of responses were:

(Percent Goals Achieved) *Overall, when you take into account the goals the project started with and the resources it had, about*

open to a number of response biases.[5] For example, the Phase I validation study indicated that district respondents tended to be more optimistic about the project's "success" than were outside Rand observers. This systematic exaggeration was partly idiosyncratic (or random) and partly related to the respondent's position. For example, on the average superintendents rated projects higher than did principals, who in turn rated projects higher than did teachers.

Whatever the reasons for these differing responses might be, two conclusions for analysis follow. First, a measurement of project success that combines the answers of respondents at different levels of the school organization (teachers, principals, and superintendents) would fail to give a valid indication of the effectiveness of project implementation from any level. Second, both Phase I and our fieldwork found that teachers' estimates correspond most closely with those of outside observers. There are plausible explanations for the apparent greater accuracy of teachers in judging the *educational* success of the project. For one, they work in the classroom and can watch project implementation and its results with their own eyes. Superintendents and principals necessarily have a more limited view, and furthermore,

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what percent of its goals would you say the project has achieved?

Teachers		Principals		Superintendents	
Mean	= 68.1	Mean	= 75.9	Mean	= 79.5
Median	= 74.2	Median	= 80.0	Median	= 82.5
Standard deviation	= 24.7	Standard deviation	= 18.3	Standard deviation	= 15.6
# responses	= 891	# responses	= 155	# responses	= 96

Throughout this report, the exact wording of questions and the distribution of responses will be presented in footnotes at the time the variables are first discussed. To identify the variables, their conceptual names are placed before the statement of their question. The respondents, of course, did not have knowledge of the variable names. For almost all variables in the analysis, the questions were designed to have a prima facie connection with the conceptual variable.

[5]The Phase I survey analysis used five alternative measures of implementation effectiveness to test the validity of this question; all five were used in preliminary analysis. Given the problems of comparability, simply asking about the percent of project goals achieved appears to be the most operationally useful measure of implementation effectiveness. See Vol. II, p. 15, for an extended discussion.

are likely to be swerved by bureaucratic and political considerations in their assessments, whether consciously or unconsciously.

For these reasons, we used teachers' estimates as a measure of implementation effectiveness. It is important to understand, however, that this project outcome measure, which we call *percent goals achieved*, should not be seen as a proxy measure for project effect on students or teachers. For example, it is possible for a project--particularly one with narrow objectives--to be highly "successful," perhaps achieving 100 percent of its goals, but have little or no effect on student performance or teacher change. The percent of project goals achieved, then, is only one outcome, and is meaningful only when combined with other measures.[6]

Change in the Pattern of Teaching

Teacher change can have several meanings, with different implications for classroom practice. Some projects, open classroom projects for example, focus primarily on changing the way teachers organize their classrooms and relate to their students. Remedial reading projects, on the other hand, do not primarily address the way a teacher organizes the classroom; instead, the aim is to give teachers new

[6]One reason for using percent goals achieved was to attain a comparable measure across diverse innovations. It would be naive to assume that this measure eliminated all comparability issues, however. For example, although projects differed in difficulty, a project achieving 100 percent of its goals necessarily appears more "successful" than a project achieving 80 percent. To deal with this issue, we followed two procedures. First, as the chapter discusses, we did not equate percent goals achieved with "success," but rather used a variety of measures so that we could compare the effects of different factors (including project inputs) on each dependent variable; thus, Chap. 5 estimates how much "percent goals achieved" affected teacher change, student improvement, and continuation. Second, data were collected from participants to indicate how difficult their project was; Table 4.2 indicates the bivariate correlations of difficulty of project implementation with other dependent variables. This variable was used as a control for all preliminary runs of analyses presented in Chap. 5, but its inclusion did not change the substantive results. In short, we have tried to mitigate the noncomparabilities in our operational measurement of percent project goals achieved.

curricular skills they can use with students having particular learning problems. Furthermore, although a project might have been deliberately planned to introduce specific types of other changes, teacher change might have been an unanticipated consequence. A single measure of "teacher change," then, would be likely not only to mask particular project effects on teacher behavior but would also be of only limited utility in understanding what kinds of teacher change are associated with what kinds of change in student performance.

To differentiate among the dimensions of teacher change, we asked both teachers and principals to assess the extent to which classroom behavior had changed along a number of dimensions. Table 4.1 lists the questions we asked and the distribution of responses.

Our assumption was that these questions spanned different areas covered by different types of projects. To develop a single measure comparable across all types of innovations, we added together the responses of each teacher on four of the questions;[7] we call this operational measure the *total teacher change* caused by the project. Table 4.2, which presents the intercorrelations among the dependent variables used in Chap. 5, shows that the responses to the teacher change variables are highly correlated (ranging from .63 to .40).[8] This high

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[7]The second question in Table 4.1 is more relevant to secondary school teachers; no primary grade teachers answered it. When we took into account the pattern of no responses to this question and to the first question about basic skills, the two questions were highly correlated. Accordingly, we dropped the second question from further analysis.

[8]Except for percent goals achieved, the variables in Table 4.2 are defined from questions that use seven-point scales. These scales are ordinal, but we use them as if they were equal-interval (cardinal) measures because more powerful statistical techniques (viz., multiple regression) can be applied. For a justification for this approach, see Robert P. Abelson and John W. Tukey, "Efficient Utilization of Non-Numerical Information in Quantitative Analysis: General Theory, the Case of Simple Rank Order," *Annals of Mathematical Statistics*, Vol. 34, 1963, pp. 1347-1369.

The use of scale variables in any empirical work can be challenged because the meaning of a scale response to a question may not be comparable across individuals (i.e., "interpersonal comparisons" may not be meaningful). For example, people may give different meanings to the end points or to the "distances" between different parts of the

Table 4.1

QUESTIONS ON TEACHER CHANGE

Teachers were asked the following question: *"For each of the teaching activities listed below, please indicate how much you think you have changed the way you do things. We are interested in all changes, whether or not they were directly intended by the project."*

	Very Large Change						No Change	Number of Responses
Teaching of basic skills (reading, writing and/or math)	12.1%	16.5%	23.5%	16.5%	7.4%	10.6%	13.4%	1057
Teaching of one or more other specific curriculum areas (e.g., social studies, science, art)	9.3	16.0	18.0	15.8	8.9	12.3	19.8	945
Recognizing and attending to individual students' special learning problems	20.3	23.8	22.6	12.0	5.9	6.6	8.8	1021
The way you organize your classroom	17.2	22.6	20.6	13.8	7.4	7.3	11.1	1012
Working with students in the area of affective development	13.3	22.7	24.8	17.4	7.1	6.3	8.4	1004

Principals gave the following frequency of response to the question: *"(For each of the teaching activities below), please indicate how much change you have observed in the way project teachers in general actually do things in their classrooms."*

Teaching of basic skills (reading, writing and/or math)	10.9%	20.5%	32.7%	16.7%	7.7%	6.4%	5.1%	156
Teaching of one or more other specific curriculum areas (e.g., social studies, science, art)	8.4	24.7	30.5	14.3	9.1	6.	6.5	164
Recognizing and attending to individual students' special learning problems	27.1	38.7	20.7	6.5	1.9	1.3	3.9	163
The way teachers organize their classrooms	19.2	37.2	16.7	12.8	6.4	1.9	5.8	165
The way teachers work with students in the area of affective development	17.3	35.3	30.1	9.6	3.2	2.6	1.9	167
	7	6	5	4	3	2	1	

NOTE: The five variables in the teachers' questionnaire have the following names throughout the text: Change in Teaching Basic Skills, Change in Teaching Specific Curriculum, Change in Dealing with Individual Learning Problems, Change in Organizing Classroom, and Change in Dealing with Affective Development.

Table 4.2

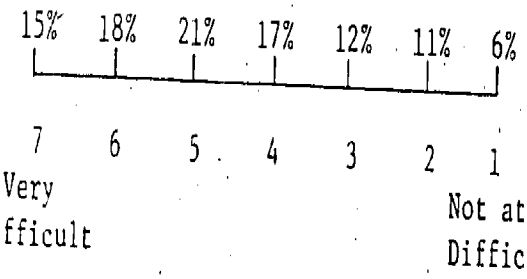
BIVARIATE CORRELATIONS OF DEPENDENT VARIABLES

Variable Number		Variable Number								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	Percent of project goals achieved	1.00								
(2)	Change in teaching basic skills	.32								
(3)	Change in dealing with individual learning problems	.29	.57							
(4)	Change in organizing classroom	.32	.59	.61						
(5)	Change in dealing with aff. dev.	.27	.40	.63	.59					
(6)	Change in student achievement	.52	.36	.33	.26	.20				
(7)	Improvement in student behavior	.49	.25	.32	.30	.34	.61			
(8)	Continuation of project methods	.48	.45	.40	.51	.47	.44	.42		
(9)	Continuation of project materials	.50	.30	.77	.31	.26	.33	.33	.57	
(10)	Difficulty of project implementation[a]	-.25	.10	.03	.05	.06	-.21	-.14	-.06	-.12

NOTE: Number of observations is 812.

[a]This variable was used only in preliminary analysis. The specific question asked of project teachers, and the frequency of their responses, were:

In your judgment, how difficult has this project been to carry out?



Number of responses is 1033.

degree of association probably comes from a combination of a "halo" effect and a valid correlation among the types of changes produced by an innovation. The correlation among these variables is, on the one hand, high enough to indicate that the total teacher change measure makes sense; on the other, it is not so high as to preclude the possibility of discerning different effects from the factors for the different dimensions of teacher change. The next chapter analyzes both total teacher change and each of its components.

Improvement in Student Performance

Change agent projects typically introduce activities and materials new to the district and therefore require time to "settle in" before longer-run effects on student performance can be assessed with any accuracy. For example, teachers acquire and practice new skills or behavior over the course of project implementation. For that reason, we deferred questions about changes in student performance to the Phase II survey.

Change agent projects can aim toward cognitive or affective improvements in student performance, or both.[9] More than three quarters of the teachers in our sample indicated that their projects aimed at both. To measure change in these two dimensions in comparable ways, we asked teachers to assess the relative extent of change in both

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scale. Our approach could be justified by assuming that our respondents' utility functions are approximately cardinal and fairly similar (i.e., the distribution of utility functions has a clear central tendency and a relatively small variance). This assumption may be plausible for many of our variables because the population of teachers is relatively homogeneous and used to dealing with scale variables. More research is needed to test this assumption.

[9] We asked teachers to indicate the student objectives for their change agent project. Specifically, we asked (Improvement in Student Achievement): "*As you understood the project, was it primarily aimed at your students' cognitive development, affective development or both?*" The distribution of the 980 teacher responses was:

Cognitive development only	11.2%
Affective development only	10.2%
Both	78.7%

dimensions.[10] The distribution of responses for both questions is quite varied, but Table 4.2 shows that these measures are highly correlated (.61). As we did with teacher change, we added together the two student change measures to give a single measure, which we call the relative extent of *total improvement in student performance*. Chapter 5 analyzes the combined measure as well as the separate measures of achievement and behavior.

Although the distribution of answers to these questions suggests that teachers were discriminating in their responses, teacher perception of change in student performance is obviously open to a number of biases. Teachers who had invested much time and energy in implementing a project might be reluctant to admit that their efforts were fruitless, which may explain why approximately half the teachers reported that their projects had markedly increased student academic achievement. They may have been right, of course, considering the select nature of the projects in our sample, but such results are strikingly good compared with those reported in the research literature and in evaluations of special projects.[11] (For example, many studies in search

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[10] The specific questions and distribution of the 982 teacher responses were:

(Improvement in Student Achievement) *"What impact has this project had on student academic achievement?"*

5.6%	12.9%	31.1%	19.6%	23.7%	3.1%	1.7%	1.6%	7%
9	8	7	6	5	4	3	2	1
Much higher achievement				No change				Much lower achievement

(Improvement in Student Behavior) *What effect has this project had on student attitudes or behavior?"*

9.9%	17.7%	27.3%	20.4%	17.3%	2.9%	2.8%	1.2%	0.6%
9	8	7	6	5	4	3	2	1
Very positive effect				No effect				Very negative effect

[11] Volume I provides an extensive review of the literature.

of "successful" projects among a sample of candidates have been able to identify a number that only barely exceeds what would be predicted by chance.) Nonetheless, teacher responses varied widely, which indicates that it would be fruitful to analyze the *sources* of variation and the relationship to other project outcomes.

This measure is also open to measurement error because it reflects teachers' perceptions of student change, not objective, standardized test results. For example, there is a sizeable literature that suggests that teachers systematically give higher marks to middle-class or "social conforming" students. Even so, we believe that teachers' perceptions are useful for at least two reasons. First, since project objectives differed widely, between-project comparisons of student gains on standardized instruments are not meaningful. A comparison between one stanine's growth in math achievement and a ten percentile gain in reading proficiency, for example, tells us little. Teacher assessments of project-related student gains, however, permit us to assess relative if not specific differences in project effects on students. Second, it can be argued that teachers' estimates of student gains measure more enduring or comprehensive project effects than can standardized achievement or attitude measures.[12] Because of their close involvement with their students, teachers are likely to make an integrated assessment that represents solid student gains, not simply enhanced test-taking facility. Further, it is to be expected that teachers draw on standardized student outcome measures in making their assessments. Teachers' perceptions probably derive from a synthesis of information about change in student performance from a number of sources; consequently, it can be argued that their perceptions more accurately represent solid improvement in student performance--in reading skills, for example, as opposed to narrow gains in vocabulary, which may prove ephemeral.

In summary, although teacher measures of student gain are subject to a number of response biases and comparability problems, it seems

[12] For a review of the literature, see H. A. Averch et al., *How Effective Is Schooling? A Critical Review and Synthesis of Research Findings*, The Rand Corporation, R-956-PCSF/RC, March 1972.

reasonable to assume for the purposes of exploratory analysis that these difficulties do not invalidate our analysis.

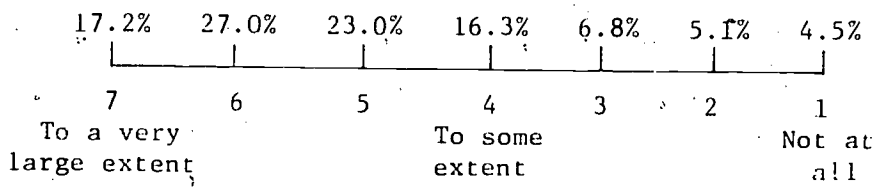
Project Continuation at the Classroom Level

If one asks a school official, "Has this project been continued?", the answer would likely be, "Yes." But if one probes or visits classrooms, a more differentiated view emerges; the extent to which project methods or materials continue to be employed can vary enormously. Sometimes continuation is no more than pro forma; perhaps the innovation's methods are wholly or mostly discarded, but the materials continue to be used, at least to some extent. Other projects are fully continued; the staff have assimilated the project's methods and employ them extensively in their teaching. Therefore, in choosing the Phase II survey sample of purportedly continued projects, we assumed that the true extent of continuation would vary.

This assumption was accurate. The survey asked teachers to estimate the relative *extent* to which they were *currently* applying the basic ideas and methods of the project in their classrooms. ("Currently," in this context, meant two years *after* the end of federal funding for most teachers in the sample.)[13] The distribution of responses varied, as expected: 17 percent indicated they were continuing the project to a "very large extent" (the highest point in our seven-point scale), and 5 percent indicated they were not continuing the project's methods at all. Teachers were also asked about their current

[13]The specific questions and distribution of the 980 teacher responses were:

(Continuation of Project Methods) *"To what extent are you presently applying the basic ideas and methods of the project in your classroom?"*



Notice that this question deals not with official continuation of the project *qua* project but with continuation of the project's content.

use of the project's materials because materials can be continued with or without the project's methods.[14] Again, the responses varied widely: 19 percent indicated they still used all of the project's materials, and 15 percent indicated they were using none. These measures constitute our operational definitions of continuation at the classroom level.[15] The statistical analysis in Chap. 5 explores why some teachers continued their projects extensively and others did not.

We interpret these measures, particularly the question about methods, to represent the degree of the teacher's assimilation of the project's precepts. One test of the validity of this interpretation is to compare the teachers' responses to the question about their *current actual* use of the project with their *inclination* to use the innovation elsewhere were they to take a different teaching job.[16] If

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[14]The question and distribution of the 1002 teacher responses were:

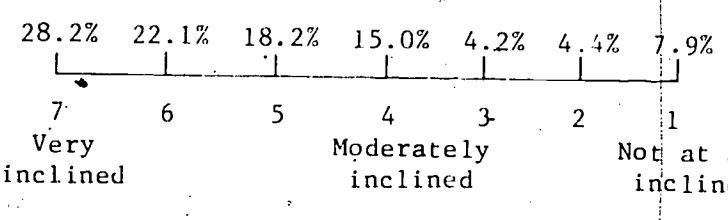
(Continuation of Project Materials) *"What proportion of project materials are you now using in your classroom?"*

All of them	18.6%
Some of them	32.6%
A few of them	23.2%
None of them	14.6%

[15]Table 4.2 shows that the extent of continuation of the project's methods was correlated .57 with the continuation of project materials. We expected these measures to be highly correlated; however, they are not so highly correlated as to prevent a separate analysis of each measure.

[16]The specific question and distribution of the 1016 responses were:

(Inclination to Continue Project) *"If you were to take a teaching job in another school or district that had not tried this project, how inclined would you be to try to implement its methods in your classroom?"*



teachers continued to use the project's methods solely to conform to school policy, we would not expect their current use to be positively related to their inclination. But the correlation is an impressive .61.[17] This degree of agreement supports the interpretation that our continuation measure represents a surrogate for the teacher's assimilation of project precepts.[18]

As another test of validity, we asked principals to give us their opinion about whether the project at their school would eventually die out or would become integrated into the teachers' classroom practices.[19]

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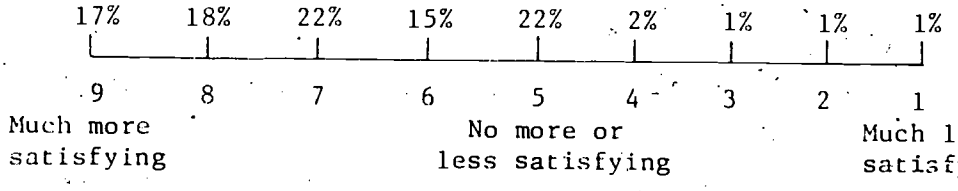
[17] It is interesting that continuation of materials is correlated .43 with the teachers' inclination to continue them elsewhere. We wonder if this lower correlation (compared with the .61 correlation for methods) reflects the possibility that materials are more likely than methods to be continued by teachers because of official school policy.

[18] The survey also asked teachers to indicate the extent to which their involvement in the project had made their job more (or less) satisfying. The variable was correlated .57 with continuation of project methods and .37 with continuation of project materials. These results offer further support for the validity arguments made above. The specific question and distribution of the 992 responses were:

(Job More Satisfying) *"Would you say your involvement in the project has made your job more satisfying?"*



[19] (School Continuation) *"Over the next few years, which (of the following) possibilities do you think is most likely to happen with respect to project methods among teachers at this school?"*

The methods will be dropped	2.0%
Some or all of the teachers will use project methods; but methods will not be used extensively	48.4%
Some or all of the teachers will use project methods and they will generally be used quite extensively	49.7%

(Number of responses = 98.) The 50-percent "continuation rate" should *not* be considered as representative of all Title III projects; our sample is not a random sample but highly selected toward purportedly continued projects. Thus, one would guess that the continuation rate of all Title III projects would be considerably below 50 percent. We

The split between the two "futures" was about even. By averaging the answers of teachers at a school to the question of continuation of project methods, we arrived at a rough estimate of the correspondence between, on the one hand, the principal's sense of the stability or endurance of the innovation over time and, on the other hand, the teachers' statements about how extensively they were using the project's methods. The average score of the teachers' answers seems to be significantly higher for the group of enduring projects than for projects the principal believed would eventually die out.[20] Though this evidence is far from a conclusive test of validity, it lends credence to the assumption that the teacher's statement about the extent of their current use of project methods represents a measure of the project's longer-term use--that is, a measure of the project's assimilation into the staff's standard pedagogical repertoire.

In conclusion, the operational measurements of continuation at the classroom level--the extent of teachers' use of the project's methods and materials some two years after the end of federal funding--seem valid for exploratory purposes.

SCOPE AND LIMITATIONS OF THE FINDINGS

This study addresses complex and difficult issues. It aims to identify a set of factors that determine the continuation of innovations after federal funding ends, and to do so for a wide range of innovations in diverse local settings. The absence of a well-defined theory of the process of educational change means that our findings cannot be treated as definitive. Moreover, our sample, which was

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suspect that, even for our sample, 50 percent might be optimistic. (Note, however, that an upward bias on the part of teachers should not seriously affect the analysis using the arbitrary seven-point scale of relative extent of continuation.)

[20] Using a seven-point scale (with "to a very large extent" assigned a seven), the average score of the (average) teacher answers within a school was 5.9 for projects in which the principal thought the teachers would continue to use the project's methods extensively; the score for the other group was 4.2 The "difference" of these means appears to be significantly higher. However, the statistical test is not straightforward because of the different number of teachers represented for each project.

selected to focus on continuation, is not representative of all Title III projects, let alone of all innovative projects. Consequently, the generalizability of our results can be questioned. To achieve comparability across authors and projects, we measured project effects and continuation on "content-free" scales. Such measurements are open to validity problems. Finally, the data analysis model makes simplifying assumptions in order to examine systematically the complex relationships among factors affecting change agent projects. These caveats should be kept in mind as the reader considers the results of Chaps. 5 and 6.

Despite these caveats, we believe the findings sufficiently valid to be used by policymakers and researchers.

Chapter 5
FINDINGS AT THE CLASSROOM LEVEL

Why are some innovations effectively implemented and continued while others fall short of their original promise? What characteristics of innovations and of their host school districts explain the disparate experiences and outcomes at the classroom level? The preceding chapters provided the groundwork for examining these questions. Here we present statistical analyses, along with interpretations based on fieldwork experience, that explore answers to these questions at the classroom level.

This is a long chapter. Consequently, following a brief statistical preface, we present an overview of the findings to equip the reader with a guide to the subsequent discussion.

STATISTICAL PREFACE

Tables 5.1, 5.2, and 5.3 present the results of a statistical analysis designed to explore the extent to which the factors identified in Chap. 2 account for the variation in project effects and continuation. Using the simple causal model discussed previously, we ran a series of multiple regressions that relate operational measurements of the various factors to our measures of project effects and continuation.

The first column of Table 5.1 displays the average effect of each factor on implementation effectiveness--i.e., the teachers' assessment of the percentage of goals the project achieved--controlling for the presence of the other factors. The statistic representing these effects is a standardized regression coefficient, which denotes an estimate of the relative weight (ranging from -1 to +1) that each factor has on the dependent variable for our data.[1]

[1]The standardized regression coefficient is used in these tables and elsewhere in this report as an aid to interpreting the regressions. It can be deceptive, however, particularly when dummy variables are used (Table 5.1 has three dummy variables: Overall

Table 5.1

FACTORS AFFECTING PROJECT EFFECTIVENESS AND CONTINUATION: REDUCED-FORM REGRESSIONS FOR MAJOR DEPENDENT VARIABLES

Independent Variable	Standardized Regression Coefficient for: Percent Project Goals Achieved	Total Teacher Change	Total Student Improvement	Continuation of Project Methods	Continuation of Project Materials
Project Characteristics					
Federal funding level of project	.01	.06	-.03	.01	-.06
Educational method					
Individualization techniques	.03	.03	.02	.02	.09*
Classroom organization change	.03	.09**	-.03	.08*	-.08*
Curriculum revisions	.08*	-.02	.08*	-.02	.07
Community involvement	-.09**	.09**	.04	.05	-.04
Use of specialists	-.02	-.01	-.07	.01	-.01
Scope of proposed change					
Overall change required in teaching	-.00	.10***	-.00	.07	.08*
Extra effort required of staff	-.00	.12***	-.03	.13***	.18***
Specificity of goals	.17***	.05	.09**	.11***	.12***
Implementation strategies					
Number of project schools	.04	-.03	.04	.0	.2**
Funding per student	.04	.02	.09*	.02	.3
Staff paid for training	.11**	.02	.10**	.05	.02
Training received	.12***	.06	.13***	.10**	.05
Classroom assistance	.11**	.08*	.14***	.09*	.02
Consultants	.10**	.10**	.08*	.01	.04
Observation of other classrooms	-.04	.04	.06	.03	.09**
Project meetings	-.07	.02	.02	-.03	-.04
Participation in project decisions	.09**	-.01	.01	.12**	.10**
Institutional Setting					
Organizational climate and leadership					
Quality of working relations	.24***	.05	.07	.13***	.17***
Principal support	.11**	.03	.13***	.12***	.09**
Project director effectiveness	.25***	.00	.12***	.03	.03
School characteristics					
Elementary school	.11**	.08*	-.03	.02	.0
School size	.11**	.03	-.0	-.03	.01
School socioeconomic setting	.04	-.08	-.02	-.02	.04
Teacher characteristics					
Efficacy	.14***	.11**	.27***	.14***	.08*
Experience	-.13***	-.15***	-.0	-.07	-.01
Verbal ability	-.02	.04	.**	.05	.06
R^2	.20	.30	.39	.16	.32
Number of observations	499	499	499	499	499

NOTE: Significance for a standard two-tailed t-test:

* = .10 level; ** = .05 level; *** = .01 level.

Table 5.2

FACTORS AFFECTING PROJECT EFFECTIVENESS AND CONTINUATION: REDUCED-FORM REGRESSIONS FOR SECONDARY DEPENDENT VARIABLES

Independent Variable	Change in Teaching Basic Skills	Change in Dealing with Individual Learning Problems	Change in Organizing Classroom	Change in Dealing with Affective Development	Improvement in Student Achievement	Improvement in Student Behavior
	Standardized regression coefficient for:					
Project Characteristics						
Federal funding level of project	.10**	.04	.04	.02	-.00	-.05
Educational method						
Individualization techniques	.08*	.03	.04	.09**	.05	-.02
Classroom organization change	.07	.02	.12***	.07	-.10**	.04
Curriculum revisions	.04	-.06	-.01	-.04	.08*	.06
Community involvement	-.02	.08*	.09*	.15***	-.05	.09**
Use of specialists	-.11**	-.03	.02	.11**	-.04	-.08*
Scope of proposed change						
Overall change required in teachers	.10***	.11***	.16***	.13***	-.06	-.05
Extra effort required of staff	.11**	.12***	.17***	.14***	-.01	.04
Specificity of goals	.04	.09	.04	.03	.11***	.05
Implementation strategies						
Number of project schools	-.02	-.06	-.03	.03	-.01	.08*
Funding per student	.02	.05	.05	-.06	.06	.09**
Staff paid for training	-.01	.01	.01	.03	-.13***	-.04
Training received	.04	.10**	.03	.02	.11**	.14***
Classroom assistance	.06	.06	.08*	.06	.14***	.11***
Consultants	.02	.04	.10**	.10**	.09*	.06
Observation of other classrooms	.04	.02	.03	.04	.04	.01
Project meetings	-.00	-.00	.02*	-.00	-.03	.01
Participation in project decisions	.04	-.01	0.03	-.03	.01	.00
	.09*	.06	.20***	.16***	.23***	.20***
Institutional Setting						
Organizational climate and leadership						
Quality of working relations	.04	.02	.01	.08**	.05	.07
Principal support	.00	.04	.04	.01	.16***	.07
Project director effectiveness	.01	.01	-.06	.07	.09**	.12**
School characteristics						
Elementary school	.11**		.02	.04	-.02	-.03
School size	.01		.00	.03	-.03	-.04
School socioeconomic setting	-.09**	-.04	-.06	-.04	-.02	-.03
Teacher characteristics						
Efficacy	.12***	.08*	.07*	.09**	.21***	.25***
Experience	-.11**	-.17***	-.07	-.14***	.06	-.09**
Verbal ability	.08*	.03	.04	-.04	.15***	.06
R^2	.23	.21	.26	.23	.35	.33
Number of observations	499	499	499	499	499	499

NOTE: Significance for a standard two-tailed t-test:

* = .10 level; ** = .05 level; *** = .01 level.

Table 5.3

FACTORS AFFECTING PROJECT EFFECTIVENESS AND CONTINUATION: RECURSIVE REGRESSIONS

Independent variable	Standardized Regression Coefficient for: Percent Project Goals Achieved	Total Teacher Change	Total Student Improvement	Continuation of Project Methods	Continuation Project Materials
Project Characteristics					
Federal funding level of project	.03	.00	-.05	-.02	-.08*
Educational method					
Individualization techniques	.03	.03	.01	.01	-.01
Classroom organization	.03	.09**	-.06	.05	-.11**
Curriculum revisions	.08*	-.05	.07	-.02	.06
Community involvement	-.09**	.11**	.05	.03	-.05
Use of specialists	-.02	-.01	-.07	.01	-.03
Scope of proposed change					
Overall change required in teaching	-.00	.17***	-.03	.00	.06
Extra effort required of staff	-.00	.17***	-.06	.08*	.16***
Specificity of goals	.17***	.03	.04	.07	.11**
Implementation strategies					
Number of project schools	.05	-.03	.04	.08*	.12***
Training per student	.04	.01	.08*	.01	.02
Staff paid for training	-.11**	.05	-.07	.06	.05
Training received	.12***	.05	.09**	.07	.02
Classroom assistance	.11**	.07	.11**	.05	-.02
Consultants	.10	.08*	.05	-.05	.01
Observation of other classrooms	-.03	.05	.05	.02	.10**
Project meetings	-.07	.03	-.00	-.03	-.03
Participation in project decisions	.09**	-.02	-.01	.05**	.08*
		.18***	.09**	.15***	.12** .11**
Institutional Setting					
Organizational climate and leadership					
Quality of working relations	.22***	.02	.00	.09*	.10**
Principal support	.11**	.02	.10**	.11**	.07
Project director effectiveness	.25***	-.04	.05	-.01	-.04
School characteristics					
Elementary school	.11**	.07	-.07	-.03	.03
School size	.11**	.01	-.08*	-.06	
School socioeconomic setting	.04	-.08*	.02	.01	
Teacher characteristics					
Efficacy	.14***	.09**	.22***	.08*	
Experience	-.13***	-.13***	-.03*	.00	
Verbal ability	-.02	.04	.13***	.06	
Endogenous variables					
Percent project goals achieved	--	.15***	.25***	.17***	.20***
Total teacher change	--	--	.18***	.38***	.16***
R^2	.50	.31	.26	.47	.37
Number of observations	499	499	499	499	499

*: Significance for a standard two-tailed t test:

* = .10 level; ** = .05 level; *** = .01 level.

For example, the first entry in the first column is .03, which indicates the relative increase in implementation effectiveness that would result from a one standard deviation increase in project funding level. This amount of change is relatively small. Indeed, considering the random error this sample of projects is subject to, this effect is not significantly different from zero (the asterisks in Table 5.1 indicate that a variable is significant for a standard 2-tailed t-test).[2] In other words, controlling for the other factors and assuming the basic theoretical structure is correct, the data suggest that the following hypothesis should be seriously entertained: the funding level of a project has a weak and not significant influence on implementation effectiveness.

The percentage of variation, R^2, explained in the dependent variable "Percent Project Goals Achieved" by all the factors listed in Table 5.1 is .50, which is a high level for this type of survey data. The number of observations (teacher responses) used in the regression of col. 1 is 499, the same figure used for all the

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Change Required in Teaching, Staff Paid for Training, and Elementary School). Appendix A presents the actual regression coefficients and standard errors for these data; it displays the means, standard deviations, zero-order correlations, and partial correlations of variables used in Tables 5.1, 5.2, and 5.3. Appendix B presents an analysis of covariance of teacher responses for each of the variables used in the tables; the analysis partitions the teacher variance into the part explained by the teacher's school or by the teacher's project.

[2]To simplify the presentation of statistical material, the tables indicate only whether a coefficient is significant at the .01, .05, or .10 level (for a standard 2-tailed t-test), instead of displaying more detailed information, such as the coefficient's probability-value. Judgments about statistical significance should not be made mechanically. Nonetheless, for our data, a significance level of .01 represents a relatively "sure bet" that the coefficient is different from zero; a significance level of .10 is on the borderline and, in these instances, we use both statistical and nonstatistical information to arrive at a balanced judgment. Testing whether a coefficient is significantly different from *zero* is not always the relevant issue. For example, we will occasionally be interested in testing whether one coefficient is different from another, or whether the addition of one or more variables to a regression significantly affects the results. Though the text will not display the diverse statistical testing done in these cases, footnotes will supply relevant information.

regressions in Tables 5.1, 5.2, and 5.3. This number is far less than the total number of teacher responses (1072) because we deleted any respondent who did not answer any one of the questions associated with the dependent or independent variables. This use of a reduced sample did not seem to bias the findings significantly.[3]

Each column in these tables presents the findings of regressions for each of the dependent variables discussed in Chap. 4. Though the independent variables (or factors) listed in the tables were introduced in Chap. 2 in conceptual terms, most of their operational measurements were not. We will describe the specific measurements when the findings for each independent variable are discussed and interpreted.

Table 5.2 differs from Table 5.1 in that the latter presents results for the major dependent variables--implementation effectiveness (percent project goals achieved), total teacher change, total student improvement, continuation of project methods and continuation of project materials--whereas Table 5.2 presents results for the components of total teacher change (in teaching basic skills, dealing with individual learning problems, organizing the classroom, and dealing with affective development) and the components of total student improvement (in achievement and behavior). Both of these tables have the label "reduced form regressions" in their titles to distinguish them from Table 5.3, whose regressions follow the "recursive" model described in Chap. 4. A reduced form simply means that the dependent variables are assumed to depend only on the

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[3] It is generally regarded as good statistical practice to delete a respondent from the analysis if the respondent had a missing value on an independent variable used in a specific regression; the alternative procedure of "simulating" the missing answers can create more bias than it eliminates. However, since each regression in the above tables was run independently of the others, there was no statistical reason to delete observations from one regression because of a missing value in a dependent variable of another regression. Nonetheless, we followed this procedure--and therefore have the same number of observations for each regression--to save computer costs. Extensive use of preliminary versions of the models used by the tables indicated that the pattern of significance varies very little for the larger samples.

independent variables; in a recursive model the dependent variables depend on both independent and dependent variables (according to the structure outlined in Chap. 4).

More specifically, the first column (stub) of Table 5.3 is the same as that in Table 5.1. The second column of each table includes the same independent variables, but Table 5.3 also has the percent project goals achieved (implementation effectiveness) as an "independent" variable. The third, fourth, and fifth columns of both tables have the same independent variables, but Table 5.3 lists percent project goals achieved and total teacher change as additional "independent" variables. The subsequent discussion of the findings revealed by these regressions compares the results using the reduced form with those using a recursive system in order to explore these complex effects more fully.

For the same reason--to develop a richer understanding of a complex reality--a variety of subanalyses and statistical tests were performed involving variables related to the independent variables used in the regressions of Tables 5.1, 5.2, and 5.3. These additional analyses will be referred to when we interpret the substantive meaning of the regression for each independent variable.

For the sake of brevity, we will not hereafter repeat or dwell on the formal meaning of each statistic. Nor will we reiterate the appropriate caveats about the nature of our data and methods. Nonetheless, the reader should keep in mind that this is an exploratory analysis.

OVERVIEW OF FINDINGS AT CLASSROOM LEVEL

The detailed findings and interpretations presented below follow the structure of Tables 5.1, 5.2, and 5.3. The effects of the three groups of factors--federal input, project characteristics, and institutional setting--on the various measures of project implementation and continuation will be discussed in turn. This presentation discusses each set of variables at some length; therefore, before proceeding with detailed interpretations, we offer the following overview of the findings.

Federal Input

Differences in the amount of Title III funding had little consistent or significant effect on project outcomes or on continuation. Although federal money clearly mattered to local school districts in a number of ways--particularly, their ability to undertake a project at all--any change wrought in district practices depended on what the district did with the funds, not on dollar amou

Project Characteristics

Educational Method. The educational method or technique of an innovation had little effect on project implementation, outcome, and continuation. Because of differences in project implementation strategies and in local institutional factors, similar methods produced dissimilar results across sites. Generally speaking, therefore, no one method was more likely than another to fulfill its promise, particularly in the long term. In terms of the "success" of a federal investment, then, it mattered less what the project was than how it was carried out.

Scope of Proposed Change. Projects attempting a broad scope of change were not more or less likely to break down, and were somewhat more likely to be continued, than were less ambitious or more narrowly defined projects. Indeed, projects that required significant change in overall teaching style and that called for extra effort on the part of staff induced significantly more teacher change. Ambitious projects therefore were not a "liability" from a funding point of view. Clarity of project goals was important in the implementation of all projects, however, particularly those attempting a broad scope of change. For such projects, staff uncertainty about what they were expected to do generated severe implementation problems and contributed to project demise once federal funding ended. Clarity of goals could not be "given" to a project staff at the outset, however; it had to be achieved in the course of implementation.

Implementation Strategies. The implementation strategies chosen for a project strongly affected its outcome and its continuation. In

particular, well-conducted training in how to use project methods and materials enhanced implementation and improved student performance. (The quality of training, not the quantity, made a major difference.) Even good training appeared to have only short-term effects, however, unless it was given in combination with staff support activities. Specifically, when activities such as assistance in the classroom, the use of outside consultants, classroom observation, and staff meetings were done effectively (especially by giving practical support), they provided the feedback and timely assistance the staff needed in adapting project strategies to their own classrooms. Such assistance also helped create the climate and moral support necessary to motivate teachers to expend the effort that made projects work. The cruciality of well-executed staff support activities was evident in the strong positive effects they had, as a group, on all the dependent variables: percentage of project goals achieved, teacher change, improved student performance, and continuation of project methods and materials.

Teacher participation in project decisions enhanced implementation and heightened the chances for continuation. It did so because it promoted a "sense of ownership," especially when the staff developed part or all of their own materials.

Pay for training did not contribute to continuation and, in fact, was negatively related to the percentage of project goals achieved and total student change.

The local allocation decisions that are part of project implementation--that is, the number of project schools and the funding level per student--generally had no significant relationship to project outcome or continuation. (There were two exceptions: More concentrated funding per student was positively associated with improved student performance; and the greater the number of project schools, the higher was the proportion of project materials continued.)

Institutional Setting

Organizational Climate and Leadership. Leadership was a vital

factor at both the school and the project level. Effective implementation required a good project director and a supportive school principal. But continuation depended less on having had an effective project director than on the early and lasting support of principals. The organizational climate of the project--the quality of working relationships--strongly affected the percentage of goals achieved and project continuation.

School Characteristics. The *type* of school had little or no relationship to project outcome or continuation. The exception to this general finding was the difficulty encountered by secondary school projects both in achieving effective implementation and in promoting teacher change.

Teacher Characteristics. Teacher characteristics had major effects on project outcomes. Above all, teachers' sense of efficacy emerged as a powerful explanatory variable; it had major positive effects on the percentage of project goals achieved, improved student performance, teacher change, and continuation of project methods and materials. The teacher's years of experience, in contrast, had a consistent negative relationship to project outcomes; experience was negatively related to the percentage of project goals achieved, teacher change, and student improvement. The teacher's verbal ability was positively associated with improved student performance, but otherwise did not affect implementation, teacher change, or continuation.

In the pages that follow, we elaborate on each of these findings in turn. A more detailed summary appears at the end of the chapter.

FEDERAL INPUT TO CHANGE AGENT PROJECTS

As Chap. 2 suggested, money is the primary federal input in Title III projects. The quantitative analysis of this section explores only one aspect of the role of federal money--namely does the *amount* of "seed money" matter for project effect and continuation at the classroom level? Because this chapter focuses on

classroom effects, we must defer until Chap. 6 an analysis of some of the issues concerning how *districts* use federal money. Nonetheless, the information provided here about the relationship between the level of project funding and changes in project outcome provides clues to larger questions about federal policy.

The evidence suggests that, within the broad range of funding levels in our sample ($10,000 to $350,000 for the year of highest funding), differences in funding had little effect on project results.[4] In particular, the first rows of Tables 5.1 and 5.3 show low and insignificant regression coefficients across all our measures of outcomes: the percent of goals achieved by the project, the amount of teacher change resulting from project participation, improvement in student performance, and continuation of project methods or materials. More expensive projects, in other words, were no more likely than less expensive ones to be implemented effectively, to lead to change, or to be continued at the classroom level. If any significant effect of the level of funding can be discerned at all, it would be a negative tendency for continuation of project materials (the coefficient of funding for continuation of project materials is -.08 and is almost significant at the .10 level in Table 5.3).[5] That is, more heavily funded projects had a slight tendency to have their materials discontinued by project participants after the end of federal funding. We observed this case in the field in situations, for example, where school districts had adopted, on a large scale, curriculum packages such as SWRL

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[4]The variable used for funding level in these regressions is the largest yearly amount of funds for the project from all grants, as Chap. 3 described. Its distribution is highly skewed for our sample, with most projects funded at about $100,000 to $120,000 in their year of highest funding. To compensate for this skewness, the logarithm of the variable is used in all regressions.

[5]Table 5.2 shows that the funding level is significantly positively related to change in teaching of basic skills. This effect comes from heavily financed remedial projects located primarily in Title I elementary schools. Their pedagogic approach emphasized individualization techniques and made extensive use of paid aides for the teacher.

(Southwest Regional Lab); whether or not other components of these projects remained, the package materials often fell into disuse in the classroom.

Aside from this reservation, there is an important implication of the finding that the level of funding--or the size of the "seed"--did not have a significant effect either on project implementation or continuation in the classroom: Not the *amount* of funds, but what the local staff *do* with these funds, significantly affects project outcomes.

To put this finding into perspective, three qualifications must be remembered. First, the measures of continuation analyzed in this chapter reflect teachers' choices about using project methods or project materials, and those choices may or may not accord with the district's decision on continuation. Teachers may elect to continue part or all of project strategies with or without district support. Thus, even though a shift in district economic fortunes may have forced district officials to revise their original expectations concerning Title III project continuation (as the recent complaints of local administrators would suggest), teacher continuation decisions are not necessarily coincident.

Second, it could be that the *level* of funding had "indirect" effects on project outcomes that are not revealed in the analysis. For example, the availability of more money might have *consistently* resulted in a set of design choices for an adopted project and these choices, in turn, might have had major implications for implementation and continuation. However, the evidence does not warrant an inference of any powerful indirect effects.[6] Higher funding

[6]The low partial correlations between level of funding and the dependent variables controlling for the independent variables might be due to the multicollinearity between funding and the independent variables. However, the percentage of variation in level of funding explained by the other variables is only 26 percent; most of that variation is accounted for by the factors discussed above. Moreover, the highest zero-order correlation between any of the dependent variables and level of funding is only .11. See Table 2 of Appendix A.

levels are somewhat associated with project characteristics. For example, the larger Title III grants tended, not surprisingly, to be awarded to larger districts, to fund projects in a greater number of schools, or to fund projects that spent more money per student. The larger grants also tended to support a particular educational method--individualized techniques. In this case, federal funds typically were used to hire the teacher aides necessary to individualizing classroom activities. Aside from these relationships, however, the level of funding was not strongly related to other factors. Thus, it would appear--with the exception of individualization techniques--that "more" money does not necessarily purchase those things that matter; e.g., it does not "buy" more or better staff training, more ambitious projects in terms of scope of change, more effective project directors, and so on. The low association between funding and other factors thus reinforces the conclusion drawn from the evident low correlation between funding levels and project outcomes. Namely, local decisions concerning resource allocation and implementation activities--not amount of funding available--are prime determinants of the effect of the federal investment.

Third, the foregoing should not be interpreted as meaning that "money doesn't matter." Our sample consists only of projects that received federal grants; although systematic analysis of the effects of the presence or absence of federal funds is thus precluded, our fieldwork strongly suggests that special outside funding does matter to local districts in a number of ways. For one, federal seed money clearly allows districts to undertake activities that staff are anxious to pursue but that cannot be supported out of district funds. For example, Title III funds have been used to expand and refine teacher-initiated pilot projects for more general incorporation in district operations. Federal grants have also served as "start-up" funds for new teaching practices, many of which require substantial initial investment in hardware or staff development. In short, many local projects would not have gotten off the ground without Title III funding. Federal funding also bestows legitimacy on a local project and gives it the aura of "special status," which can serve at least

two functions: one, a "Hawthorne effect" that promotes enthusiasm for trying something new, and two, some measure of "protection" for politically controversial or pedagogically untested educational strategies.[7]

Federal money, then, does matter to local districts, but whether it ultimately "makes a difference" depends on how districts use it. (Chapter 6 returns to these issues in its discussion of school district decisions.)

PROJECT CHARACTERISTICS

The initiation of an innovation produces an adopted project, consisting of a series of decisions about what is to be done and how to do it. We find it convenient to divide project characteristics into its educational method (also called the project treatment or instructional technology), its scope of proposed change, and its implementation strategies. This section's main task is to analyze the effects of these characteristics on the project's outcomes and continuation.

The project's initiation also results in a second "product": The central office staff, principals, and teachers develop attitudes toward the project that seem to be crucial for its eventual outcome. These attitudes are difficult to measure, particularly several years after the project began. They are nonetheless so important that we will briefly explore some of their effects before analyzing the effects of other, more measurable, project characteristics.

Attitudes Formed During Mobilization

A school may take up a federally funded innovation because it chooses to or because the district "asked" it to. How does the school's and the staff's original involvement in the innovation affect project outcomes?

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[7] Teachers and project directors also report that the contractual nature of the grant award is an incentive for staff to "keep trying" when under other conditions they would give up or not put forth the extra effort.

Of the projects in our sample, 20 percent were originated by the teaching staff at a school. More typically, district officials decided on a project and then asked schools to participate in it (54 percent of the schools in our sample were chosen in this way; 16 percent of the schools were part of a project that was implemented in all schools in the district; and 20 percent of the schools actively sought to be in the project). We found that schools that had originated the project tended to have a more than average likelihood of effectively implementing it; this positive effect was not very strong, however, nor was it significantly different from schools that, according to their principals, had actively sought participation in the project.[8] Moreover, continuation and teacher change were not significantly different in schools that had originated the project from what they were at schools that had been asked to participate. Thus, the aggregate of school level evidence suggests that "who" originated a project does not matter for its outcomes.

This finding is surprising. One would think that originating schools would be so highly motivated that they would produce better results than those in projects started by district officials. They did not, for two reasons. On the one hand, some originating schools did not seem to generate support for the project from the central office. On the other hand, some innovations begun by the special project staff in the district overcame the initial skepticism and resistance of principals and teachers. In short, the origin of a project seems to matter less than the institutional support mobilized during the initial planning period. Let us review the patterns of mobilization that we described in our earlier research.

Phase I of this study found that federally funded projects differed dramatically in the seriousness with which they were initiated: Many were started essentially to take advantage of federal dollars, not to cope with a problem or need of central importance to the district. Such opportunistic projects usually failed to be

[8] Where these variables are entered in the regressions of Table 5.1, their effects are not significant on any of the dependent variables.

implemented effectively and tended to disappear with the end of federal funds; most such projects were removed from our survey sample.

Even when the district's intent was serious, the way in which project support was generated in the school system varied considerably from district to district. Sometimes project planning took place at the central office level without involving school building staff--particularly staff who were selected to implement the project. Such "top-down" planning, even with the best intentions, typically met with indifference or resistance from the school staff. One teacher made the revealing comment that, "This project hasn't worked out and its main effect has been to cause a close, well-organized faculty to turn to distrust each other. This was the result of forcing a program on a school, using an outside coordinator unfamiliar with the school and faculty, and not having the full support of teachers. I personally felt the project ideas were good and could have worked if the teachers in our school had been involved in the planning." Or, as another teacher in an unsuccessful project complained, "The project was planned and designed without the knowledge and consent of the teachers at the school . . , the planner had hardly ever been to our school." Conversely, some projects were conceived and planned at the "grass roots" with only cursory review by the district federal program office. This style of project planning also failed to generate the necessary broad-based institutional support.[9] As we have noted elsewhere, central office support is crucial, especially during the demanding first year or so of implementation. As one respondent put it, "The superintendent had better believe in the project--give his personal backing and support. Teacher confidence is essential; teachers should see in the beginning that top administration believe [in the project] and are committed to it."

[9] In our sample, the correlation between the principal's perception of the extent of district support for the project and whether the project was originated or had been actively sought by the school was .05 and -.14, respectively.

Finally, we observed, in several cases, a pattern of early district planning that we call full mobilization. These projects actively engaged the staff from the preproposal period to implementation, and gained consensus and commitment from teachers and principals.

The survey could not reliably measure these patterns of mobilization. Instead, to explore the effects that early motivations might have for project outcomes, we asked principals to estimate the proportion of project teachers who felt strongly committed to the project in the first year.[10] Their answers provide a crude measure of teachers' overall initial commitment.[11] This measure had a positive relationship--and indeed consistently had the highest relationship of all factors at the school level--to the principal's assessment of various project outcomes (e.g., percentage of goals achieved, change in teachers, and change in school organizational patterns). Moreover, the principal's assessment had a marked positive correlation with the teachers' perception of the percent of project goals achieved (.23), student change (.20), teacher change

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[10]The question was: (Initial School Commitment) *In the first year of the project, what proportion of participating teachers would you say were highly committed to project ideas and methods?*

All of them	43.3%
More than half	29.4%
About half	13.6%
Less than half	14.7%
None	0%
Number of responses =	144

[11]Overall commitment tended to drop off between the beginning of the project and three or four years later after the end of federal funding. In part this may be due to the project being "unsuccessful," in part to a "burn-out" phenomenon. The specific question was: (Present School Commitment) *What proportion of teachers now using project methods are highly committed to the approaches and ideas of the project?*

All of them	28.4%
More than half	29.4%
About half	17.4%
Less than half	12.3%
None	2.6%
Number of responses =	155

(.22), and continuation of the project's methods (.23). In short, the commitment of teachers has a pervasive effect.[12] This commitment is generated, we believe, during the mobilization phase; thus in terms of implementation and project outcomes, the level at which a project was originated (school or district) matters less than the institutional support generated before implementation begins.

Because teacher commitment is not a direct policy-input variable, it is not included in the factors of Tables 5.1 to 5.3. It is pertinent to ask, however, what strategies (i.e., policy-input variables) can be used to generate commitment. The data do not focus directly on this question but we can explore some hypotheses. A number of practitioners or planners of innovative projects, perhaps turned somewhat cynical by a parade of disappointing change efforts, have come to believe that commitment is a well-nigh "immutable" teacher characteristic: some teachers want to change and learn new practices, and some simply do not. We take a more hopeful view. Our field experience suggests that participation in the planning process--though not necessarily at the beginning--does enhance teachers' commitment. (Our survey data show a .22 correlation between staff participation in project decisions and commitment, though causes and effects are difficult to sort out in this relationship.) For our sample, commitment is not strongly related to such teacher characteristics as sense of efficacy (.04), teacher experience (-.02), and verbal ability (.07); but it is related to a variety of school characteristics, such as whether the school is undertaking other major innovations (.14) and the extent to which teachers feel that their school is a good school (.24). This evidence

[12] When the overall initial commitment of teachers at a school is used as an independent variable in the regressions of Table 5.1, it does not have significant effects. The reason, we believe, is that it enhances teacher participation in project decisions (zero-order correlation is .22) and working relationships on the project (correlation is .26), both of which affect project outcomes. In short, the initial commitment of teachers affects the process by which the project is implemented and thus affects project outcomes indirectly.

suggests that commitment can be generated and is not a fixed teacher trait.

The project characteristic most closely associated with teacher commitment is the scope of proposed change. The more effort the project required of teachers, the higher was the proportion of committed teachers (.14); projects requiring an overall change in teaching style were more likely to have a higher proportion of committed teachers (.15). Though it is possible to interpret these data in several ways, our fieldwork suggests the hypothesis that complex and ambitious innovations are more likely to elicit the enthusiasm of teachers than routine projects. Teachers seem to rise to challenges.[13]

Another way to couch these inferences about commitment is in terms of professionalism; that is, a primary motivation for teachers to undertake the extra work and disruption of attempting change is the belief that they will become "better" teachers and their students will benefit. Our strong impression, gathered from field observation and interviews with practitioners at all levels of school districts, is that convincing teachers of the educational promise of an innovation and of the opportunity for their professional growth is an important factor in generating their support for a project.

In contrast to these essentially "intrinsic" motivations, the literature speaks of using external rewards to motivate teachers to change. We could not consider this issue comprehensively, but we did examine the effects of extra pay for training. Tables 5.1 to 5.3 include "*Staff Paid for Training*" as one of the project's implementation strategies. Sometimes projects use this incentive strategy to "get teachers to go along" with a project, or to "sweeten the pill." In our sample, however, project teachers who received

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[13] It is interesting that specificity of goals and commitment are positively related (.21). Cause and effect are hard to separate in this relationship, but the following hypothesis seems plausible: Making the goals of the innovation clear, specific, and understandable during mobilization enhances commitment.

extra pay for training (about 60 percent of the sample) were no more likely than others to report a high percentage of project goals achieved or a change in their classroom practices. Nor was pay for training related to improved student performance or to continuation of project methods or materials. In particular, Table 5.1 shows that the regression coefficients for Staff Paid for Training were negative or insignificant. This finding lends support to the hypothesis that, especially for the small amount of financial incentives involved, intrinsic professional rewards are more important in eliciting effective teacher participation.[14] A number of project directors have affirmed that although teachers appreciate the extra pay, the pay alone cannot induce teachers to work hard to implement new strategies if professional motivation is absent.

In summary, these data suggest that mobilization strategies can generate staff commitment, and therefore should be a prime consideration in project planning. Project adoption does not automatically inspire enthusiasm. Teachers and administrators should be convinced of the project's educational promise and scope, and should jointly participate in its planning. As subsequent sections will discuss, institutional support of this nature is critical to project implementation and is more difficult to generate once the project is under way.

With the above background in mind, we now turn to the analysis of project characteristics that result from project adoption.

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[14] Though we did not ask about release time for teachers in the survey, our field experience suggests that release time is a preferable strategy to extra pay for training after school hours. There are at least two reasons why release time can contribute significantly to teachers' willingness and ability to change. One, the psychic and physical energy demanded by a full day of teaching makes learning hard to accomplish during after-school, evening, or weekend hours. Secondly, the provision of release time provides an important signal to project teachers concerning district commitment to the innovation. More than one teacher has commented: "If they (the central office) really cared about the project, they would give us sufficient time to learn what we need to know to implement it." Teachers generally are unwilling to take a project seriously if they believe the district does not.

Educational Methods

School people rarely adopt, without change, an innovation from outside their district. Whether they wish to "replicate" a specific project they saw or heard about elsewhere, or whether they want to apply a general educational concept such as differentiated staffing, project designers tend at the beginning (i.e., during the mobilization phase) to adapt the innovation to the local setting as well as to their own interests. For example, a mastery learning project that was successful elsewhere may use materials that are not appropriate for the staff or students of the adopting district. Or, district staff may like the reading instruction strategies of one project, but prefer to use the classroom organization methods of another. As a consequence, the project adopted often comprises an amalgam of educational techniques and strategies, as Chap. 3 described, that may be virtually unique to its district.

Nonetheless, change agent projects also have certain central characteristics or foci. Chapter 3 showed that any one of the techniques used by a project in our sample can be identified empirically with one of the following general types of educational approach: individualization (or student-centered) techniques; classroom organization change; curriculum revisions; community involvement; and use of specialists for student needs. For the sake of trying to portray the distinctive character of one project's educational treatment as compared with others, Chap. 3 assumed that each project in our sample could have included all of the above general techniques to varying extents. Each project was thereupon given a score denoting the extent to which it concentrated on individualization, a score for its concentration on classroom organization, and so on. The quantitative analyses of Tables 5.1 to 5.3 use these scores as measures of the projects' educational methods or instructional approaches.

The quantitative analysis explored two questions. First, to what extent did the educational method of a project influence its implementation, its effects on teachers and students, and its continuation? The answer for our sample is that it did to some extent, but not very much. Secondly, did some educational methods

have more significant effects on project outcomes than others? The answer is that they did, but the differences are not great.

In particular, because none of the regression coefficients of educational methods shown in Tables 5.1 to 5.3 are very large, it does not seem likely that educational methods (either individually or as a group) strongly affected implementation, effect, or continuation. This conclusion holds even under more rigorous testing. For example, a better test of the overall effect of educational methods is to assess directly how much of the variation in outcomes was due to educational methods alone. This test can be done in several ways. For example, R^2, the percentage of the variation explained in the dependent variables, ranges in Table 5.1 from a high of .50 to a low of .30. When the educational method factors are *not* included among the independent variables, the same regressions show a small drop in R^2 for each dependent variable, with the maximum loss in variation being .02, a significant but not very large effect.[15] Thus, the educational method factors add little to the explanation of project impact and continuation. Another test is to use the educational method factors as the *only* independent variables. When the dependent variables are considered to be a function of the educational methods alone, the percentage of variation explained is .07, .05, .08, and .06 for percent project goals achieved, total teacher change, total student change, continuation of project methods, and continuation of project materials, respectively. Thus, even when the confounding effects of other variables are removed, the choice of educational treatment had only a small effect on project outcomes.

Because the regressions using the educational method factors as the only independent variables appear to produce an R^2 that is greater than R^2 obtained by "adding" the educational method factors to the other independent variables of Table 5.1, we suspect that educational methods did have some indirect effect on project outcomes.

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[15] The appropriate statistical tests for most of the statements made in this subsection about educational methods are F-tests, the details for which are not supplied in this report.

That is, the choice of treatment was associated with other implementation choices that affected how the project turned out. For example, projects concentrating on community involvement were somewhat more likely to require extra effort from teachers, to involve considerable training activities, to use consultants and meetings, to have teacher participation in project decisions, and to engage the principal's support. Some of these local choices affected project outcomes, as we will discuss. As another example, individualized student-centered projects tended to be funded more heavily, to be more specific about project goals, to rely more on skill-specific training, to have less participation by teachers, and to have less involvement by the principal. Through these associations, the treatment exerted its indirect influence on outcomes.

Some direct effects of educational method also can be seen in the tables. Projects concentrating on curriculum revision had a slight tendency to be implemented more effectively and to improve student achievement more than did other methods. Classroom organization projects were somewhat more likely to result in teacher change and to have project methods--not materials--continued by teachers.[16]

This finding is not surprising in light of the distinct foci and activities of these educational strategies. That is, projects emphasizing curriculum development and revision typically begin with well-specified objectives and focus specifically on student cognitive growth. Classroom organization projects do not explicitly

[16] More precisely, the appropriate F-tests showed that the difference in percent project goals achieved between projects focusing on curriculum revision and those focusing on community involvement or the use of specialists was significant at the .05 level; the difference between projects focusing on curriculum revision and those focusing on individualization or classroom organization was barely significant at the .15 level. Similar results held for total student improvement. F-tests also indicated that, for projects focusing on classroom organization, the coefficients for teacher change and continuation of project methods were significantly different (at the .10 level) from other coefficients (with the exception of that for community involvement).

address student achievement, but concentrate on changing traditional patterns of classroom management and student/teacher interaction. Consequently, projects of this nature require the most significant changes in the way teachers do things--changes in method that, once assimilated, are likely to be sustained.

Table 5.1 shows that projects designed to have a great deal of community involvement appeared to have a direct effect on promoting teacher change, similar to the effect of classroom organization projects. (That is, the regression coefficients for both community involvement and classroom organization change were significant and not much different from one another.) However, community involvement did not significantly affect continuation of project methods; the apparent reasons are the two very different, though overlapping, ways the projects sought to involve the community. Some strove for direct parent involvement as a major part of their activity; others centered on using community resources or undertaking field trips and invited parents to observe and assist.

We found that projects having direct parent involvement as a major goal produced teacher change and were likely to be continued by teachers after the end of federal funding--probably, we suspect, because project staff had a fairly high level of initial commitment to notions of parent participation in school affairs and governance. The other type of community involvement projects had a slight negative but not significant effect on continuation. Field trips are taken more casually; they are typically discarded as an "unessential activity" when soft money goes away. Although Phase I of our research did not deal specifically with parent involvement, this finding deserves the more detailed exploration given later in Appendix C.

In summary, the evidence of both Phase I and Phase II supports the broad hypothesis that the educational method chosen determines a project's implementation, effect, and continuation to only a small and limited extent; and much of this effect comes from implementation choices made during mobilization that are associated with particular types of treatments. Within this general finding, however, it does

appear that some types of treatments have greater incremental impacts than others, controlling for implementation choices. Specifically, projects concentrating on curriculum revision were marginally more likely to achieve their goals and to increase student achievement. Classroom organization projects, as well as projects focusing on parent involvement, were more likely to produce teacher change and to have their methods, not their materials, continued by classroom teachers after the end of federal funding. On balance, however, an educational treatment did not automatically fulfill its expectations: What it was mattered less than how it was done.

Scope of Change

A project design factor of considerable interest to policymakers and practitioners is the scope of change proposed by an innovative project--that is, the amount and complexity of change required of teachers in their classroom practice and behavior. A number of policymakers, especially those involved in the grants review process, have expressed concern that projects attempting to make ambitious and comprehensive changes will run into serious difficulties and may produce no change at all. In that case, projects with fewer and narrower objectives would be "safer bets" for federal or state investment. Our Phase I analysis found that the policymakers' concern is only partly justified. Ambitious projects often were less successful in absolute terms of the percent of project goals achieved; but they typically stimulated more teacher change than did projects attempting less. Teachers evidently welcomed the challenge.

Requirements for Change and Extra Effort. For the Phase II research, we felt that the various dimensions of "ambitiousness" and "complexity" had to be unpacked. We knew, first of all, that projects differed in the nature and extent of change they sought to bring about. Accordingly, the survey asked teachers to indicate the type of change required of them;[17] 30 percent responded that the

[17] The specific question and distribution of the 1016 responses were: (Overall Change Required in Teaching) *Innovative projects*

project tried to change their *overall* teaching style, and 14 percent that no change was sought.

This variation can be explained to some extent by the substance of the innovations, some of which, by definition, assumed more change in classroom practices than others. For example, projects that relied heavily on the use of specialists typically asked little more from the teacher than help in identifying children who needed specialists' attention. The zero order correlation of (-.09) between this educational method and overall teacher change required suggests that many of the 14 percent of the teachers answering that the project did not try to change their teaching style were involved in projects of this nature.[18] Similarly, the zero order correlations (.15), (.12), and (.11) between the overall change required and the educational methods of community involvement, classroom organization, and curriculum revision are not surprising. Projects emphasizing these educational methods can be expected to assume comprehensive change in teacher practices by virtue of the fact that they require significant departure from traditional methodologies and behavior. Nonetheless, the zero order correlations are low enough to indicate that overall change required cannot be taken as a proxy for project type or educational method. The data suggest that overall change should be viewed as a local project design choice that is relatively independent from choices concerning educational method.

The same conclusion holds for a second dimension of project scope: the extra effort required of teachers.[19] Again, the projects

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vary in terms of the scope of change they try to bring about. Would you say this project

Tried to change overall teaching style 30%
Tried to change specific teaching techniques 56%
Did not try to change teaching style or techniques . 14%

[18]The analysis divided the question on the scope of teacher change into two parts: overall teacher change required and not required. This two-valued (or dummy) variable is the one used in the correlations and regressions.

[19]The specific question and distribution of the 1032 responses were: (Extra Effort Required of Staff) *"How much extra effort did this project require of you during the first year you implemented*

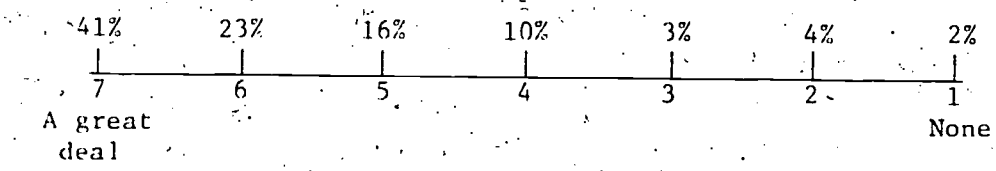
varied considerably; moreover, projects could call for considerable effort with or without also requiring an overall change in teaching (thus, the correlation between these two variables is a low .15). For example, projects focusing on community involvement were likely to require both extra effort and an overall change in teaching style; individualization projects tended to focus more narrowly on specific areas such as mastery learning techniques or remedial reading, but could require a high level of extra effort from teachers.

Thus, the two dimensions--overall change in teaching and extra effort required--vary independently of each other. Moreover, school officials and project directors, on similar types of innovations, varied in the ambitiousness of the requirements they imposed on their staffs.

How does the requirement for change affect project implementation and continuation? The data in Table 5.1 indicate that projects requiring overall teacher change had the same effect on the variables of percent goals achieved and improved student performance as did other projects (the regression coefficients are not significant). Contrary to the fears of program grant officers, projects attempting change in overall teaching style were no more or less likely to fail (or to succeed) in meeting their objectives or in promoting student change than were more narrowly focused or less ambitious projects. In other words, attempting less does not necessarily assure greater success.

The overall change required did, however, have a major positive effect on total teacher change (.16). Furthermore, as Table 5.2 indicates, projects that required overall change apparently promoted change in all the dimensions of teacher behavior measured in our analysis: the teaching of basic skills (.10); the ability of teachers to recognize and attend to individual students' special learning

this project in your classroom?"



problems (.11); the way teachers organize their classrooms (.16); and the way teachers work with students in affective development (.15). The findings of Phase II, then, strongly support our findings in Phase I: The more change that is required of teachers, the more change they will make in their teaching style and behavior.

Similar results hold for the effects of requiring extra effort from teachers. Many serious innovations call for a considerable sacrifice by teachers, particularly during the project's first year. The evidence in Table 5.1 suggests that this requirement per se did not hurt the project's implementation or its prospects for improving student performance (the coefficients are -.00 and -.00, respectively). Table 5.1 also shows that the more that extra effort was required of teachers, the more they changed (.17) and the more extensive was continuation of project methods (.13).[20]

In light of the strong effect on teacher change associated with ambitious projects, it is somewhat surprising that projects requiring an overall change in teaching style did not have a stronger influence on continuation of methods than the .07 indicated in Table 5.1. Our field experience suggests several reasons for this "drop-off."

For one, most of the twenty-four secondary school projects in our sample aimed at basic changes in teaching patterns. Such projects by their very nature are difficult to sustain after the end of federal funding. For example, a number of these high school projects involved alternative schools. Although such projects may represent an interesting social/educational experiment or a convenient response to parental pressure for educational options, they also were typically expensive and difficult to continue on district funds--

[20] These effects are sharply diminished, as Table 5.3 shows, when the extent of teacher change caused by the project is introduced as a control variable in the regressions. In other words, ambitious and demanding projects promote a change in teaching style which--when it works--is continued by the teacher. In contrast, the positive effects of Extra Effort and of Overall Change Required on continuation of materials do not change much when the extent of teacher change is controlled (compare the last columns of Tables 5.1 and 5.3).

particularly in a time of declining student enrollments. The secondary level "school within a school" projects also required special resources that were often beyond the capacity of many school district budgets.

Similar problems occurred at the elementary level. Projects calling for overall change in teaching style often employed support strategies that were difficult for a district to sustain after the end of federal funding. For example, the field trips rarely survived, and the classroom aides that usually accompany classroom organization projects, such as open education, often could not be supported with district funds. Left with neither federal nor district funding, teachers often found it difficult to continue a project intact. Instead, they had to adapt project practices to conform to budgetary realities.

Another continuation problem for ambitious projects was a "burn-out" phenomenon. Burn-out seemed most prevalent among teachers who were active in project design and management affairs. Insofar as these teachers were given opportunities to continue to expand their experience with the project--for example, by participating in outside dissemination activities--they seemed to recover quickly from their post-project letdown.

In summary, our data do not confirm the fear that projects attempting a broad scope of change are likely to break down and are likely to be discontinued. Despite a variety of implementation and continuation problems, projects requiring change in the overall teaching style of project staff and calling for extra effort result in significantly more teacher change.

Specificity of Goals. Another surprisingly elusive dimension of project scope is the specificity of its goals. In attempting to measure that dimension in Phase I, we ran into a recurrent difficulty: Participants from different projects using similar treatments--e.g., using the same reading program--described their objectives in very different terms. That is, the same innovation could have very diffuse or very narrow goals depending on the perception of the project staff and, more particularly, on how mobilization of

the project was handled. In Phase II, consequently, we decided it was more important to measure the teacher's perception of how *specific* the goals of the project were than to attempt to define the "inherent" breadth of an innovation.[21]

Table 5.1 shows that specificity of goals had a major effect on implementation: The more specific the teachers felt the project goals were, the higher the percentage of goals the project achieved (the regression coefficient is .17). One reason for this strong effect is simply that some of the projects in our sample, particularly remedial projects, had a well-defined programmatic design and narrow instructional aims. It is easier, all other things being equal, to achieve narrow goals, and it is still easier if the project design is *programmatically specific*.

This explanation of specificity makes sense for projects, or elements of projects, that can be programmed. For example, the development of project materials can be carefully planned. Table 5.1 suggests that specificity in this area promoted not only implementation but also continuation of project materials (the regression coefficient is .15). Similarly, specificity on projects aiming toward cognitive development led to improvements in student achievement (see Table 5.2). However, many of the innovations in our sample could not be so programmed. What explains the effects of specificity in these cases?

Our field experience suggests that when projects emphasize change in classroom organization--change that is inherently amorphous and not susceptible to specification in a programmatic sense--teachers need *clarity* about project precepts. For example, we have seen

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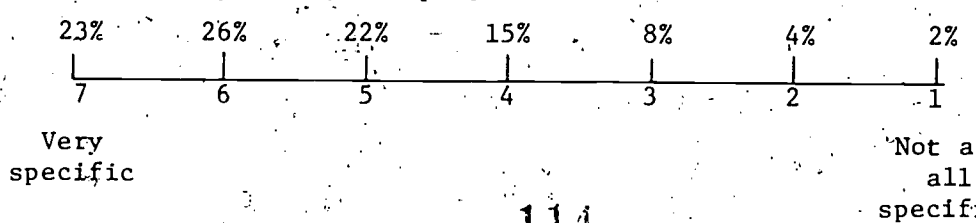
[21] The specific question and distribution of the 1030 teacher responses were: (Specificity of Goals) *"In your judgment, how specific were the goals of the project?"*



similar open education projects that were decidedly different in the extent to which the staff grasped the philosophy and operational objectives of the innovation. Even after three years of operation, a lack of clarity still remained on some projects; teachers could not be expected to continue the methods of the innovation in these cases.

The quantitative evidence supports this interpretation of specificity. First of all, Table 5.1 shows that specificity had a positive effect on continuation of project methods (the regression coefficient is .11). Secondly, we created a subsample of projects that heavily focused on individualization, and a subsample of projects that concentrated on classroom organization changes. These subsamples, which will be discussed in more detail later, allowed us to compare the effects of such variables as specificity for the two contrasting types of innovations. Individualization projects were more specific, on the average, than classroom organization projects, which also varied considerably more in specificity.[22] Moreover, regressions similar to Table 5.1 (but using the two subsamples) show that when clarity (specificity) was achieved on classroom organization projects, the continuation of project methods greatly increased; increases in specificity on individualization projects did not significantly affect the projects' effect on continuation.

Specificity, then, can be seen as having two components: programmatic specificity, a factor that is fundamentally a project design issue, and conceptual clarity, an understanding that must be achieved during the course of project implementation. Conceptual

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[22] A table introduced later (Table 5.8) shows regression results for the two subsamples. The statistics for specificity in each of the subsamples were:

	Individualization Projects	Classroom Organization Projects
Mean of specificity of goals	6.42	4.06
Standard deviation of specificity of goals	1.02	1.99
Number of respondents	116	99

clarity--the extent to which staff are clear about what they are to do--cannot be guaranteed by the use of packaged materials or lectures from consultants. Rather, it must be achieved through practical, concrete training activities that permit project staff to understand the significance of project precepts and strategies for their own classrooms. In short, clarity is not something a staff can be "given" at the outset, although it can be facilitated by well-specified programmatic statements. For projects attempting comprehensive change, we suspect that a lack of clarity, rather than lack of programmatic specification, generates severe implementation difficulties and the disuse of the project after the end of federal funding.

In summary, this subsection has examined three aspects of the scope of change implicit in the design of innovative projects: the overall change required of teachers, the extra effort required of them, and the specificity of the project's goals. The analysis suggests that (a) the more change asked of teachers, the more they respond; (b) asking teachers to put in extra effort may create some problems in implementation, but teacher change and continuation are more likely to occur with this kind of sacrifice; and (c) teachers can implement innovations better if they clearly understand the project's purposes and precepts.

Implementation Strategies

Among the most important products of the planning and mobilization activities that lead to an adopted project are implementation strategies--a series of decisions and choices, explicit or implicit, on how to put the project into practice. Although the strategies chosen are somewhat associated with the type of educational method adopted, local designers exercise considerable freedom in their decisions; for example, similar reading programs may be implemented quite differently among schools and school systems. Chapter 2

discussed the strategies we observed in the field; Tables 5.1 to 5.3 show the effects on project outcomes of strategies we were able to measure in comparable ways for the range of innovations in our sample. As a group, these strategies had major effects on the implementation, impact, and continuation of projects. Moreover, they differed in their conduciveness to particular outcomes.

We discuss below the findings for each strategy listed in the tables. Two qualifications should be kept in mind as we do so. First, our list of strategies does not exhaust the variety of major choices made by local implementors. For example, some strategies were so particular to an instructional approach that they could not be generalized for our analysis. Other strategies--e.g., selection of staff--were difficult to measure; we could not include them directly in our statistical analysis, but we examined them in our fieldwork. Still other strategies, such as local materials development, were measured to some extent but were so highly interrelated to other factors that they could not be included in the full analysis shown by Tables 5.1 and 5.3; rather, we explored their effects in the partial analyses discussed throughout this chapter.

The reader also should be aware of the artificial separation of strategies imposed by the statistical analysis. In reality, the overall strategy of each local project comprised a mix of strategic choices. Our statistical method examines component strategies, not the strategy as a whole. Our conclusion synthesizes the separate results into a judgment about what constitutes an effective overall strategy.

Allocation Decisions. Local planners must also decide about the allocation of the project's resources. Table 5.1 lists two pertinent allocation choices: the number of project schools and the concentration of the project's funds (i.e., the number of students served for the available project funding). Few districts make allocation decisions in the purely objective manner of an R&D decision model. School officials rarely have an "experimental plan" in mind that can be stated in such terms as, "We will try the innovation in schools A and B; if it improves student performance, we will

spread it to schools C and D." Instead, organizational and political considerations usually govern such decisions.

For example, 20 percent of the projects in our sample were originated by the principal and staff in a school. The most "successful" were begun several years before they received a Title III grant. To continue their efforts, they prepared a Title III proposal with the assistance of district personnel. But district officials often felt the need to be "equitable," particularly when "federal goodies" were involved, as an assistant superintendent put it. Thus, because the award of a federal grant would bring "visibility" to the project, school officials in two of our case studies added other schools to the original site. In one of these situations, one school was added in each of the areas represented by school board members.

In contrast, approximately 16 percent of the projects in our sample were district-wide projects, most of which involved curriculum revision and individualization. Several of these projects were preceded by earlier experience with the innovation. Most, however, did not have an earlier "development" at a local school; the districts were attempting to install a new program district-wide without the step-by-step procedure often favored by planners. We do not know all the political and organizational elements that affected these decisions. It seems clear, however, that a number of districts started with an identified educational need but "designed" a resource allocation plan whose prime concern was to obtain as large a grant as possible and to distribute it as far as the money would go.

In deciding on site and funding allocations, then, districts are influenced by other concerns besides the desirable educational outcomes listed in Tables 5.1 to 5.3. For the range of variation in our sample, however, neither the number of schools nor the funding per student strongly affected project effect and continuation in most cases.[23]

[23]The number of schools for projects in our sample ranged from 1 to 44, and the funding per student from a high of over $2000 to a low of about $12. The correlation between these variables is -.21;

The exceptions to this general finding are noteworthy. The greater the number of schools in a project, the higher was the proportion of project materials continued (the regression coefficient is .12 in Table 5.1). This relationship results from projects that furnished new curriculum material or educational hardware that was adopted as districtwide policy. In such cases, it is clear that teachers comply with official district policy and use the materials purchased with federal money. Yet these same projects produced little if any teacher change (the coefficients of teacher change in Tables 5.1 and 5.2 are mostly negative but not significant). Moreover, the continued use of project materials was not always accompanied by a continued use of project methods (the coefficient in Tables 5.1 and 5.3 is positive but not significant). In short, some districts seem to have used Title III "seed money" more to purchase up-to-date materials and technologies than to promote basic educational reform.

The other significant relationship shown by the tables involves the concentration of funding: The higher the funding per student, the greater was the improvement in student outcomes (the coefficient of total student change in Table 5.1 is .09). This effect comes primarily from remedial projects that focused on individualization, were located in schools in areas of lower socioeconomic status (SES), and sought to increase the performance of students who were below-average achievers. The heavy concentration of funding for these remedial projects paid for classroom aides. Of all the projects in our sample, 77 percent hired aides or paraprofessional staff; 63 percent of these projects either decreased or eliminated their aides after the end of federal funding. All projects having a heavy concentration of funding per pupil reduced their aides. The teachers in these projects indicated that they had not changed their styles very much, nor were they currently using project methods or materials extensively (the coefficients of funding per student for the continuation variables listed in Tables 5.1 to 5.3 were not significant).

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the correlation between funding level and number of schools is .17; the correlation between funding level and funding per student is .18.

In short, these remedial projects improved student performance, but we suspect this effect will be short-lived. Successive generations of students are unlikely to benefit, and the federal money spent for aides will have had only a fleeting effect on district practices.

In summary, the Phase II sample omits some of the projects in the original sample that were inadequately funded to meet their purposes and therefore were discontinued. Within the range of variation in our sample, we found no clear guide as to the "optimum" number of project sites or funding per student. These local allocation decisions are usually the result of a complex blend of organizational, political, and educational criteria. Without being able to control for these complexities, we cannot tell whether "better" decisions could have been made. In any event, the lack of strong relationships suggests that these decisions matter less for project outcomes than do other local choices and conditions.

Staff Training and Training Support Activities. The components of staff training were as numerous and diverse as the educational strategies themselves. No two projects appear to have pursued the same design or mix of training activities, perhaps because no one has devised a theory or "model" of what an effective staff training program should look like (or, similarly, an effective staff development or in-service program). The training designs actually pursued therefore are largely "best guesses." In practice, some of them were instrumental in successful project implementation; others turned out to be inadequate.[24]

To shed light on what constitutes an effective staff training program, and how important it is to project success and continuation, the survey asked teachers to indicate the type, amount, and format of the training they received. We also collected similar information on support activities related to training--e.g., the use of

[24] Approximately 22 percent of the teachers surveyed mentioned "training inadequate" as a problem they had to deal with during implementation. In terms of frequency of teacher response, inadequate training was the fifth most cited factor on the list of 39 implementaion problems.

consultants, staff meetings, and the assistance of resource personnel in the classroom. Table 5.4 lists these questions and the distribution of responses. Our fieldwork made it clear that for analytical purposes it is not enough merely to record that certain training activities went on. The same activity may be irrelevant in one project and useful in another, depending on the kind of project or the way the activity was carried out. For example, staff workshops may be useful in a program attempting to implement mastery learning techniques, but irrelevant to staff who are working to put a new student counseling program into practice. Or, outside consultants on one project may be able to provide concrete, useful information to teachers, while on another they convey glib generalities that the teachers dismiss as a waste of time. Consequently, we also collected information on the *quality* of the training strategies.

Because there is no consensus on what constitutes "quality" training, we asked teachers to rate the utility of the training and support activities they received (see Table 5.4 for the specific questions). This assessment of quality in practice, as opposed to quality in the abstract (or, what is useful as opposed to what "should be" useful) was then analyzed in terms of project outcome factors and teacher continuation of project activities. The results are presented in Tables 5.1 to 5.3. The following discussion will also consider the relationship between the quantity and quality of these variables and explore what quality might consist of.

The regression coefficients in Table 5.1 suggest that well-conducted staff training and staff support activities improved project implementation, promoted teacher change, and increased the continuation of project methods and materials. These variables alone (i.e., without other factors such as the institutional setting) account for a substantial portion of the variation in project effect and continuation. From one perspective, of course, this is not a surprising finding. After all, teachers have to acquire the new skills or behavior if project-related changes are to influence student performance or be continued. Even so, the varying contributions

Table 5.4

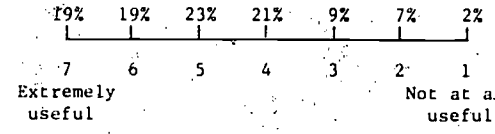
STAFF TRAINING AND SUPPORT QUESTIONS

(Amount Pretraining) *About how many hours of training sessions (lectures or workshops) did you attend before you began implementing the project in your classroom?*

1	None	16%
2	Eight or fewer hours (consider 8 hours one work day)	20
3	Nine to 24 hours (consider 24 hours three work days)	21
4	25 to 40 hours (consider 40 hours one work week)	20
5	More than 40 hours	24

No. of responses = 1000

(Pretraining Usefulness) *How useful were these sessions for dealing with the problems that arose during the project?*



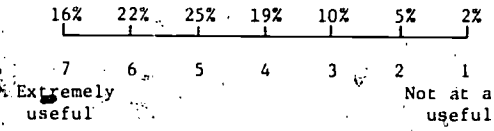
No. of responses = 840

(Amount First-Year Training) *About how many hours of training sessions (lectures and workshops) did you attend during the first year you were actually implementing the project in your classroom?*

1	None	14%
2	Eight or fewer hours	23
3	Nine to 24 hours	27
4	25 to 40 hours	17
5	More than 40 hours	19

No. of responses = 991

(First-Year Training Usefulness) *How useful were these sessions for dealing with the problems that arose during the project?*



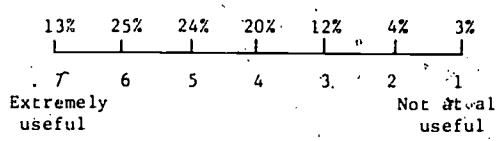
No. of responses = 836

(Amount Training Later) *About how many hours of training sessions (lectures or workshops) did you attend after the first year you implemented the project?*

1	None	26%
2	Eight or fewer hours	27
3	Nine to 24 hours	22
4	25 to 40 hours	13
5	More than 40 hours	12

No. of responses = 974

(Later Training Usefulness) *How useful were these sessions for dealing with the problems that arose during the project?*



No. of responses = 732

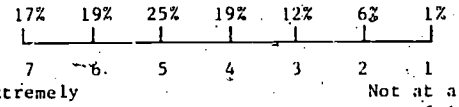
(Amount Classroom Observation) *About how much time did you spend observing the project's methods in other teachers' classrooms before you began implementing the project in your classroom?*

1	None	65%
2	Half a day or less	15
3	One to two days	12
4	Three days or more	8

No. of responses = 993

Table 5.4--Continued

(Observation of Other Classrooms) *How useful was this experience for dealing with the problems that arose during the project?*



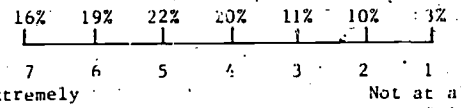
No. of responses = 345

(Amount Classroom Assistance) *During the first year you actually implemented project techniques in your classroom, about how many times did you receive assistance or advice from resource persons or project staff who came into your classroom to observe and make suggestions?*

1	None	17%
2	1 or 2 times	18
3	3 to 5 times	24
4	6 to 9 times	16
5	10 to 15 times	14
6	More than 15 times	11

No. of responses = 985

(Classroom Assistance) *How useful were these visits for dealing with the problems that arose during the project?*



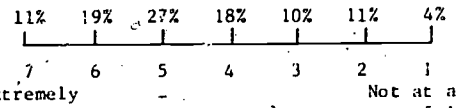
No. of responses = 808

(Amount Consultants) *How many times did you receive training, advice or demonstrations from consultants from outside the district as part of the project?*

1	None	29%
2	Almost none	13
3	A few times	30
4	Quite a few times	17
5	Many times	11

No. of responses = 1001

(Consultants) *How useful were these consultants to you in implementing the project?*



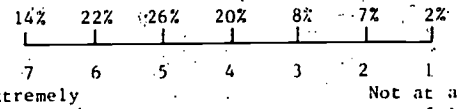
No. of responses = 724

(Amount Project Meetings) *How often did you attend meetings with other project teachers to discuss the ideas of the project and how best to solve problems that might occur?*

1	Never	14%
2	Only a few times a year	28
3	Every couple of months	11
4	About once a month	19
5	Several times a month	28

No. of responses = 983

(Project Meetings) *How useful were these meetings for dealing with the problems that arose?*



No. of responses = 858

made by training activities can furnish useful insights for program planners.

Training Received. Training activities were usually skill-specific, such as instruction in how to implement a new reading program. They could occur prior to project implementation in the classrooms, during the first year of implementation, and/or after the first year. These activities had strong positive and direct effects on the percentage of project goals achieved (.12) and on student performance (.13) in the areas of both achievement (.11) and behavior (.12). (See Tables 5.1 and 5.2.)[25] However, training had only a small (and not significant) effect on teacher change (.06) and on continuation of project materials (.05). Moreover, Table 5.3 shows that the positive effect of training on continuation of project methods loses its significance when implementation effectiveness is controlled for; thus, the effect of training may be indirect--namely, skill-specific training improves project implementation, which in turn enhances continuation. Skill-specific training, in summary, apparently affects project implementation and student outcomes, but does not affect the longer-term project outcomes of teacher change and continuation.

These findings can be put into perspective and interpreted by comparing them with other activities that support project training. Tables 5.1 to 5.3 show the effects of each training support activity: classroom assistance from district resource people or project staff, use of outside consultants, observation of the project in other teachers' classrooms, and staff meetings. The tables also indicate (by brackets) the combined effects of these activities. (The staff support activities were combined by taking a simple sum.) The rationale for examining their effect in combination is drawn from our fieldwork, which suggested that particularly effective projects

[25] The variable called "Training Received" in Tables 5.1 to 5.3 is the sum of the usefulness of training received in three time periods (before, during, and after the first year of implementation). In preliminary analysis, we tried many ways to combine these variables; the simple sum proved to be the most fruitful.

adopted a training strategy that included all, or most, of these support activities. We will first discuss the findings for the combined support activities and then examine the role of individual components.

Staff Support Strategies. Taken together, well-conducted staff support strategies had a major positive effect--as did staff training--on percentage of project goals achieved (.18) and on student performance (.27) (see Table 5.1). In contrast to training, however, staff support strategies also had strong positive and direct effects on the longer-term project outcomes: teacher change (.15) and continuation of project methods (.28) and materials (.22). It seems clear that well-conducted support strategies not only reinforce the contribution of skill-specific training, but also make their own contribution to fostering teacher change and to promoting staff acceptance of project materials. Our field experience suggests why these contributions are possible and, indeed, necessary to successful projects.

First, both training and support activities promote the "task" learning requisite to the implementation of specific innovative techniques, but they aid learning in different ways. Training generally focuses on instruction in specific skills the teacher needs in applying the innovation; e.g., for projects stressing individualization, teachers need to master the procedures of criterion reference testing or the logistics of diagnostic-prescriptive techniques. Then, however, they need to adapt these procedures to the day-to-day realities of the classroom. Support activities, particularly visits from district resource people or project staff, can provide feedback to make these classroom "corrections." Through these support activities, skill-specific training can be "individualized" for the teacher in terms of timing and content modifications.

Staff support strategies also can aid teachers in understanding and applying complex innovations in ways that standard training--in terms of both its content and form--does not or cannot usually do effectively. For example, projects aiming to change the usual patterns of classroom organization require a high level of mutual

adaptation. There are few "recipes" for implementation of differentiated staffing or open classroom projects. Adaptation in this case typically implies a translation of general principles and attitudes into classroom practice--a process that can benefit more from drawing on outside consultants, from observing other classrooms already applying these complex and necessarily abstractly defined methods, and from on-line assistance of district and project people, than it can benefit from standard training. Without such assistance, teachers would be less likely either to implement the innovations effectively or to change their own pattern and style of teaching; nor would they be likely to assimilate the methods of the innovation in ways that assure its continuation. As one teacher commented: "By being part of the project, I have gained invaluable knowledge. Because it was a think-plan-do-revise type of learning, it was much more valuable than any graduate class and enabled me to make real changes and improvement."

Staff support strategies also lend "moral support" to teachers, valuable for bolstering their confidence and maintaining their enthusiasm. Teachers need to feel that they are not working alone, and to be reassured that what they are doing is appropriate and legitimate. We will see later on that other factors also contribute to teachers' affective needs, but support strategies--classroom assistance from district resource or project staff, the use of outside consultants, classroom observation, and project meetings--can make their own unique, dual contribution to both teacher morale and to the reinforcement of the instrumental effects of other task-related factors.

In summary, staff support strategies combined with skill-specific training appear to have provided the feedback, conducive climate, and information to support project strategies, teacher learning, and staff morale. Taken together, staff support strategies apparently contributed to the longer-term project outcomes of teacher change and continuation. Below we examine their individual contributions.

Classroom Assistance. Table 5.1 suggests that classroom

assistance from resource personnel had major effects on student change (.14), on implementation (.11) and on continuation of methods (.09), and smaller positive effects on teacher change (.08) and continuation of materials (.02). We can obtain still other estimates of the particular effects of classroom assistance by considering training and support activities to be the *only* inputs determining project outcomes. Table 5.5 presents such estimates; it shows the effects on the dependent variables (in terms of standardized regression coefficients) of variables measuring both the usefulness of training and support activities and the amounts of these activities. Table 5.5 further breaks down the training variable according to whether training occurred before classroom implementation, during the first year of implementation, and/or after the first year. Comparison of Tables 5.1 and 5.5 shows that classroom assistance had similar effects on most of the dependent variables with or without controlling for other project characteristics or institutional factors.

We earlier suggested the reason that classroom assistance is so important for the percentage of goals achieved on a project, the amount of student improvement, and the continuation of the project's methods. Skill-specific training or workshop sessions usually cannot anticipate the form and content of all important staff needs, especially as they relate to particular classroom problems. Likewise, staff often cannot perceive what they need to know until the need arises. For both reasons, the staff needs are not always predictable or synchronized with scheduled training sessions. Classroom assistance, particularly by local resource personnel, can make up for these inevitable deficiencies.

It is interesting that a number of the coefficients of the *amount* of classroom assistance tend to be negative (though not significantly) in Table 5.5. At first glance, negative values seem to run counter to intuition, but upon reflection they suggest an important hypothesis about the relationship between the quantity and quality of training and staff support. Figure 5.1 is a graph of the percentage of project goals achieved as a function of the perceived usefulness of classroom assistance; the various lines represent levels of

Table 5.5

ANALYSIS OF TRAINING AND SUPPORT ACTIVITIES

Independent Variables	Standardized Regression Coefficient for: Percent Project Goals Achieved	Total Teacher Change	Total Student Improvement	Continuation of Project Methods	Continuation of Project Materials	Practicality of Training[a]
Whether project had:						
Training before first year	-.14*	-.06	-.02	-.06	-.06	-.12*
Training during first year	-.00	-.04	-.07*	-.05	-.03	-.08*
Training after first year	-.08*	-.04	-.08*	-.04	.02	-.08*
Classroom assistance	-.16*	-.01	-.01	.05	.06	-.15*
Outside consultants	-.06	.03	-.04	-.02	-.03	-.14*
Observation of other classrooms	-.00	-.06	-.01	-.07	-.04	.03
Project meetings	.01	-.00	-.00	-.05	-.00	-.04
Quantity of:						
Training before first year	-.02	.11*	-.06	.09*	.04	-.07*
Training during first year	-.04	-.04	-.02	.03	-.02	-.05
Training after first year	.04	.06	.06	.05	.08*	-.01
Classroom assistance	-.02	.06	-.02	-.03	-.00	-.06
Outside consultants	.01	.07	-.00	-.02	-.01	-.03
Observation of other classrooms	-.07	.03	-.03	-.00	-.06	.05
Project meetings	-.04	-.10*	-.09*	-.10*	-.07	.07
Usefulness of:						
Training before first year	.08*	.11*	.13*	.09*	.07	.04
Training during first year	.17*	.06	.10*	.09*	.11*	.25*
Training after first year	-.00	-.02	.11*	-.01	-.02	.16*
Classroom assistance	.13*	.10*	.04	.10*	.06	.03
Outside consultants	.23*	.05	.13*	.08*	-.00	.26*
Observation of other classrooms	-.03	.03	.01	.09*	.07	.01
Project meetings	.08*	.04	.05	.09*	.07	.24*
R^2	.35	.22	.32	.27	.18	.61
Number of observations	498	498	498	498	498	498

*Significant at the .10 level using a standard two-tailed t-test.

[a]Defined and discussed on p. 112.

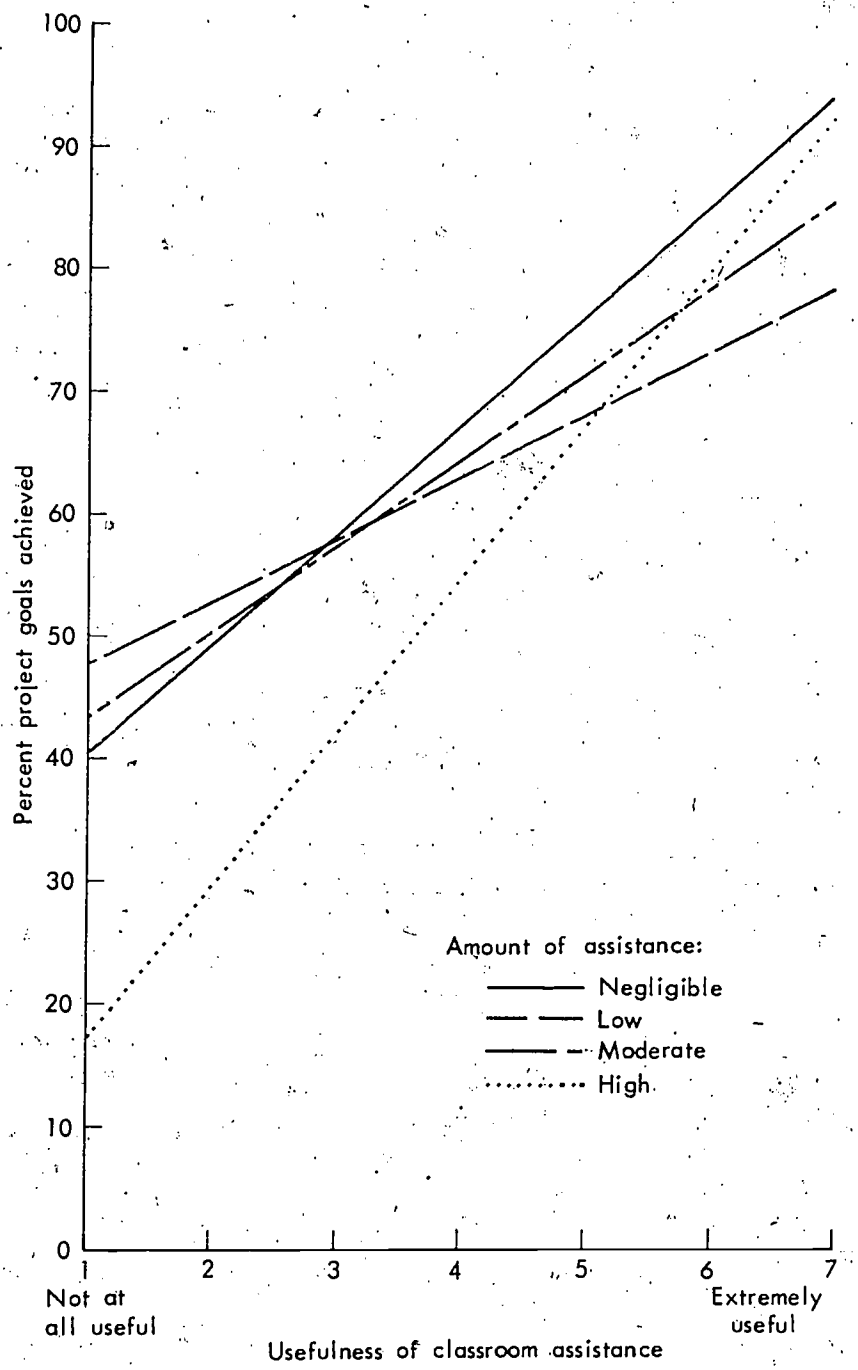


Fig. 5.1--Effect of classroom assistance on percent project goals achieved: quality versus quantity of assistance

the amount of assistance.[26] The graph illustrates the significant improvement in percentage of goals achieved resulting from *useful* assistance. (The improvement is on the order of 50 percent in goals achieved, going from an average percent achievement of about 35 percent for assistance that was not useful to about 85 percent for very useful assistance.) However, it also shows that the differences in the amount of assistance do not matter when the assistance is perceived as helpful or very helpful, but they do matter when the assistance is perceived as not helpful. In short, numerous visits to the classroom by district or project staff do more harm than good when teachers do not feel they are being helped.

The inference from these data--a little high-quality support is better than a great deal of low-quality support--also applies to the other support activities, particularly the use of outside consultants and the frequency of project meetings.

Outside Consultants. Table 5.5 shows that the usefulness of outside consultants has positive effects on all the dependent variables, whereas the frequency of employing outside consultants has negative effects. This suggests that it is better to use no outside consultants than to use poor ones, and much better than to use poor ones frequently.[27] When consultants were good, they were very good; when they were bad, they were an obstacle.

What makes for a good outside consultant? How do they help projects? And how do bad consultants hurt?

Good consultants can help by providing concrete, practical advice to project teachers--showing them, either in their classrooms or in "hands-on" workshops, how to adapt project methods or materials to their own situations. Good consultants help teachers learn how to

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[26]The graph of Fig. 5.1, which was drawn from regressions, illustrates the relationship between quantity and quality. This relationship can be more fully examined by analysis-of-variance techniques that make no assumption about the cardinality of the independent variables. These techniques were used in preliminary analysis and they confirmed the conclusions drawn in the text.

[27]The dummy variables showed that the use of consultants per se did not improve the success of the project.

solve problems for themselves, rather than solve problems for them. Ineffective consultants often furnish advice that is too abstract to be useful. Many project teachers commented on the irrelevance of consultants to their project. For example, in making a recommendation for improving project implementation in the future, one teacher advised, "Be sure consultants know the (project) goals and some specific things to tell the teachers and not a lot of worthless generalizations and theory." Another teacher remarked, "I found most [of the consultants] to be completely lacking in their exposure to, familiarity with, and willingness to come in and work with young children. Many were good philosophically, but not practically, in the day-to-day approach and follow-up." Even when their advice is concrete, consultants often unintentionally "preempt" staff learning opportunities with too great a show of expertise. Overreliance on outside consultants, then, often prevents teachers from learning "to do it for themselves." One superintendent attributed the failure of a project to this factor: "The first year, teachers came in from other communities and worked with our teachers. The following year, our teachers were alone and it was impossible to fully implement the program." Thus, the negative coefficients in Table 5.5 can be seen as a result of both too little and too much help from consultants.

Project Meetings. Project meetings play a somewhat different and more auxiliary role in promoting effective projects than does the use of outside consultants. Two of our tables seem to present contradictory evidence in this regard. According to Table 5.1, meetings are not significant and tend to be negatively related to project outcomes; but Table 5.5 indicates positive though not very strong effects of meetings on project outcomes. This statistical discrepancy has two sources. First, there is the issue of quantity versus quality (Table 5.5 controls for quantity and Table 5.1 does not): Frequent meetings that teachers do not perceive as useful are associated with less effective projects. (Preliminary analysis of variance strongly showed this to be the case.) Our fieldwork suggests that meetings are unproductive when they dwell primarily on details of project administration and recordkeeping and rarely

include opportunities for staff to share their problems and report on progress. Such meetings do little to enhance classroom implementation, and teachers find them irritating.

Effective project meetings support teachers in carrying out their tasks and meet their affective needs. As one teacher commented, "Regular monthly meetings are absolutely critical for reinforcement and building interpersonal relationships for co-workers."

Because project meetings can be the forum for such critical factors as teacher participation in project decisions and project director leadership, their usefulness is correlated with these factors and provides little independent contribution to project outcomes. This multicollinearity is the second reason that Table 5.1 shows a slight negative effect of meetings whereas Table 5.5, which does not control for teacher participation and other factors, shows a slight positive effect.

In sum, effective projects tend to use meetings in conjunction with other effective practices and attitudes. Such meetings facilitate a number of activities that are important to implementation--e.g., ongoing assessment of project activities, staff sharing of problems and solutions, and the building of a "project identity."

Observation of Other Classrooms. The statistical difficulties clouding the effects of meetings also obscure the effect of classroom observation on project outcomes. Again, Table 5.1 shows largely insignificant coefficients for classroom observation, while Table 5.5 indicates positive and significant, though not very strong, effects. The correlation of classroom observation with other factors--specifically, -.20 with community involvement projects and .24 with classroom organization projects--explains much of this discrepancy.

Most projects in our sample did not employ classroom observation; for those that did (approximately 35 percent), one-half day or less of observation did not prove useful, whereas three days or more proved extremely useful.

Classroom observations can be valuable in giving teachers a "feel" for the innovative strategy they are trying to implement. Observing "the real thing" for perhaps three or four days is

particularly useful to teachers who are about to implement inherently amorphous innovations, such as change in classroom organization (open classrooms, team teaching, differentiated staffing, and the like). Teachers will learn little from too brief an observation, however, and may even find the experience intimidating if they watch an expert teacher smoothly running an innovative classroom ("I could never do that").

Quality of Training. What constitutes "quality" in training and support activities? Some of the answer is hinted at in the preceding discussion. One component clearly suggested by our field observation is the "concreteness" of staff development activities, or what we call *practicality*. Instead of focusing on abstract classroom implications of the project, consultants and workshops dealt with nuts-and-bolts issues, such as what to do when. Although teachers no doubt were interested in the theoretical underpinnings of their projects, they needed timely and concrete assistance with their immediate classroom problems. Of the teachers in our sample, 22 percent mentioned lack of familiarity with project methods as a problem during project implementation--a result to be expected if the project in fact represented a practice new to the district. Similarly, 21 percent of the teachers mentioned inadequate training as a problem; many of them may have had the same complaint in mind as the former group: the failure of their training to help them gain practical familiarity with project methods.

We asked teachers the extent to which project training and support activities focused on practical problems, and found a widespread distribution of responses.[28] Table 5.5 suggests that

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[28] The specific question and distribution of the 973 responses were: (Practicality of Training) *"Considering all of the training, advice, and assistance you received as part of the project, how much did it focus on the practical problems you dealt with in implementing the project?*

The training focused on practical problems...

9%	21%	24%	20%	13%	9%	4%
7	6	5	4	3	2	1
Completely						Not at all

practicality is a major component of the usefulness of meetings, classroom assistance, and the standard training consisting of lectures and workshops. In other words, the more practical they are, the more useful.

Though important, however, concreteness is not enough for teachers to rate training and support activities as "useful";[29] they must be timely as well. A workshop on the construction of reading materials will not be very useful if it is held three weeks after teachers have had to develop the materials on their own. But just as planners cannot accurately foresee the most useful content of training and support activities, neither can they predetermine the best sequence and timing of training activities. Again, staff meetings can be the answer if they provide teachers with a timely forum for identifying their training and support needs.

Teacher Participation in Project Decisions. Besides making choices about training and staff support activities, teachers may be allowed to participate in decisions about project operations. Typically, they are not involved in major policy decisions made during mobilization and institutionalization by superintendents and central office administrators--e.g., whether the project should be adopted, and how project resources should be allocated. Although teacher participation in those early planning activities can be beneficial, as another section discusses, teachers are more likely to deal with decisions related to day-to-day implementation problems

[29] The evidence suggests that practicality is a component of usefulness, not vice versa. Thus, practicality explains much less of the variance in the dependent variables than does the combination of training and support activities. For example, practicality alone explains 11 percent and 20 percent, respectively, of the variances in continuation of methods and in percent of project goals achieved compared with 24 percent and 29 percent explained by the combined support and training activities. Moreover, the contribution that practicality adds to the explanation of these variables beyond those made by the training and support variables is an insignificant (by an F-test at .01 level) .002 and .02, respectively. We can thus infer (a) that practicality is a component of usefulness but (b) that usefulness has other dimensions. To repeat, concreteness alone is not enough.

and, more particularly, with the adaptation of the innovation to its setting. The latter form of participation is the subject of the following analysis.

Decisions and choices would not be necessary during implementation if projects were always, and predictably, implemented as originally planned. Most of them, however, undergo modifications in their original strategies or objectives, and these adaptations are almost always seen as positive improvements. As one teacher observed, "Actually, a much better program developed to suit our needs than the one originally written." The projects in our sample varied considerably in the extent to which adaptation of the project's methods or materials took place, with most teachers indicating that their project had been adapted a fair amount.[30] The extent to which teachers felt they had participated in decisions concerning these project adaptations varied even more, with as many as 40 percent of the teachers considering themselves to have been relatively uninvolved.[31]

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[30] The specific questions and distribution of the 975 responses were: (Materials Modification) *To what extent were project materials modified, or different materials substituted, during the course of the project?*

7%	13%	27%	25%	11%	10%	7%
7	6	5	4	3	2	1

To a very large extent — Not at all

(Methods Modification) *To what extent were project methods modified during the course of the project?*

4%	13%	27%	23%	12%	14%	6%
7	6	5	4	3	2	1

To a very large extent — Not at all

[31] The specific question and distribution of the 1030 responses were: (Participation in Project Decisions) *To what extent did you participate in decisions concerning modifications in the project?*

10%	16%	17%	16%	11%	12%	18%
7	6	5	4	3	2	1

To a very large extent — Not at all

Table 5.1 indicates that the more teachers felt they were participating, the higher was the percentage of goals achieved by the project (.09) and the more extensive was the continuation of both the project's methods (.12) and its materials (.10).

The strong positive effect of teacher participation on the percentage of the project's goals achieved suggests that teachers' inputs can significantly improve implementation. One participant in a highly successful reading project ascribed the project's success primarily to such staff input: "The project changed a lot over the three years, not because the basic goals changed but because everyone was encouraged to contribute new ideas and it just grew and got better. The goal of improving teaching has always been kept foremost--just the ways of getting there have changed."

Nonetheless, we have often heard school district managers advocate staff participation because it satisfies the staff's "emotional"--or political--need not to be "dictated to." Too often, the resulting participatory devices are mere window-dressing that few teachers take seriously.

Our data and field observations indicate that real teacher participation in implementation decisions can help solve many practical problems. For example, a number of district officials have commented that teachers are often more astute than central office specialists in selecting material appropriate for staff and students, and in pinpointing why a particular educational strategy is not fulfilling expectations. Likewise, project directors and principals have often noted that project teachers are in the best position to perceive their training needs and identify the most effective way to meet them. One elementary school principal advised, "Give the classroom teacher a strong role in planning any project that he or she is going to be working with. Then listen and change when things do not go as *planned on paper*."

The hypothesis that teacher participation has instrumental value--i.e., it improves the implemented project--does not deny the affective value that participation has for teachers. In our sample,

teacher participation usually involved frequent formal and informal interactions among the project staff and, as expected, was associated with good working relationships among teachers.[32] Its positive effect on continuation, however, resulted from another of its salutary benefits: the development of teachers' "sense of ownership."

One field observation strongly underscores the importance of a sense of ownership. When teachers come to regard a project as "theirs" (as opposed to "the project director's" or "the superintendent's") they work hard to implement it, integrate its strategies or materials into their classroom practices (often in areas not directly related to the project), and take pride in their accomplishments. They become excellent emissaries for the project and for innovative efforts generally. Such teachers are very likely to keep on using project methods or materials whether the project is formally continued or not.

The sense of ownership was an important by-product of local materials development activities, wherein teachers developed their own materials either from scratch or by redesigning or resynthesizing commercially available materials. Projects that included local development of materials (77 percent) achieved somewhat higher scores on student performance and teacher change than projects which did not, but the most important result was that the teachers were more likely to continue both the materials and the methods of the innovation.[33]

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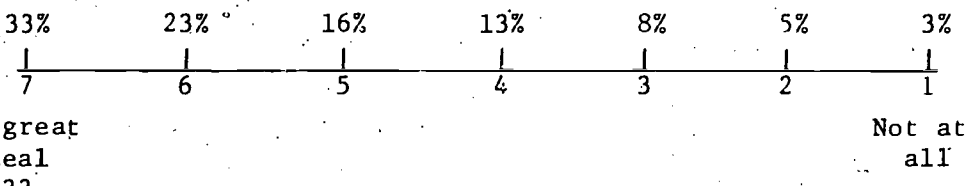
[32] A great deal of social-psychological literature on small group behavior points to the interrelationships among participation, interaction, and good working relationships. The next section explores the effects of good working relationships. Teacher participation and the frequency of project staff interactions was correlated .40 for our sample. The question dealing with the frequency of project staff interactions and the distribution of the 1036 responses were: (Frequency of Staff Interactions) *How much did you consult with project teachers on an informal basis?*



[33] This assertion is an inference from two pieces of evidence: first, the uncontrolled (bivariate) relationship between whether a

In summary, teacher participation appears to benefit implementation and to promote continuation of project methods and materials in at least two important ways. First, because of their close day-to-day involvement with project operations, teachers are in a unique position to provide feedback about project activities and suggest effective corrections or modifications. These "reality-based" modifications appear to promote effective project implementation and thus the percent of goals achieved. Second, participation appears to endow teachers with a sense of ownership that inspires them to work hard for project success and to continue using project methods or materials.

The Strategy of Mutual Adaptation. Thus far, we have reviewed the various effects of the individual implementation strategies chosen by local planners. These strategies are not chosen without reference to each other; they combine to make up the project's overall *implementation strategy*. Although the "mix" of implementation activities could and should differ from project to project, our data also suggest that certain features are requisite to *any* effective implementation strategy. We examine them below.

An implementation strategy that focuses only on skill-specific training is not adequate by itself to promote the longer-term outcomes of project continuation and teacher change. True, such training

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project did or did not develop its materials and the extent of project continuation and methods (.16) and materials (.13); secondly, the significant, though weak, value of the partial correlation of local materials development with the continuation of project methods after the strong effects of participation, frequency of staff interactions, and the extensiveness of modifications to the project are controlled:

Independent Variable	Partial Correlation with Continuation of Methods	Signif. at
Extensiveness of modifications	-.01	.83
Participation in project decisions	.18	.00
Frequency of staff interactions	.19	.00
Project had local material-development	.07	.04

R^2 = .35
N = 563

is necessary for task learning during implementation, and is positively related to change in student performance and the percent of project goals achieved. Our data suggest, however, that these gains may prove transitory unless training is combined with other staff support and participatory strategies, particularly teacher participation in decisionmaking and local materials development, timely staff meetings, and classroom assistance from resource personnel. These components can provide the climate and feedback necessary to mutual adaptation. In sum, local planners should take a flexible approach that provides the information necessary for implementation, and the project support and staff involvement necessary for adapting and assimilating that information.

We have now explored three of the change agent project's characteristics: educational method, scope of proposed change, and implementation strategies. To interpret the effects of these characteristics, the discussion made reference to the school district context of the projects. We turn next to this context, the institutional setting.

INSTITUTIONAL SETTING

Tables 5.1 to 5.3 confirm a view held by practitioners to be a commonplace truth: The institutional setting--the quality of the staff, the leadership of administrators and project directors, and the organizational climate of schools--powerfully affects project implementation, outcome, and continuation. We do not wish to belabor the obvious here, although it may be appropriate to do so considering how frequently federal and state programs neglect the importance of the institutional setting. Instead, we wish to differentiate among the effects of the various components of the organizational setting, so that policy can be based on a more precise notion of what can and cannot be changed, and how features of the institutional setting can be expected to influence the results of federal change agent policies.

Organizational Climate

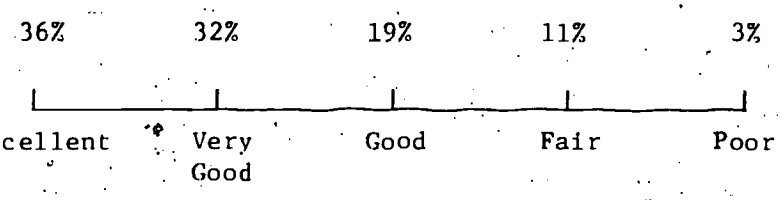
Phase I found that organizational climate can impose subtle yet powerful constraints on implementation. For example, if project teachers sensed that their principal was indifferent to project goals and their own efforts, even a skilled project director might be unable to rouse them to make the extra effort needed for project success. The results were likely to be lackluster at best, whereas the same project could score impressive successes at a site where leadership was dynamic and morale was high.

Accordingly, Phase II made a closer scrutiny of three vital facets of climate: the working relationships among project teachers, the role of the principal, and the effectiveness of the project director. The following discussion explores the effects of these factors, their interrelationships, and the extent to which they are "immutable" or amenable to change.

Quality of Working Relationships Among Teachers. Working relationships significantly affected project outcomes.[34] Table 5.1 shows that the better they were, the higher was the percentage of project goals achieved (.22). They were also positively related to the continuation of project methods (.13) and materials (.15).

Our fieldwork suggests two related reasons for these findings. For one, close coordination among teachers is necessary in projects featuring curriculum revision, team teaching, or differentiated staffing. Without it, the cooperative planning and staff interdependence that are fundamental to such innovations could not occur. Second, even if an innovation does not require teachers to work together, the development of a *critical mass* of teachers allows them

[34]The question asked of teachers and the distribution of their 1030 responses were: (Quality of Working Relationships) *How would you describe the working relationship among teachers on this project?*



to openly share their implementation problems and solutions, and thus learn from each other. Good working relationships also enhance morale. Moral support can be invaluable for teachers, particularly in the difficult and exhausting first year of a project.[35]

How do good working relationships develop on a project? To some extent they result from teacher participation in project decisions and the frequent interaction of staff. (Table 5.6 shows that the correlations between the q ity of working relationships and these factors are .33 and .50, respectively.) The data also suggest that they depend on organizational climate, in regard to which the survey asked teachers a series of three questions.[36] In addition,

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[35]Good working relationships among the project staff are negatively correlated with the difficulty of implementation--that is, the better the working relationships, the less difficult was implementation. (Indeed, it has the highest negative correlation of all the factors used in Table 5.1, whether one considers bivariate relationships or partial correlations.) This correlation can be interpreted in two ways: (1) good working relationships enabled teachers to overcome difficulties, or (2) projects difficult to implement could not develop good working relationships. Both of these alternatives undoubtedly occurred in our sample.

[36]The survey asked: *Please indicate whether you agree or disagree with each of the following statements...*

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No. of Responses
(School Good Place to Work) In general, this school is regarded as a good place for teachers to work compared with other schools in this district	42%	36%	16%	6%	1%	982
(School has Group Spirit) There's not much group spirit in this school	4	11	15	37	33	978
(School was Task-Oriented) This is an efficient, work-oriented school	29	46	16	6	3	980

Table 5.6

CORRELATIONS OF SCHOOL CLIMATE AND PROJECT RELATIONSHIPS

Variable Number	Variable Name	Variable Number (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	School good place to work	1.00									
(2)	School had group spirit	.40									
(3)	School was task-oriented	.39	.45								
(4)	Effectiveness of principal	.44	.40	.37							
(5)	Principal support	.28	.28	.30	.41						
(6)	Quality of working relations	.18	.29	.32	.15	.43					
(7)	Frequency of staff interactions	.08	.18	.22	.04	.19	.50				
(8)	Participation in project decisions	.12	.09	.05	.11	.15	.33	.40			
(9)	Teacher encouraged to modify project	.08	.11	.13	.11	.17	.28	.37	.60		
(10)	Methods modification	.06	.10	.05	.10	.10	.10	.23	.44	.51	
(11)	Materials modification	.07	.00	.06	.03	.13	.27	.30	.46	.36	.58

NOTE: Number of observations is 826.

because Phase I documented the importance of the principal to the climate of the school, we asked teachers to evaluate how effective a job their principal was doing.[37] Table 5.6 shows that these measures are highly intercorrelated as we expected, and also that they are all related to the teachers' feeling about the quality of the project's working relationships. These data suggest that change agent projects, even when they involve only a portion of teachers at a school, are influenced by the climate and leadership of the host school.

Table 5.6 also displays the correlations among the quality of project relationships and various measures of teacher participation. The associations among these variables can be made explicit by using the statistical procedure of factor analysis, which groups the various measures, according to their intercorrelations, into "underlying dimensions." Table 5.7 presents the results of the factor analysis; it indicates two significant factors which because of their "loadings"

[37] The specific question and the distribution of the 986 responses were: (Effectiveness of Principal) *Overall, how effective a job would you say your principal is doing at this school?*

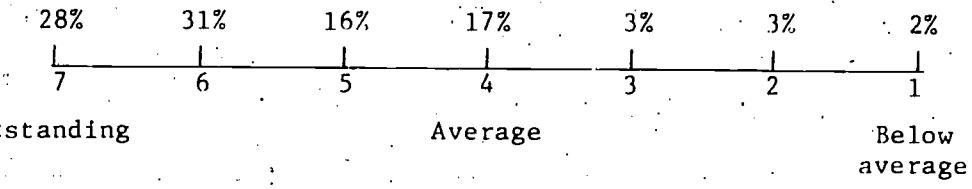

Table 5.7

FACTOR ANALYSIS OF SCHOOL CLIMATE AND PROJECT RELATIONSHIPS

Variable Name	Rotated Factor Loadings[a]			Commonality
	Project Adaptation	School Morale	Interaction of School and Project	
School good place to work	.075	[-.744]	-.028	.560
School had group spirit	.061	[-.699]	.152	.474
School was task oriented	.008	[-.678]	.170	.489
Effectiveness of principal	.020	[-.771]	-.009	.595
Principal support	.025	[-.484]	[.424]	.415
Quality of working relations	.117	-.227	[.819]	.736
Frequency of staff interactions	.280	.012	[.763]	.661
Participation in project decisions	[.744]	-.049	.312	.654
Teacher encouraged to modify project	[.678]	-.097	.293	.555
Methods modification	[.857]	-.038	-.059	.739
Materials modification	[.778]	-.009	.066	.609
Sum of squares	2.454	2.354	1.678	6.486

[a]Loadings refer to the correlation between an educational technique and a factor of general educational method. The boxed entries indicate high loadings on a factor that serve to define the meaning of the factor. Commonality and sum of squares are statistical measures that indicate the technical validity of the analysis.

could be called *project adaptation* and *school morale*, and a third significant factor that apparently reflects the interrelationships between the project and the school. The quality of project working relationships is the main variable defining the third factor. (The variance of project working relationships is also explained by the first (.12) and second factors (.23), with the largest weight coming from the second factor--i.e., the school climate.) In short, good project working relationships come from good schools and from adaptive projects.[38]

[38]More generally, we suspect that a project's working relationships are a function of organizational climate, implementation, and the interaction between the two. Therefore, project outcomes are both effect and cause of the project's working relationships, and, consequently, the estimates of the effects of the quality of working relationships on project outcomes are subject to a positive bias. The same type of bias is present for the other organizational climate variable, principal support and project director effectiveness. We could have eliminated this problem by not using these variables, but that seemed too costly for exploratory purposes. Instead we retained these variables and examined the sources of their variance

In summary, our data indicate that good working relationships among teachers enhance implementation and promote continuation of project methods and materials.[39] Good working relationships and teacher participation in project decisions are correlated: the development of the one helps the development of the other. And, in addition, the quality of the school's organizational climate--whether teachers feel their school is a good school to work in, has esprit de corps, is efficient, and is managed effectively by the principal--influences the quality of project relationships. The correlation between participation in project decisions and good staff working relationships draws attention to the implementation strategies chosen for the project, the influence of the general school climate--a background factor not directly related to project operations--underlines the significance of district site selection. Good project working relationships can develop in "average" schools when teachers participate in project adaptation decisions; and, conversely, "good" schools can develop good project working relationships without teacher participation in decisions. However, projects combining a supportive organizational environment with a strategy of teacher participation in project adaptation seem most able to implement effectively and continue their innovations.

Role of the Principal. Our previous reports referred to the principal as the "gatekeeper of change," in recognition of his or her vital role in either facilitating or inhibiting innovation. Phase II data corroborate that finding, and further suggest that project continuation depends critically on the principal's support.

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other than that explained by project implementation. See App. B for an analysis of covariance of many of these variables that examines how much of the variation can be explained in terms of the teacher's school or project.

[39] A number of teachers viewed the promotion of good working relationships as one of the most important benefits of the project. One teacher said, "The project did so much to get teachers working together that I believe that accomplishment alone would have justified the project." Another commented, "The most important thing for me is that this project has worked to bring our faculty closer together in terms of philosophy, concepts and our everyday dealings with each other."

The Phase II survey asked teachers to indicate the attitude of their principal toward the project.[40] Few of the projects in which principals were perceived to be unfavorably inclined toward the innovation scored high on any of our outcome measures (see Table 5.1). Some projects with neutral or indifferent principals scored well, particularly in the percentage of goals achieved; but these projects typically focused on individualization or curriculum revision, and had highly effective project directors who compensated for the lukewarm principals. Projects having the *active* support of the principal were the most likely to fare well.[41] As Table 5.1 shows, the more supportive the principal was perceived to be, the higher was the percentage of project goals achieved (.11), the greater the improvement in student performance (.13), and the more extensive was continuation of project methods (.12) and materials (.09).

Practitioners and policymakers are well aware that principals are critical to the quality of school life as well as to project outcomes. But these data allow us to go beyond confirming this general truth to explore more detailed questions about the different (and more or less effective) roles played by principals in implementation and continuation.

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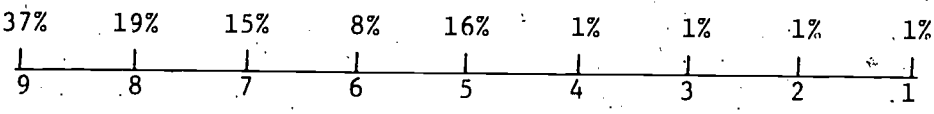
[40]The specific question and distribution of the 993 responses were: (Principal Support) *How would you describe your current principal's attitude toward the project?*



[41]We refer to the measure of the principal's attitude as the "principal's support" of the project because it is highly correlated with the teachers' responses to our questions about the support given by the principal and how helpful the principal was. For example, the correlation between the question referred to in the preceding footnote and a question asking about the "helpfulness" of the principal was .79. As we suggested in an earlier footnote, because principal support may be both cause and effect of project outcomes, the coefficients in Tables 5.1 to 5.3 may be positively biased.

Though principals in our sample were as supportive or favorably inclined toward one type of innovation as to any other, their support for a project--and their actions in it--mattered differently for different kinds of educational treatments. For example, we explored the difference that a principal's support might have for classroom organization projects as compared with projects employing individualization techniques. Table 5.8 shows the results of regressing our project outcome measures on most of the relevant factors used in Table 5.1 for two subsamples: projects focusing on individualization and projects focusing on classroom organization.[42] The row reporting the partial correlations for "Principal Support" indicates that (a) supportive principals significantly increased the prospects for continuation of *both* types of projects, and (b) supportive principals significantly helped the project's implementation and increased the extent of improvement in student performance for classroom organization projects, but had a smaller (and not significant) effect on the implementation of projects focusing on individualization.

Let us first discuss why the principal's support is so important to continuation, independent of what kind of innovation may be involved. At the end of federal funding, the principal must take a stance toward the project and make a variety of decisions that explicitly or implicitly influence what happens to project methods and materials within the school. In particular, the principal is chiefly responsible for establishing the school's educational policies and philosophy. A project that is consonant with the school's general operating style would be more likely to be sustained or spread than one that was not. For example, we observed an open classroom that operated in a very traditional school as part of a districtwide open-classroom project. Once the umbrella of project

[42] The subsamples were created using the factor scores for Individualization Techniques and Classroom Organization Change. One subsample consisted of all projects with a score of at least 1.2 standard deviations on the Individualization Techniques factor; the other sample consisted of all projects with a score of at least .9 standard deviations on the Classroom Organization Change factor. A total of 9 projects fell into both subsamples.

Table 5.8

COMPARATIVE INFLUENCE OF PRINCIPAL AND PROJECT DIRECTOR ON INDIVIDUALIZATION AND CLASSROOM ORGANIZATION PROJECTS

Independent Variable	Dependent Variable: Percent Project Goals Achieved		Dependent Variable: Continuation of Project Methods	
	Individualization Subsample	Classroom Organization Subsample	Individualization Subsample	Classroom Organization Subsample
Principal support	.16	.39***	.33***	.34***
Project director effectiveness	.28***	.13	-.09	-.32***
Funding level of project	.10	-.18	.16	-.13
Overall change required	.19**	-.16	-.05	.13
Extra effort required	-.07	-.04	.10	.36***
Specificity of goals	-.07	.08	.05	.47***
Number of project schools	-.05	.05	.03	-.06
Staff paid for training	-.23**	.00	-.09	.04
Training received	.21**	.19*	.17*	.20*
Participation in project decisions	.02	-.06	.15	.15
Quality of working relations	.32***	.19*	.04	.16
Elementary school	.15	.21*	-.03	-.04
School size	.12	-.05	-.09	-.09
School socioeconomic setting	.07	-.05	.03	-.12
Efficacy (teacher)	.09	.14	.09	.04
Experience (teacher)	-.00	.04	-.00	-.08
Verbal ability (teacher)	-.09	.09	-.02	.04
R^2/corrected R^2	.56/.48	.48/.38	.43/.33	.57/.48
Number of observations	116	99	116	99

NOTE: Significance for a standard two-tailed t-test:

* = .10 level; ** = .05 level; *** = .01 level.

authority was removed, the principal made it clear to the project teacher that he wished to see her classroom returned to the traditional pattern; he also strongly discouraged nonproject teachers who expressed interest in trying some of the open education ideas in their classrooms. In the same project, however, the principal at another school strongly supported the open-classroom approach. After the project ended, she encouraged its use in other classrooms by allocating discretionary money to "knock down walls" and to purchase the manipulative materials required. In short, the principal gives sometimes subtle but nonetheless strong messages concerning the "legitimacy" of continuing project operations in the school--a message that teachers cannot help but receive and interpret in terms of their professional self-interest. Although project methods or materials can be continued to some extent "behind the classroom door," it would be extremely difficult for a teacher to continue them fully without the principal's explicit support.

Principal support for a project is important because of the staff turnover experienced by most schools. If project strategies are not to wither away over time, the principal will have to familiarize new teachers with project concepts and techniques. One superintendent observed, "A large turnover in staff [makes it hard to] sustain volunteer activities. If you get a principal who isn't in agreement with project philosophy, it can be difficult to keep a program in a school." Conversely, the enthusiasm of principals can be an important element in introducing the project to new sites. A superintendent commented, "This project has really been sustained through the discussion and enthusiasm of principals. They were tremendously enthused, at first particularly, so the project spread to other schools."

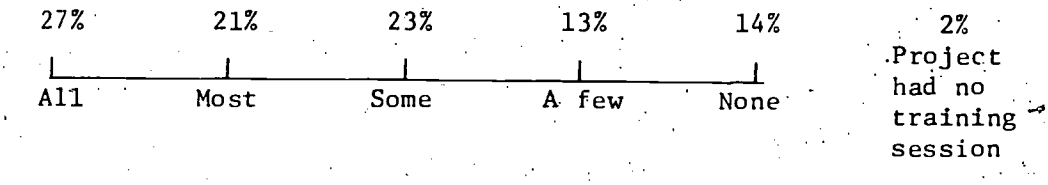
Whereas the principal plays a major and unique role for project continuation that is essentially similar for all types of educational treatments, the principal's functions in implementation differ across types of innovations. For example, individualization techniques require teachers to master specific procedures for diagnosis and prescription. Typically, these techniques are extensions of existing

classroom practices, not fundamental changes that indirectly or directly affect school operations in general. In this instance, project directors are best able to supply the detailed, practical "how to do it" advice teachers need to adapt the techniques to their classrooms. Furthermore, the principals could confine their efforts to explaining the new techniques to parents and teachers not involved in the project, and to lending encouragement to project participants.

For two reasons, however, the principal must be much more active in the implementation of complex and comprehensive innovations. For one, the principal's cooperation and administrative skill are often indispensable to projects such as those involving innovative changes in classroom organization, which entail the accommodation of previous procedures to new routines and practices, such as nongraded systems, the use of parent or senior-citizen volunteers, new staffing arrangements, and irregular class schedules. Second, comprehensive innovations such as open education usually embody a particular educational philosophy (child-centered education, for example). Unlike individualization techniques, which can usually fit into a broad spectrum of educational approaches, these classroom organization projects can be viewed as a radical and undesirable departure from the school norm unless the principal actively supports them and runs interference with disapproving nonproject teachers or parents. Important as the project director is, it is unlikely that classroom organization projects could be implemented without the principal's active support.

One indication of principals' active involvement is their attendance at teacher training sessions.[43] Their participation

[43] The specific question asked of principals and the distribution of the 160 responses were: (Principals Attend Training) *What proportion of the teacher training sessions for this project, if any, did you attend?*



updates their classroom skills and knowledge, and thereby better equips them to lend advice and a sympathetic ear to teachers. At a less explicit level, their attendance imparts some important messages to teachers--notably, their personal commitment and their view of the project as a team effort in which everyone is expected to cooperate and work hard. Their attendance therefore helps to undermine the "deficit" model that sometimes colors staff training activities and builds resentment; moreover, it bolsters the notion that participation in the innovative project will foster professional growth.

Principals' actions in a project reflect their general style of school management. We asked teachers to evaluate the overall effectiveness of their principals and received a wide range of responses; 28 percent rated their principals as "outstanding," and approximately 25 percent evaluated them as average to below average (see footnote 37). In reaching these judgments, teachers were clearly assessing principals along a number of dimensions. To explore the basis for the teachers' evaluations, we also asked them to characterize their principals in terms of four management styles that are often mentioned in the organizational literature as important leadership attributes: the principal as *peer*, as a provider of *moral support*, as an *instructional leader*, and as an *administrator* (see Table 5.9 for the specific questions).

What mix of roles or leadership styles characterizes an "effective" principal? Table 5.10 displays the "weight" of each management style in the teachers' evaluation of their principals' effectiveness.[44] The data, which must be treated as only suggestive because of the high intercorrelations among the responses, indicate the following:

1. A total of 83 percent of the teachers said their principals generally treated them as equals. Principals who were judged *not* to relate to their staff in this manner were somewhat more likely to be

[44] Elementary school principals were evaluated significantly higher on all of the dimensions than were junior or senior high school principals.

Table 5.9

TEACHERS' EVALUATIONS OF PRINCIPALS

Educational researchers and practitioners have often commented on the key role played by the principal in the life of the school. In the following set of questions, please indicate whether you agree or disagree with each of the statements about your school's principal.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	No. of Responses
(Peer) In general, our principal treats me as an equal	40%	43%	8%	7%	2%	985
(Moral Supporter) Our principal is interested in me and my problems	38	42	13	6	1	980
(Instructional Leader) I think of our principal as a source of new materials, ideas, and methods	18	31	32	13	6	985
(Administrator) Our principal spends most of the day handling administrative concerns and discipline rather than dealing with issues of curriculum and classroom teaching methods ..	9	24	26	30	11	992

evaluated as "below average" in effectiveness. But, generally speaking, variation in this particular management style did not significantly affect teacher assessment of principal effectiveness, controlling for other leadership attributes.

2. Although teacher perception of an egalitarian climate within the school did not appear to be necessary to effective school management, the extent to which teachers believed the principal was interested in them as persons contributed significantly to their evaluation of principal effectiveness. The data clearly show that the more teachers felt that the principal was interested in them and their problems, the higher they rated their principal.

3. The other management style strongly related to perceived effectiveness was the principal as an instructional leader. Although somewhat less than half of our sample of teachers saw their principal as functioning in this role, the more the principal was perceived as a source of new ideas, materials, and methods, the higher the

Table 5.10

TEACHERS' EVALUATION OF PRINCIPALS' EFFECTIVENESS REGRESSED ON PRINCIPALS' MANAGEMENT STYLE

Independent Variable	Dependent Variable: Principal Effectiveness Regression Coefficient	Standard Error	Bivariate Correlation
Principal's management style (according to teachers) was:			
Peer	.09	.064	.56
Moral supporter	.51*	.072	.69
Instructional leader	.49*	.057	.70
Administrator	-.11	.044	-.49

NOTE: R^2 = .59; N = 448.
* = significant at the .01 level.

principal was evaluated as an effective school manager.

4. About 1/3 of the teachers thought their principal functioned primarily as an administrator, spending most of the day handling administrative concerns and discipline. Principals who were perceived to operate in this role tended to be rated as average or below-average in overall effectiveness.

In summary, these data provide insights concerning the complex and difficult role of an effective principal in today's school setting. The traditional notion of the principal as simply the building administrator who "runs a tight ship" appears inadequate; so does the concept of a nonauthoritarian but essentially passive manager. These data suggest that the effective principal combines an active role in shaping the school's instructional program with a personal and supportive relationship to the staff. Taken together with the evidence concerning the principal's role in innovative projects, these data also suggest ways in which participation of principals in change agent project activities can enhance their overall effectiveness as school managers. Specifically, their participation in project training sessions can enhance their pedagogic skills and build mutually rewarding interpersonal relations with the staff.

The Project Director. Our data leave little doubt that an effective project director greatly enhances the implementation of special projects. But in sharp contrast to the findings about principals, project directors had no significant effect on continuation for our sample of projects.

We asked teachers to evaluate the effectiveness of their project director.[45] The distribution of their answers ranged widely: about 1/3 said their project director had been extremely effective, while about 1/4 rated the project director as average or less. Table 5.1 shows that, controlling for the other factors influencing the innovation, the more effective the project director, the higher was the percentage of project goals achieved (the coefficient is .25) and the greater was student improvement (.12); the effectiveness of project directors made little difference for continuation of methods (.03) or materials (.01).

Why does the project director "matter" for project implementation but not for continuation? The answer can best be understood in light of the different tasks and activities in the implementation and continuation phases. A central aspect of implementation is teachers' acquiring new skills, behavior, and attitudes--task-specific learning that an effective project director can greatly facilitate. The director's special skills and knowledge can clarify project goals and operations, minimize the day-to-day difficulties encountered by classroom teachers, and furnish the concrete information they need to learn. The high correlation between "specificity of goals" and project director effectiveness was .41. The high correlation between useful assistance in the classroom and project director effectiveness was .44.

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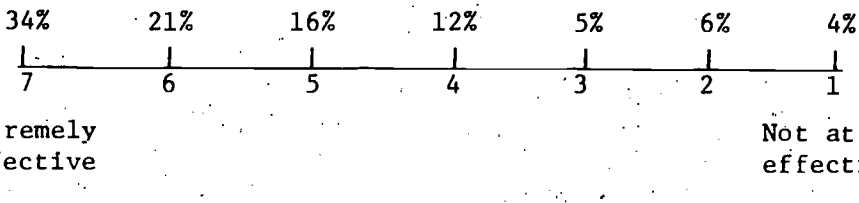
[45] The specific question and distribution of the 980 responses were: (Project Director Effectiveness) *How effective has the project director been in helping to implement this project?*



Once federal funding ends and continuation begins, however, task-learning is no longer a major staff activity. (If teachers have not learned project strategies and methods by then, it is unlikely they ever will.) The activities central to continuation comprise integration of project precepts into routine classroom activities and, in some cases, the modification of standard institutional procedures. Thus, in this phase, the specialized skills and knowledge of the project director became less important to project teachers than the institutional support of the principal and other district staff. In fact, it is not unusual for project directors to assume an entirely new role after the end of federal funding. Many either resume their former position in the district, go on to head innovative projects in other districts, or, in the instance of Title III "validated" projects, launch upon a heavy schedule of project dissemination.

Thus, the project director affects continuation indirectly, through the implemented project. When the project director has been effective, the task-learning central to implementation is complete as the project enters its continuation phase. Otherwise, project activities are likely to falter badly or break down once federal support ends.

Structural Characteristics of Schools

Because our sample was not representative of all the various kinds of school settings, we gathered data on a wide variety of school characteristics and controlled for them in the analysis. For example, we collected information on the academic, ethnic, economic, and social makeup of the school's student population, the size of the school and stability of the staff, and the school's experience with other innovations. (Similar data were gathered at the district level.) None of these "background" or structural characteristics strongly affected any of the project effect or continuation measures. Our non-representative sample precludes our drawing generalizations about this lack of significance. We suspect, however, that these background characteristics matter less for project outcomes than do

other factors--the attributes of the staff, the leadership of the principal, the effectiveness of the project director, and the organizational climate of the school.

Perhaps the most important structural characteristic with respect to introducing and sustaining change is whether the school is at the elementary or secondary level. Our original Phase I sample contained projects at 81 junior or senior high schools; we eliminated 61 of them from the Phase II sample because they were totally discontinued.[46] The remaining secondary school projects are unusual in that they generally attempted comprehensive change; moreover, several were among the best and most interesting innovations we have seen. Yet change is harder to obtain and continue at the secondary school level. (Table 5.1 shows that elementary school projects were more likely to achieve their goals and to produce teacher change; continuation of methods and materials was also somewhat more likely, but not significantly so, for elementary schools.)

For example, secondary school teachers are often characterized as "subject-oriented," in contrast to the "child-centered" orientation attributed to elementary teachers. Such a particularistic perspective is incompatible with many of the changes attempted by comprehensive innovations--changes that attempt to minimize the distinctions between academic disciplines. As one teacher participant in a secondary level team-teaching project reported, "No one--administrators, teachers, consultants--was ever able to determine how to meet the requirement of writing interdisciplinary units and at the same time maintain the integrity of the individual disciplines. In my opinion, this was an impossibility." Or, as a superintendent commented regarding difficulties that had been experienced on a secondary career-awareness project, "[High school] teachers are simply unwilling to vacate [what they see as] their responsibility to subject matter in adjusting to supplementary materials." Secondary level projects that require a significant amount of change,

[46] Because the Phase II sample pool was supplemented by projects not in our original sample, the total number of secondary schools in the Phase II sample was 29.

in short, appear to be particularly difficult to sustain.[47]

Teacher Characteristics

Most research on "teacher effects" explores the relationship between various classroom practices and teacher behavior and student performance. Perhaps because the personal attributes of teachers do not appear amenable to manipulation by policy, teacher characteristics per se have not received much attention.[48] Nonetheless, a "conventional wisdom" has developed concerning the effects of various teacher attributes: that older teachers are less willing to change, that the best ideas come from younger teachers, that teachers with high verbal ability are more able to achieve cognitive gains, and so on. Such beliefs, in addition to our own observations in classrooms, suggest that the personal characteristics of project teachers could have significant import for the implementation and longer-term outcome of federally supported innovations. Are some teacher attributes significantly and consistently associated with "successful" projects? With continuation of project strategies?

To examine the relationship between teacher characteristics and project implementation and continuation, we collected data on several teacher attributes most often cited as significantly affecting both student performance and the outcome of innovative projects: age, educational background, verbal ability, years of experience, and sense of efficacy.

We did not use the first two in our final analysis. Age was highly correlated with experience, and where it was not a proxy for years of experience, showed no identifiable or consistent pattern of relationship to other variables in the analysis. Teachers'

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[47] Volume II, pp. 54-55, discusses the problems of innovation for secondary schools.

[48] With some notable exceptions. See, e.g., James S. Coleman et al., *Equality of Educational Opportunity*, Office of Education, National Center for Educational Statistics, Government Printing Office, Washington, D.C., 1966. Also see Eric Hanushek, *Education and Race*, D. C. Heath, Lexington, Mass., 1972, and Richard Murnane, *The Impact of School Resources on the Learning of Inner City Children*, Ballinger, Cambridge, Mass., 1975.

educational background--the quality of their undergraduate institution as specified by the school quality index in Barron's Guide to Colleges and Universities--was not useful for the analysis because of its lack of variation for our sample; the vast majority of the teachers we surveyed had attended state colleges or universities in the areas where they were currently teaching, and those institutions had approximately the same quality rating on the Barron's index.

The three remaining teacher attributes--years of experience, sense of efficacy, and verbal ability--significantly affected project outcomes. We found that years of experience and teacher sense of efficacy had strong and significant, but very different, effects on most of the dependent variables.[49] Specifically, the number of years of teacher experience was *negatively* related to all of the dependent variables with the exception of teacher continuation of project materials and change in student achievement, where there was no significant relationship (see Table 5.1). In other words, the more experienced a project teacher, the less likely was the project to achieve its goals (-.13), and the less likely was the project to improve student performance (-.09). Furthermore, more experienced teachers were less likely to have changed their own practices (-.15) and less likely to continue using project methods after the end of federal funding (-.07).

The teacher's sense of efficacy--a belief that the teacher can help even the most difficult or unmotivated students--shows a strong positive relationship to all of the dependent variables in our analysis.[50] Indeed, the regression coefficients of the effects of a sense

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[49]Variables can have opposite effects in a multiple regression if they are highly correlated. However, teacher experience and a sense of efficacy were correlated only .06 in our sample (see App. A). Neither variable is highly correlated with any of the independent variables used in Tables 5.1 to 5.3, nor is there any significant pattern of multicollinearity. Moreover, App. B shows, by means of a highly sensitive statistical procedure, that sense of efficacy, years of experience, and verbal ability were not significantly related to the project or the school in which the respondents taught.

[50]Our measure of teachers' sense of efficacy was based on two questions. One asked whether the teacher felt that "when it comes

of efficacy are among the strongest relationships identified in our analysis. As Table 5.1 indicates, teacher sense of efficacy is positively related to the percent of project goals achieved, the amount of teacher change, improved student performance, and continuation of both project methods and materials. Teachers' attitudes about their own professional competence, in short, appear to have major effects on what happens to projects and how effective they are.[51]

Teachers' verbal ability, unlike the preceding attributes, was significantly related to only one of the dependent variables, total improvement in student performance (.12).[52] However, when student

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right down to it, a teacher really can't do much [because] most of a student's motivation and performance depends on his or her home environment." The other asked whether the teacher thought that "if I really try hard, I can get through to even the most difficult or unmotivated students." Responses to these two questions were combined into a single measure of efficacy--the extent to which the teacher believed he or she had the capacity to affect student performance. The standard discussion of efficacy, on which we based our instruments, is in J. B. Rotter, "Generalized Expectancies for Internal Versus External Control of Reinforcement," *Psychological Monographs*, Vol. 80, No. 1, 1966.

[51]A Rand study of the School Preferred Reading program in Los Angeles drew heavily on the instrumentation and design of the present "Change Agent" study and reached similar conclusions. Specifically, it concluded that, "The more efficacious the teachers felt, the more their students advanced in reading achievement. This measure was strongly and significantly related to increases in reading." This study found no relationship between teacher background characteristics (race and ethnicity, college attended, undergraduate major, whether any graduate training was received, amount of college instruction in reading, and teaching experience) and students' achievement. See David Armor et al., *Analysis of the School Preferred Reading Program in Selected Los Angeles Minority Schools*, The Rand Corporation, R-2007-LAUSD, August 1976, pp. 23-24. It is also important to note that this Rand study used, as the dependent variable, the change in individual students' scores on a standardized reading test.

[52]Teachers' verbal ability was measured by a self-administered Quick Word Test consisting of a fifty-question, multiple-choice, vocabulary-type test. We wish to thank Harcourt Brace Jovanovich, Inc., for their permission to use Level II of the Quick Word Test (QWT). See Edgar F. Borgatta and Raymond J. Corsini, *Quick Word Test*, Harcourt Brace and Jovanovich, New York, 1957. We chose QWT

performance is broken down into its cognitive and affective components, the data indicate that most of the effect of teachers' verbal ability was on cognitive achievement; it apparently had no significant effect on students' affective development (see Table 5.2).

In summary, the teacher's sense of efficacy had a strong effect on project continuation. Years of experience, on the other hand, was negatively related to most of the project outcome measures. Teachers' verbal ability had no relationship to project implementation, outcome, or continuation with the exception of its positive correlation to improved student achievement.

The powerful effect of a teacher's sense of efficacy raises the question of whether it might be possible to enhance it through various project or school activities. Because we did not measure this teacher attribute before the project began, we cannot say whether project activities (such as training) may have changed it. Our impression is, however, that it reflects teachers' school experiences as well as their personalities. If so, staff development strategies aimed at teachers and their environment might increase their sense of efficacy. In any event, given the important relationship between

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as a measure of verbal abilities because it has high reliability and correlates highly with more complex measures of intelligence. See J. C. Nunnally, "Review of Quick Word Test," *The Seventh Mental Measurements Yearbook*, pp. 378-379.

The response rate of 93 percent for the QWT was only slightly lower than the average response rate across all questions in the teacher survey. The distribution of responses was skewed toward the higher scores, with a mean of 42 (maximum score was 50) and a standard deviation of 5.6. Approximately 1 percent of the respondents were excluded from analysis because they seemed not to take the test seriously. The self-administered QWT is open to cheating. We used several cross-checks within the data-set to examine this possibility. For example, principals rated teachers on five dimensions, and the only one highly correlated with QWT results was the teacher's ability to "speak and write clearly and use the English language effectively." These checks, along with comparisons with preliminary results of the QWT used in the Gary Income Maintenance Experience (information supplied by private correspondence with Richard J. Murnane), leads us to believe that cheating was not substantial. See also Richard J. Murnane, "Correcting Measurement Errors on Self-Administered Tests: The Case of Verbal Ability Tests Taken by Teachers," paper presented at the meeting of the Econometric Society, September 1976.

this teacher attribute and the success of innovations, further research on ways to enhance teachers' sense of efficacy would be appropriate.

Similarly, the negative effect of years of experience on implementation and continuation should be a major concern of policymakers. Rather than continually learning and renewing themselves, many teachers seem to get into a rut after their first three to five years of teaching. For many teachers in our sample, the passage of time on the job seemed to diminish their capacity to change and perhaps dampen their enthusiasm for innovations. We suspect this unfortunate effect is less an intrinsic characteristic of teachers or the teaching "role" than an organizational defect in the way schools manage themselves and the professional development activities of their staff.

Summary of Effects of Institutional Setting

In summary, a number of factors in projects' institutional setting were found to have major effects on outcomes. In general, however, school background characteristics per se had little significant relationship to implementation and outcome. Projects conducted in wealthy schools, for example, were no more or less likely to succeed, all other things being equal. With the exception of the problems encountered by secondary schools, the *type* of school mattered less than did the school's climate and leadership and the characteristics of the project staff.

Leadership was a strong influence at both the school and project level. An effective project director was critical to successful implementation; principal support was important to implementation and especially to continuation. The quality of working relationships, or the climate of the project, was also significantly related to both the percent of project goals achieved and to continuation.

The teacher's sense of efficacy--the extent to which teachers felt they could reach even the most difficult or unmotivated student in their classroom--emerged as an important variable in our analysis. It exerted major positive effects on all our outcome measures.

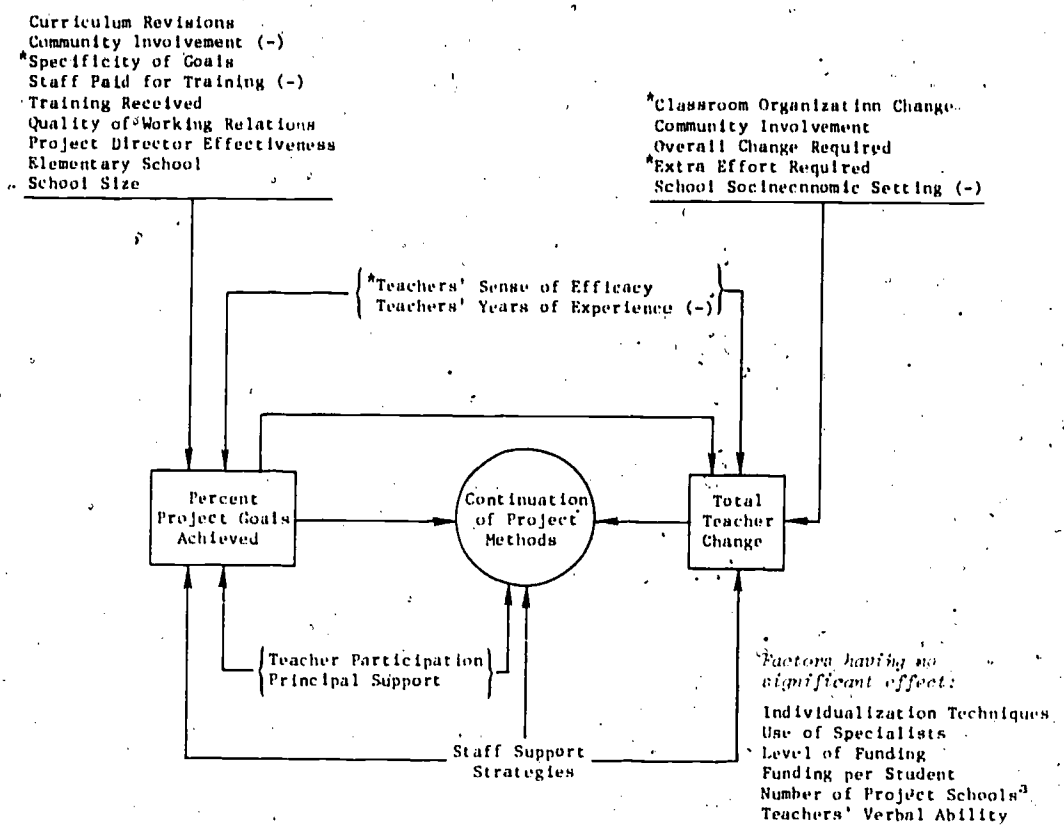
Teachers' years of experience had a significant negative relationship to project success. Teachers' verbal ability was related to improved student performance, but did not seem to affect other project outcomes.

These institutional factors appear to be amenable to the influence of local planners. For example, in light of the great importance of principals, planners could strive to identify candidate schools where projects will be assured of principals' support, or devise strategies for eliciting principals' support before projects are implemented. Furthermore, a number of project implementation strategies--staff training in particular--appear to offer a vehicle for influencing the quality of staff working relationships and possibly even teachers' sense of efficacy. In short, our analysis suggests that planners and policymakers do not have to take institutional factors as "given," but as features subject to judicious selection and shaping.

SUMMARY OF FINDINGS AT CLASSROOM LEVEL

This chapter has examined the effects of three categories of factors: the federal input, project characteristics, and the institutional setting--on the effects and continuation of change agent projects at the classroom level. At the beginning of the chapter, we presented an overview of the findings that listed each major result in turn. The following summary takes a different approach. From the outset, we assumed that the teacher's continuation of a project depended on the complex interplay between, on the one hand, characteristics of the project and institutional setting (including personal characteristics) and, on the other hand, the effectiveness of the project's implementation and the change it produced in teachers. To provide a sense of these systemic relationships, the remainder of this chapter reviews the classroom-level findings by ordering the various effects of the factors in terms of their primary influence on each of the dependent variables.

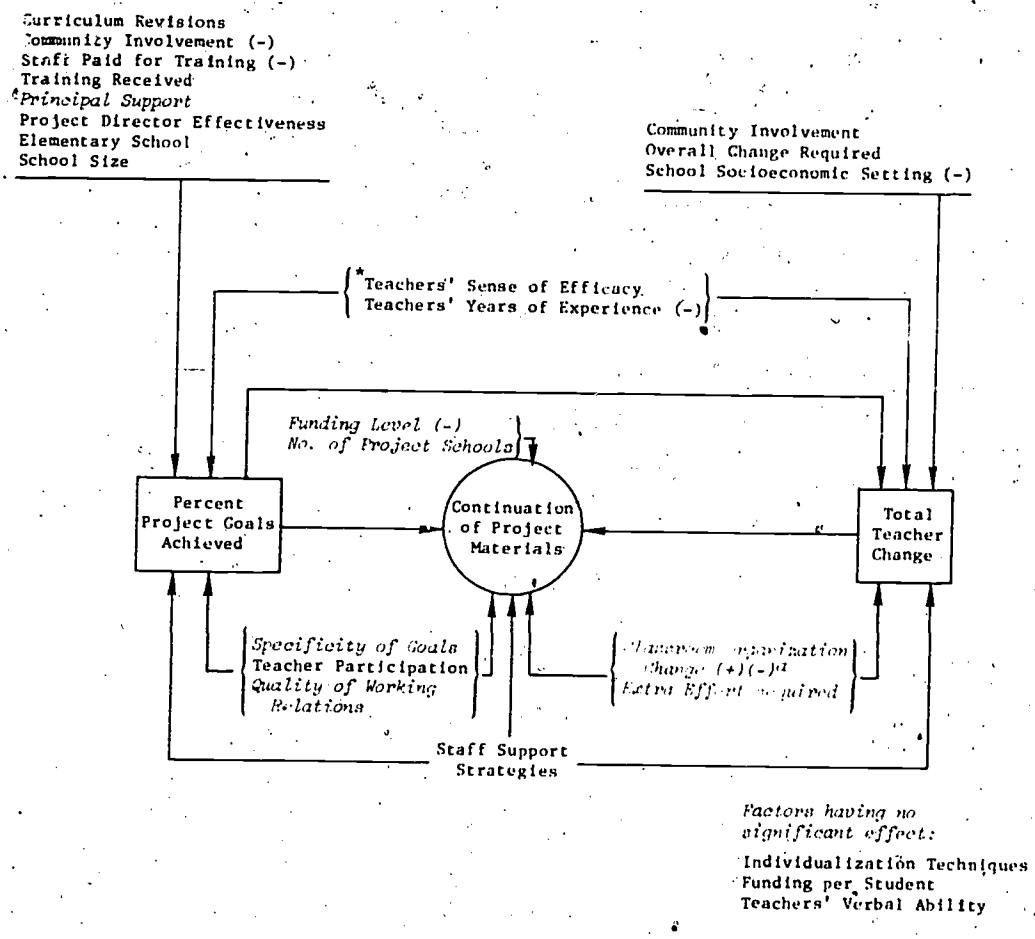
In particular, Figs. 5.2 and 5.3 will be used to summarize findings about the teachers' continuation of project methods and



NOTE: Factors marked with an asterisk (*) had a significant effect on continuation when Percent Project Goals Achieved or Teacher Change was *not* controlled for. Factors marked (-) had a negative effect; all other factors had positive effects.

[a]Number of Project Schools had a positive relationship to continuation of project methods that was barely significant at the .10 level in Table 5.3 and was not significant in Table 5.1. However, the strength and significance of this effect is reduced considerably when the number of project schools is normalized for district size. Because the significance of the number of project schools is therefore questionable, it has not been counted above as having a significant effect. The effect of number of project schools on continuation of project *materials* is not reduced when the number of project schools is normalized for district size.

Fig. 5.2--Factors affecting continuation of project methods



NOTE: Italicized variables had somewhat different effects on Continuation of Project Materials from their effects on Continuation of Project Methods. Factors marked with an asterisk (*) had a significant effect on Continuation of Project Materials when Percent Project Goals Achieved or Teacher Change was *not* controlled for. Factors marked (-) had a negative effect; all other factors had positive effects.

[a]Classroom Organization Change positively affected Teacher Change but negatively affected Continuation of Project Materials.

Fig. 5.3—Factors affecting continuation of project materials

project materials, respectively. These diagrams, derived by comparing the "reduced form" coefficients in Table 5.1 with those of the recursive coefficients in Table 5.3, portray the system of relationships among both independent and dependent variables used in the earlier analysis. The diagrams identify, by the use of arrows, factors that had a "direct" and significant influence on each dependent variable: percent project goals achieved, teacher change, and continuation. An asterisk denotes a factor whose effect on project continuation seems to have resulted from its effect on percent project goals achieved or on teacher change.[53]

Continuation of Project Methods

The continuation of project methods by classroom teachers depended primarily on how well the project was implemented during the period of federal funding, and especially on how much change was produced by the project in the style and behavior of teachers. These relationships are not surprising because effective continuation, or

[53]The diagrams offer, in effect, causal models based on our beginning assumptions and the data analysis; they are interpretations, rather than fully tested models. Consistent with the study's exploratory nature, they should be treated as hypotheses. The diagrams were constructed in the following way. All factors that had a "strong" significant effect (i.e., at the .05 level) on continuation (controlling for percent goals achieved and teacher change) are joined to continuation by a direct arrow. The diagram reflects some subjective judgments. For example, the introduction of percent goals achieved into the regression causes a drop in the effect of "teachers work together" on continuation of project methods from a highly significant .13 in Table 5.1 to a barely significant (at the .10 level) effect of .09 in Table 5.3; moreover, when "difficulty of implementation" was also taken into account in preliminary analyses, the coefficient of "teachers work together" dropped even further to an insignificant .06. Considering the strong .22 effect of "teachers work together" on percent project goals, it made sense to interpret the effect of "teachers work together" as being a direct one on implementation but an indirect one on continuation of methods. Factors having direct significant effects on either percent project goals or teacher change are shown by arrows. Some of the judgments implied in these diagrams required a variety of preliminary statistical procedures and tests, particularly F-tests. In keeping with the summary and exploratory nature of this section, the results of the statistical tests are not discussed.

assimilation, means that teachers must learn project approaches and integrate them into their classroom routine. Nonetheless, it is important to note that the evidence strongly supports the study's beginning hypotheses: effective implementation and teacher change were essential to continued use of an innovation.[54] Factors that contributed to implementation and teacher change could also be thought to have indirectly promoted project continuation.

What influenced implementation? Implementation, i.e., the percent goals achieved, was promoted by projects having specific goals (or, more particularly, by the clarity with which teachers perceived project goals and operations), by well-executed training, by an effective project director, and by good working relationships among the staff. In addition, effective implementation was more likely in elementary schools and in larger schools. All these variables, shown on the left side of Fig. 5.2, exerted their primary effects on implementation, but implementation was additionally influenced by factors that also contributed to other project outcomes. Thus, Fig. 5.2 indicates that teacher participation in project decisions and principal support promoted both effective implementation and continuation of project methods.

Teacher participation had a critical instrumental value for implementation, achievement of project goals, and continuation of

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[54] This summary does not review the findings for improvement in student performance. However, the effects of implementation and teacher change on student performance were not the same as their effects on continuation. For continuation of project methods, teacher change had a much stronger effect (.38) than did percent goals achieved (.17), as Table 5.3 indicates. This pattern was reversed for student performance (as well as continuation of project materials), with goals achieved having a .27 effect and teacher change having a .18 effect. These data point to the dilemma discussed in the text. Namely, improvements in student performance can be enhanced in the short run by putting resources into effective project implementation (particularly if the project includes skill-specific staff training and has efficacious teachers); yet, the continuation of such improvement for successive generations of students may require a greater emphasis on promoting teacher change as well as those activities (e.g., staff support) that enhance the teacher's learning of new methods.

project methods. We found that teacher suggestions can help a project turn out better, and their participation in project decisions can give them a sense of "ownership" that greatly improves the chances for continuation of project methods.

The principal's influence, as expected, strongly affected implementation and continuation at the classroom level. The principal's unique contribution to implementation seemed to lie in giving moral support to the staff and in creating an organizational climate that gave the project "legitimacy." The principal's support seemed an almost necessary condition for project continuation. This relationship is understandable, seeing that the principal typically sets the educational style of the school. Teachers are unlikely to continue a full array of project methods without the sanction of their principal, even if the methods were successful and had been assimilated. To do so would not only be difficult in light of the sometimes subtle, sometimes blunt means that principals often employ to establish a uniform "school style," but also would appear contrary to professional self-interest. Principal support, then, had a major effect on continuation that was independent of project activities or outcomes. The principal amply merits the title of "gatekeeper of change."

Teacher characteristics affected both implementation and the extent of teacher change, as Fig. 5.2 suggests. More accurately, they defined the parameters within which project outcomes became possible: Efficacious teachers were associated with more effectively implemented projects and with more project-related teacher change; more experienced teachers seemed to be less flexible during implementation and less susceptible to change.[55]

The remaining factor that promoted implementation was staff support strategies; Fig. 5.2 shows they also made major contributions

[55]Though teacher characteristics did not have strong, direct effects on project continuation, controlling for implementation and teacher change, they had powerful effects on student outcomes: The more efficacious teachers were and the higher their verbal ability, the greater was the improvement in student performance (see Table 5.3).

to teacher change and project continuation. They were so central to all project outcomes, in fact, that a summary of their role is best deferred until after we review variables that promoted teacher change.

What factors influenced the extent of teacher change, in addition to (i.e., controlling for) teacher characteristics? The more effectively the project was implemented, the greater was the extent of teacher change. Though this relationship was expected, its magnitude was lower than anticipated. Whereas poorly implemented projects were unlikely to result in teacher change, the amount of change for effectively implemented projects apparently depended on other factors. In particular, the right-hand side of Fig. 5.2 indicates that the substance and scope of the innovation had major effects on the extent to which teachers changed their styles or classroom approaches. Thus, complex innovations, such as classroom organization change or projects focusing on parent involvement, were more likely to promote teacher change than were other types of projects, even when the effectiveness of the project's implementation had been taken into account. Similarly, innovations requiring change in the overall teaching style of project staff and calling for extra effort resulted in more teacher change.

Both teacher change and implementation were influenced by another implementation strategy--a factor that by itself appears to be a "key policy lever" to the continuation of project methods: well-executed staff support strategies. The project activities that accompany training--i.e., classroom assistance, regular meetings, useful outside consultants, observation in other classrooms--had, as a group, strong significant effects on the percent of project goals achieved, on the amount of teacher change, and on the likelihood that project methods would be continued. (Skill-specific training, in contrast, had an indirect effect on continuation of methods, through its positive relationship to the percent of project goals achieved.)[56] If

[56] Well-executed training of teachers directly improved student outcomes, but not continuation of project methods and materials (see Table 5.3).

continuation of project methods is seen as assimilation, the importance of this factor becomes clear. Assimilation required that project approaches--the information conveyed through training sessions, for example--be individualized for each teacher and integrated into classroom practices. Implementation support activities that were conducted in a practical (or concrete) and timely manner provided the means whereby teachers received feedback and advice they needed to make the project work for them in their classroom. In short, strategies that supported mutual adaptation thereby promoted implementation, teacher change, and continuation of project methods.

Continuation of Project Materials

Figure 5.3 depicts teacher continuation of project materials as being directly influenced by more factors than was teacher continuation of project methods. That is, such factors as funding level, number of project schools, or specificity of project goals directly affected continuation of project materials regardless of (i.e., controlling for) their effects on implementation and teacher change; the same relationships did not hold for continuation of project methods. This suggests that teacher continuation of project materials not only was a somewhat different process but also that it was easier for teachers to continue to use project materials after the end of federal funding.

Specifically, the continuation of project methods often represented or required a fairly comprehensive change in classroom practices, whereas the continuation of project materials did not. Project materials--a new reading syllabus, for example--can be integrated into classroom practices without any change in fundamental classroom procedures. On this point, then, it is not surprising that principal support had a weaker relationship to continuation of materials than it had to continuation of project methods.

The extent of continuation of project materials depended more on the substance and design of the project than did the continuation of project methods. In particular, continuation of project materials was negatively related to the size of the federal grant and to change

in classroom organization, but was positively related to the number of project schools. However, neither the expensive projects nor the classroom organization projects placed much emphasis on materials; the former typically allocated a large portion of their funds for classroom aides while the latter concentrated primarily on methods (e.g., open classrooms, differentiated staffing) and regarded materials as only incidental or instrumental to project objectives. In contrast, projects that were located in a relatively large number of district schools usually achieved this broad coverage through dispersion of hardware or teaching materials. Indeed, the district objective in many projects that encompassed a large number of schools appeared to be to bring these schools "up to date" in terms of educational technology.

Specificity of project goals had a stronger and more direct effect on continuation of materials than it did on continuation of methods. This difference is understandable because of two aspects of specificity. On the one hand, teachers needed clarity about project precepts and procedures if they were to assimilate an innovation and, thus, to continue the project's methods; because this form of specificity, clarity, can be achieved only during implementation, its effect on continuation of methods was indirect, depending on how effectively the project was implemented. On the other hand, the continuation of project materials required specificity in a programmatic sense; unless teachers knew specifically how project materials fit into the design of projects involving curriculum revisions, for example, they were unlikely to use the materials after the end of federal funding. Specificity in the programmatic sense is therefore less something to be acquired during implementation than it is a characteristic of the innovation and its initial design.

Most of the remaining factors shown in Fig. 5.3 had similar effects on continuation of both project materials and methods. For example, teacher participation in project decisions directly promoted the continuation of project materials, perhaps because of the "ownership" teachers felt concerning materials they helped to develop as part of project implementation. Finally, well-executed staff support

strategies exerted a central influence on the continuation of project materials, as they did on project methods.

In summary, continuation of project materials depended more on project design factors--e.g., the number of project schools and the project emphasis or focus on new materials--than did the continuation of project methods. Furthermore, continuation of project materials appeared to depend much less on the principal's support. Project materials, unlike project methods, did not necessarily reflect a fundamental change in classroom practices or a particular pedagogical point of view, and could be smoothly integrated into ongoing classroom routines. Nonetheless, well-executed staff support activities were required to promote the adaptation and integration of project materials.

In contrast, continuation of project methods was harder to achieve. It required both effective implementation and an innovation that promoted teacher change. Teacher participation, support from the principal, and staff support strategies that promoted mutual adaptation all played critical roles, directly as well as indirectly, in helping teachers to assimilate new practices. Consequently, these three factors should be the prime concern of policymakers seeking to promote long-term educational reform.

Chapter 6
DISTRICT LEVEL ANALYSIS

Thus far we have examined factors that affected assimilation and continuation of project methods and materials by classroom teachers. But assimilation is only part of the picture of the fate of a project; the other part consists of district-level decisions and activities. How and why do districts decide to continue or discontinue a change agent project? What happens to "continued" innovations? Are they still treated as "special projects" or are they incorporated into the district's standard operating procedure? What strategies promote incorporation? This chapter first treats these district-level questions and then draws together classroom and district considerations to offer an overall assessment of the fate of change agent projects after the end of federal funding.

MEASURING CONTINUATION STATUS

When federal funding ends, the district must decide whether to continue the project, and what level of support to give it if it is continued. It is difficult to measure levels of support in comparable terms because of the variation in types of projects, their settings, and the kinds of support they require. For example, a project relying on paraprofessional staff and one involving computer-assisted instruction will probably require different kinds of support. For the sake of statistical analysis, we had to code these diverse decisions into comparable, albeit crude, categories--namely, the project was discontinued, reduced, maintained at about the same level as the last year of federal funding, or expanded beyond the federal funding level.

In Phase I we asked superintendents to predict the fate of their projects. For Title III projects, 21 percent predicted expansion; 22 percent expected continuation at about the same level; 44 percent indicated the project would be cut back; and 13 percent believed it

would not be continued at all.[1] We obtained comparable measurements of the status of these projects two years after the end of federal funding by piecing together a variety of district continuation decisions (e.g., the change in number of project schools, in the number of teaching and paraprofessional staff, and in financial support). Table 6.1 compares the superintendent's estimate of expected continuation with our estimate of continuation.

Superintendents appear to have been optimistic. We found less continuation than they had expected. But they were accurate in their "rank ordering" of projects. That is, all the projects discontinued at the end of two years had been expected to be either discontinued or cut back; all the projects actually cut back had been expected to be cut back or remain at their federal grant level; etc. Assuming superintendents were generally sincere in their original estimates, the decay in the continuation status of projects after two years attests to the vulnerability of "continued" projects.

Projects had their scope of activities reduced in a variety of ways. Some reductions amounted to an adjustment of the project after the end of federal funding; other reductions were true "cut backs" and were coded accordingly. For example, the number of project schools decreased in some districts--usually, according to the superintendents, because of lack of interest of the staff at particular schools, although they also mentioned budget difficulties. When the original teaching staff for a project was cut back sharply, we coded the loss as a reduction in the project. Personnel other than classroom teachers were likely to be reduced, even on projects that were otherwise secure;[2]

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[1] Since the original sample was not representative, these percentages should not be taken as estimates of the population of all former Title III projects.

[2] The distribution of changes in support personnel for 98 of 100 Phase II projects was:

	Increased	Stayed Same	Decreased	Eliminated
Training personnel or specialists other than classroom teachers	13%	32%	33%	22%
Aides or paraprofessional staff	12%	26%	43%	19%

Table 6.1

CONTINUATION STATUS OF PROJECTS

Continuation Status	Original Sample Measured in Last Year of Federal Grant	Original Sample Measured About Two Years After End of Federal Grant	Phase II Sample Excluding Discontinued Projects
Expanded	21%	11%	13%
Maintained at federal grant level	22%	21%	35%
Reduced	44%	23%	52%
Discontinued	13%	45%	--
Number of responses	173	158	96
Not codable	21	46	4

NOTE: The first column represents the responses of superintendents to the following question: *Do you expect this project will be expanded, continued at the present level, cut back, or not continued at all after termination of federal funds?*

The second and third columns represent a coding from a variety of different questions in the Phase II telephone survey and superintendent's and principal's questionnaires. The sample for the third column excludes 71 discontinued projects and 35 nonclassroom projects from the original sample but includes 12 former Title III projects not in the original sample.

we did not consider these projects to have been cut back unless the loss of support personnel appeared to have seriously hampered the project (for example, the parent-involvement component of one project relied on home visits by paid aides who were not supported by the district after the end of federal funding). Most of the projects had their budgets trimmed or eliminated; 35 percent received continued support from supplementary funds, primarily from the local school district budget: over one-third of the projects in our unusual sample received state or federal funds for the dissemination of the project outside the district. We considered projects to be cut back in their funding only if other evidence in the interviews indicated that they had financial difficulties.

In summary, at the end of federal funding district officials decide how much and what kind of support to give a project. For the sake of statistical analysis, we coded this continuation decision into the

four categories shown in Table 6.1, and thus constructed a dependent variable.[3] In addition to questions about the reliability of our coding, the interpretation of this variable is not straightforward. For example, is a project that has been cut back less likely to be sustained than a project maintained at the same level? Or, do teachers use a project that has been expanded extensively or less? Questions of this type will be considered subsequently. Nonetheless, the reader should view the following analysis with the same caution as the authors: Its purpose is exploratory and the findings are no more than hypotheses.

FACTORS AFFECTING THE CONTINUATION DECISION

In contrast to the classroom-level analysis, one could list a multitude of possible factors that impinge on districts' continuation decisions. At the classroom level, we were examining forces impinging on individual teachers; despite the lack of a well-developed theory, we could identify major factors derived from our empirically grounded conception of the local process of change. At the district level, many people with diverse agenda are engaged in a complex interplay that subjects the decision to a host of idiosyncratic situations and influences. Instead of attempting to account for all these particularities, we used a simple conceptualization of the decision based on the Phase I research.

We conceive of the district's decision on continuation to be a function of four general factors: the likelihood of the project's future educational effectiveness, the importance of the educational need it serves, the resources it requires, and the organizational and political forces that inhibit or promote it.

Table 6.2 presents the results of a multivariate statistical

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[3] We assumed these categories were ordered and assigned an interval scale to them. A statistically superior but very costly procedure would have been to consider the categories as being nominally defined and to have used a series of dichotomous or polychotomous probit analyses. The crudity of our measurements, as well as the exploratory nature of the analysis, did not justify such expenditures. We also divided the data into four subsamples corresponding to the four categories of continuation status and compared them in terms of characteristics of various independent variables. These comparisons provided evidence for some conclusions discussed in the next section.

Table 6.2

FACTORS AFFECTING CONTINUATION STATUS

Explanatory Factor	Standardized Regression Coefficient for Continuation Status: Model I: Includes Perceived Educational Effectiveness[a]	Model II: Excludes Perceived Educational Effectiveness
Perceived educational effectiveness	.38*	--
Centrality of the innovation	.22*	.34**
Project resource allocation		
Funding level during grant period (log)	-.16	-.17*
Funding per student	-.28**	-.29**
Number of project schools	.12	.13
Project covers elem. and sec. schools	-.26**	-.28**
Adequacy of district finances	.02	.03
Organizational forces		
Initiate project for outside funds	-.18	-.19*
Initiate project if can be continued	.24*	.22**
Project supported by principals	.18	.22**
Superintendent's tenure	.18	.15
Local political considerations		
Extent of political-social difficulties	-.04	-.06
Difficulty from student test scores	.24*	.20*
Percentage of population white	-.06	-.10
School district enrollment (log)	.22*	.24*
R^2	.44	.49
Number of observations	88	88

[a]The estimating procedure for Model I is two-stage least squares with "perceived educational effectiveness" as an endogenous variable. The estimating procedure for Model II is ordinary least squares.

*Significant at the .10 level.

**Significant at the .05 level.

analysis relating the continuation status of the project (two years after the end of federal funding) to operational measurements of these factors.[4] The remainder of this section interprets the effects of each factor in turn.

Perceived Educational Effectiveness or Project "Success"

Virtually all federally funded innovations produce evaluation documents that report on the project's "success." But these evaluations typically bear little resemblance to what really happened on the project. Moreover, regardless of their accuracy, school district officials seldom take these reports seriously. Instead, through formal and informal discussions with project participants, they develop a "feeling" for how effectively the project was implemented and thereby evaluate the project's potential.

We used a statistical procedure to measure this evaluation. Using data collected in Phase I, we considered the superintendent's report on the percentage of the project's goals achieved to be a function of principals' and teachers' perceptions of implementation outcomes. Because more than one principal, as well as several teachers, could have been involved in an innovative project, we assumed that the superintendent integrated their responses--which sometimes disagreed--by averaging the principals' responses, averaging the teachers' responses, and weighing the disagreement between people at the same level. We call

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[4] The dependent variable used in Table 6.2 is the continuation status of the project two years after the end of federal funding. Table 6.1 shows the distribution of this variable. The independent variables were measured in the last year of federal funding; Chap. 5, Vol. II, describes their measurements in more detail.

The statistical procedure whose results are shown by the first column of Table 6.2 is two-stage least squares. The first stage was used to estimate the perceived educational effectiveness of the project, as described in the next section. R^2 and the t-statistic for this procedure have somewhat different meanings from those in ordinary least-squares regression. See P. Dhrymes, *Econometrics*, Harper and Row, New York, 1970. Because the estimates from the two-stage procedure are sensitive to our assumption about how to calculate the project's perceived educational effectiveness, the second column of Table 6.2 presents regression results, using ordinary least squares, without perceived educational effectiveness.

the resulting measure the estimated educational effectiveness of the project as perceived by the superintendent, or, more simply, its perceived success.[5]

The reader may infer from Table 6.2 that perceived success had a positive effect on continuation status. Much of this effect, however, can be attributed to discontinuation. (A comparison of the four subsamples, using analysis of variance techniques, shows that the average perceived success of discontinued projects was significantly less than the average perceived success of the other three groups, taken separately or combined.) That is, projects poorly implemented or hardly implemented at all were usually dropped. This finding is not surprising, but it is important to realize that perceived success did not determine continuation status to a greater extent. Indeed, the data

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[5]Statistically, we created the estimated educational effectiveness measure by estimating the following equation: Percent project goals achieved according to superintendent = a

$+ b_1$ (avg. princ. % goals achieved) $+ b_2$ (avg. princ. difficulty of impl.)
$+ b_3$ (avg. princ. impl. as laid out) $+ b_4$ (var. princ. % goals achieved)
$+ b_5$ (var. princ. difficulty of impl.) $+ b_6$ (var. princ. impl. as laid out)
$+ b_7$ (avg. teacher and goals achieved) $+ b_8$ (avg. teacher change)
$+ b_9$ (avg. teacher difficulty of impl.) $+ b_{10}$ (avg. teacher impl. as laid out)
$+ b_{11}$ (teacher variance % goals achieved)
$+ b_{12}$ (teacher variance teacher change)
$+ b_{13}$ (teacher variance difficulty of impl.)
$+ b_{14}$ (teacher variance impl. as laid out)

This equation forms the first stage of a two-stage least-squares estimation in which the above independent variables are instruments and educational effectiveness is endogenous. See Chap. 5, Vol. II.

Instead of this complex procedure for estimating perceived success, we could have simply used the superintendent's answer, but that answer may be inextricably related to the superintendent's view of the project's centrality (as well as to his or her own characteristics). Therefore, we would introduce statistical errors (a simultaneity bias) into the analysis if we used both variables as explanatory variables for a project's continuation. Instead, our "measurement" is an estimate of the superintendent's answer about success, based on variables that can be assumed to be unrelated (or exogenous) to the superintendent's perception of centrality or his or her personal characteristics.

show that, on the one hand, a number of less "successful" projects were expanded and, on the other hand, numerous "successful" projects were reduced at the end of federal funding. In other words, if a project was not dropped, then its continuation status--and perhaps the level of support from the district--depended on factors other than its perceived success.

Centrality: Importance of the Educational Need the Project Served

Our original sample contained a number of Title III projects that did not appear to be central to the primary educational needs of the district. For example, one project consisted of field trips to the local zoo. Such projects may achieve a high percentage of their goals (the zoo project did), but the evidence in Table 6.2 suggests that they were unlikely to be continued.

In particular, the Phase I survey asked superintendents to rate the project in terms of how close its goals were to the district's major educational objectives.[6] We used the responses as a crude operational measure of centrality. Table 6.2 indicates that the more central the project, the more likely its continuation. This effect of centrality results in part from the positive correlation between centrality and

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[6]The specific question asked of superintendents in the Phase I survey and the frequency of their responses for Title III projects were:

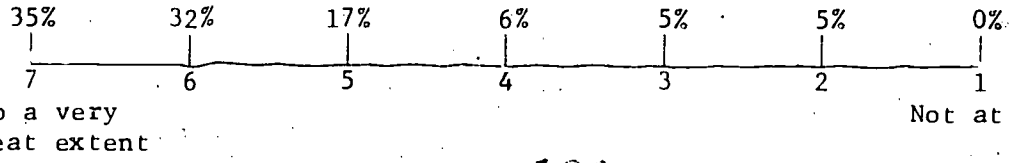
(Centrality) *How would you rate this project in terms of how close its goals are to the major educational objectives of this district? Would you say very close, moderately close, or not very close?*

Very close	69%
Moderately close	29%
Not very close	2%

Number of answers was 112.

The Phase II survey asked the question somewhat differently with the following distribution of 96 responses:

(Centrality) *To what extent would you say this project was intended to deal with the major educational problems of this district?*



perceived success--i.e., ancillary projects were likely to be poorly implemented and not considered successful.[7] But centrality still had a significant, positive effect even when success is controlled for, as it is in column 1 of Table 6.2. The reason is that insofar as ancillary projects were continued, they were particularly prone to being reduced. For example, no cases in our sample that superintendents considered ancillary (i.e., they were not rated as being "very close" to the district's educational objectives) were given any supplementary district funds or assigned any central office staff after the termination of their federal grant.

Project Resource Allocation

The next group of factors listed in Table 6.2 involve the project resources during the period of federal funding. Chapter 5 discussed the effect of these variables on project outcomes and continuation at the classroom level. We found that, for our sample, the three variables--funding level, funding per student, and number of project schools--did not have major effects on classroom outcomes or continuation. (The exceptions to this general finding were: (1) More concentrated funding was positively associated with student improvement, and (2) the installation of projects in more schools was positively associated with the teacher's continuation of project materials.) Table 6.2 suggests that these resource allocation variables had a greater effect on the continuation decision at the district level.

The project's funding level during the period of its Title III grant had a negative but not quite significant effect on its continuation. Specifically, the more expensive the project was, the more likely it was to be cut back when "soft" money had run out. Title III projects with a high funding per student were likely to be reduced, particularly in terms of a decrease or elimination of aides to the teaching staff. Projects that spanned both elementary and secondary schools were likely to be discontinued or reduced to a less inclusive

[7] Notice that the effect of centrality of continuation is diminished when perceived success is included as an explanatory variable in Table 6.2 (compare Model I with Model II).

project--e.g., to only one junior high school. These comprehensive innovations not only spread their financial resources thin, but they also seemed to be trying to accomplish too much too soon.[8] In contrast to the innovations that spanned grade levels, projects located in more than one or two district schools generally had a firm early commitment from district officials: They were rarely discontinued, though some were reduced in their project support activities.[9]

The next factor in Table 6.2 is not a project resource variable but a measure of the district's financial situation. We asked superintendents in both the 1973-1974 Phase I survey and the 1975-1976 Phase II survey to give us their assessment of the district's *current* financial situation. Though district finances generally seemed to worsen between the two surveys, neither significantly affected the continuation status of the former Title III projects.[10] In other words,

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[8] See Vol. II, Chap. 4 for a discussion of these comprehensive innovations.

[9] Table 6.2 shows that the regression coefficient for number of project schools is positive but not significant. The data seem to reflect two counteracting tendencies. On the one hand, the projects covering a number of schools--mostly curriculum development innovations--seemed to have resulted from official school district policy and thus were incorporated into the standard operations of the district. For this reason, they were not likely to be discontinued. On the other hand, these projects tended to reduce vital staff support functions. In short, they experienced difficulties in being sustained, as the next section discusses.

[10] The following frequency of responses was given in the Phase I and Phase II surveys:

How do you view the present financial situation in your district?

	Phase I Sample		Phase II Sample	
Finances	All Projects	Only Projects in Phase II Sample	All Projects	Only Projects in Phase I Sample
More than adequate	25%	22%	2%	2%
Adequate	27%	24%	30%	27%
Barely adequate	41%	45%	35%	39%
Inadequate	7%	9%	33%	31%
No. of responses	182	83	97	83

Table 6.2 uses the data of column 1, but regressions using the data of column 3 also show an insignificant effect.

relatively poor districts were no more likely to discontinue projects than were adequately financed districts.

The foregoing should not be taken to mean that money does not matter. It does, as the next section discusses. Rather, this finding is consistent with our field observation that districts can juggle the budgeting of their educational program in many ways according to their organizational and political priorities.

In summary, the end of federal funding resulted in a downward adjustment in the allocation of resources for many projects, particularly the more expensive ones. Innovations that had used soft money to reduce the student-to-adult ratio (e.g., by hiring aides) had to be cut back to live within the district budget; projects that had spread their resources thinly across grade levels had to be eliminated or severely reduced in scope. These findings, which seem predictable, raise the disturbing question of whether school people were unaware of the potential financial difficulties before they sought a Title III grant. Chapter 5 suggested that the Title III program had in fact stimulated local innovations by providing an opportunity for LEAs to use "uncommitted" money; these results about district-level continuation decisions raise doubts about how wisely LEAs allocated this temporary money, even when viewed from the standpoint of the school system's own self-interest. Does the acceptance of temporary federal "seed money" imply a built-in continuation problem? The analysis in this section scratches the surface of this issue; the next section will explore it more deeply.

Organizational Forces

The next cluster of variables in Table 6.2 pertain to local organizational considerations. Our field investigations convinced us that the bureaucratic patterns of school systems have pervasive effects on the fate of innovations. But those patterns are hard to measure in comparable ways across many different types of school systems. For the sake of the present exploratory analysis, we selected several variables to represent critical organizational characteristics.

The first two variables concern the district's attitude toward

specially funded projects, or the motivation underlying project adoption. In both the Phase I and Phase II surveys, we asked superintendents to tell us the extent to which various considerations were involved in their decision to *adopt* a project. (Table 6.3 lists the specific questions asked in the Phase II survey.) From our fieldwork in Phase I, we hypothesized that LEA officials typically had one of two general attitudes in seeking a federal grant: at one extreme, an *opportunistic* attitude in which special projects were treated as add-ons, to be initiated only if resources from outside the district were available; or at the other extreme, a *problem-solving* attitude in which funding was sought for projects that were intended to attack a priority need and were slated for continuation at the time of the initial grant. We were impressed in our field visits not only by the apparent importance of these attitudes but also by the way they seemed to persist, regardless of what happened in the classroom. Despite our inability to measure these attitudes with precision, the findings of Table 6.2 tend to reinforce these fieldwork impressions.

In particular, the variable called "Initiate Project for Outside Funds"--our surrogate for an opportunistic attitude--affected continuation negatively, though not quite significantly. The variable called "Initiate Project if Can be Continued"--our operational measure of the problem-solving attitude--affected continuation positively. (Table 6.3 gives the wording of these questions.) Even if our interpretation of these variables as opportunism versus problem-solving is faulty, the statistical evidence adds credence to two hypotheses: First, initial attitudes toward the project mattered for its continuation; second, a project was more likely to be continued if LEA officials intended from the outset to incorporate it.

In addition to the initial orientation of the central office staff, the principals' attitudes toward a project affected its continuation, as Table 6.2 indicates.[11] Considering the bureaucratic role of principals--

[11] It is important to note that the measure of principal support described in Chap. 5 is based on an aggregation of teacher ratings, viz., the mean across schools of the mean of teachers within a school. Because this variable was not created from answers given by superintendents,

"the gatekeepers of change"--this finding was expected, but two different organizational dynamics may have contributed to this effect.

Some reductions in projects consisted of a drop in the *number* of schools continuing them. Most of these projects (54 percent in our sample) were originally started by district officials who had "asked" schools to participate. At the end of federal funding, however, some districts no longer recruited schools. Instead, they often seemed to take the laissez-faire attitude of letting the principals decide the fate of the project within their schools. Some principals, especially those who had not been at the school at the beginning of the innovation, chose to let even "successful" projects wither away.

Principals' support also could enhance the project's continuation. In some instances there was a "lighthouse" effect. The project spread to other schools because of its prior "success" in the district. The possibility of such "spontaneous" diffusion is often talked about by policymakers and practitioners. For our sample, however, diffusion was infrequent--it was mentioned by superintendents as a reason for the project's expansion in only four cases--and it was not spontaneous: Committed project principals actively proselytized their colleagues.

Whereas it was relatively easy to trace the principal's influence on continuation, we found it difficult to analyze the superintendent's influence. The variation among superintendents in critical characteristics (e.g., whether they were "insiders" or "outsiders," whether they focused on politics or on internal operations, and the kind of "cabinet members" they chose) was too great to capture with a small sample of districts. Moreover, it was hard to separate the effects of personal traits from those induced by such district characteristics as its size and urbanization. Nonetheless, both this analysis and the classroom-level

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it reduces chances of spurious correlations with other questions answered by the superintendent--e.g., centrality. However, this procedure may have artificially increased the correlation between principal support and the project's perceived success, which was aggregated from teacher and principal answers. Thus, the regression coefficient for "Project Supported by Principal" is .18, which just fails to be significant at the .10 level in Model I. However, it is significant in Model II, where the effects of "Perceived Educational Effectiveness" are not included. The positive correlation of .28 between the two variables accounts for this discrepancy.

Table 6.3

QUESTIONS ON THE PROJECT'S ORIGINS

I'm going to read a list of considerations. Using the scale on the card, how important was each of these considerations in the district's decision to submit (NAME OF PROJECT) for Title III funding? First, school board interests: Was that extremely important, not at all important, or somewhere in between? Just give me the number that comes closest to how you feel.

	Extremely Important					Not at All Important		Number of Responses
School board interests	21%	16%	21%	26%	10%	3%	3%	93
Community demands	12	13	17	22	18	13	5	94
State or federal agency suggestions	3	11	18	23	11	15	19	92
Staff interests	40	42	10	4	4			94
Need to remedy a deficiency in educational practices	53	28	8	5	1	3	1	94
Staff development concerns	33	36	19	5	3	1	2	93
Desire to experiment	16	20	21	16	9	6	12	94
*Opportunity to obtain outside funds	28	20	16	18	8	3	6	92
*Likelihood that the project could be continued within regular district budget	17	36	23	10	5	4	4	92
Prior experience with the project's methods	10	10	19	23	10	14	15	94
Heard that the project worked elsewhere	5%	7%	9%	13%	9%	17%	40%	94
	7	6	5	4	3	2	1	

NOTE: The two variables marked with an asterisk (*) were used in the regression analysis shown in Table 6.2, where they are called "Initiate project for outside funds" and "Initiate project if can be continued." The remaining variables were also used in a wide variety of preliminary analyses: these variables were not significantly related to continuation, except for one variable--viz., the more important "state or federal agency suggestion" was to the initiation of the project, the less likely it was to be continued.

analysis make it clear that superintendents committed to a change effort can strongly affect an innovation.

In terms of data analysis, we could examine only one characteristic of the superintendent that seemed to matter consistently: the superintendent's tenure. Table 6.2 indicates that Title III projects were somewhat (though not significantly) more likely to be continued if they were in districts where the superintendent had been in charge for a number of years. We attribute this weak effect to two tendencies in the data. First, 13 percent of the sample projects received new superintendents during the life of the projects, and the new superintendents seemed somewhat more concerned with starting their own projects than continuing those of their predecessors. Secondly, projects that were expanded had a disproportionate number of longer-tenure superintendents. Perhaps it is easier to expand projects in stable situations.

In summary, organizational or bureaucratic dynamics of a school system have pervasive effects on both project adoption and continuation. Whereas this hypothesis should come as no surprise, it does challenge an implicit assumption in the "seed money" approach to educational change--namely, that the educational merit of a project, demonstrated during a trial period, is the principal condition of its continuation. This assumption is naive, because of internal LEA bureaucratic considerations and because of local political forces, which we turn to next.

Local Political Considerations

The idiosyncrasies of local political pressures on school districts make analysis of what happens to federally funded projects a very chancy affair. We asked a large number of questions in both the Phase I and Phase II surveys about these political forces but, aside from one or two variables, we could not identify *comparable* political factors that significantly affected the continuation of Title III projects in our sample.[12] However, school districts as public sector organizations are particularly vulnerable to issues of substance and politics pressed by their constituencies, and to fluctuation in the good will of their main

[12]The political effects on bilingual projects funded by Title VII, ESEA, were more noticeable and more identifiable. See Vol. VI.

source of support, the taxpayers, and of their vested supervisors, the school board.

The quantitative data provide at least some indication of the sensitivity of school district decisions to political concerns about continuation. During the period of our data collection, school districts all around the country were concerned with the decline in student test scores. Table 6.2 shows that the more strongly superintendents believed their districts had difficulties with community reaction to test scor the more likely was project continuation.[13] These instances of conti tion primarily involved "remedial" individualization projects. The most interesting aspect of this finding, however, is that many of these continued projects were not perceived as particularly successful. We wonder if district officials felt under pressure to demonstrate they were "doing something" about problems.

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[13]The superintendent's survey asked about student test scores as one part of the following question:

Here is a list of some sources of conflict or difficulty that have faced school administrators in the last few years. For each one, would you tell me whether it has been a major concern in this district, not a concern at all, or somewhere in between.

	A Major Concern					Not a Concern at All		No. of Responses
Teacher demands	29%	22%	18%	12%	7%	6%	6%	100
Desegregation and/or racial conflict	13	8	6	13	6	17	37	96
Reactions to student test scores	15	16	20	18	6	8	17	97
Community groups' demands	7	12	29	21	11	15	5	100
Reactions to the cost of the schools	19	23	26	13	6	9	4	96
Divisive reactions to educational issues such as fundamental schooling, sex education, discipline policy, etc.	7%	11%	20%	20%	14%	23%	5%	92
	7	6	5	4	3	2	1	

The positive effect of school district size on continuation (Table 6.2) is another interesting finding that can be interpreted in several ways. Our earlier reports (see Vol. II, App. C) offered the hypothesis that larger school districts have more organizational and political "slack." They can juggle their discretionary funds, and they can continue a project at "one end of the district" in relative isolation from other schools and communities. In any event, school district size was positively related to (a) whether the project received district funds after the end of the Title III grant (.14), and (b) the extent to which community groups favored continuation of the project (.13).

In summary, the district continuation decision did not follow an R&D model in which alternatives were assessed according to their educational value. Clearly "unsuccessful" projects were likely to be discontinued, but the status of continued projects depended on the centrality of the innovation, on its relative cost (though not on the district's financial situation), and on organizational-political considerations, rather than simply on educational merit.

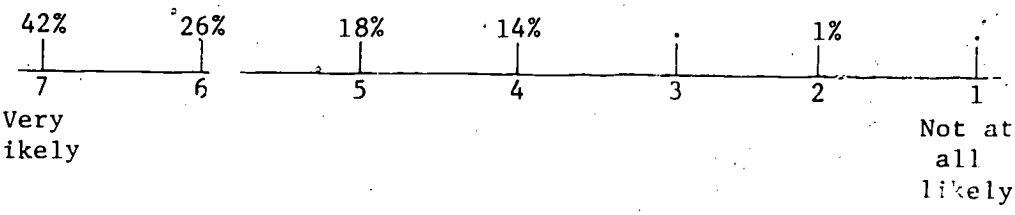
SUSTAINING INNOVATIONS

A district decision to continue part or all of a project is not, as we have suggested, the "end of the story," or even an accurate forecast of the project's fate after federal funding ends. All the projects in our Phase II sample were continued and most were judged as highly "successful"; yet, after the close of their Title III grants, many still experienced difficulty in being sustained.

For example, the Phase II superintendent's interview inquired about the former Title III projects' chances of being sustained.[14] Because

[14] The specific question and distribution of the 98 responses were:

(Likelihood of Being Sustained) *For those schools currently using project activities or methods, how likely are they to sustain them?*



these projects had been through their three-year trial period, had been relatively successful, and had been continued, one might expect that virtually all of them would be considered to be safe and stable. Yet less than half of these continued projects were so rated by the superintendents. Moreover, the correlation between the project's continuation status and its likelihood of being sustained (according to the superintendent's assessment) was only .28. The district's decision to continue a project--whether expanded, reduced, or at the same level--did not in short, appear to guarantee its long-run survival.

Why not? To explore that question, the Phase II survey asked superintendents to tell us: "In general, what difficulties do you think schools might encounter in sustaining project activities or methods?" As was to be expected, given the nature of our sample, none of the respondents cited disappointing project outcomes or perceived failure.[15] Instead, most of their answers fell into three broad categories representing different aspects of the internal operation of the school organization: finances, personnel, and politics. Table 6.4 indicates the frequency with which these factors were mentioned.

Financial Difficulties

The most frequently mentioned district problem in sustaining a special project was *financial*--insufficient resources to carry on the project at the desired level of operation.[16] However, the financial

[15]The correlation between the superintendents' perception of the projects' likelihood of being sustained and the superintendents' perception of the percent goals achieved by the projects was only .12. Thus, whereas the "failure" of a project predicted discontinuation, the differences among relatively "successful" projects may be unrelated to the problems they encounter after continuation.

[16]Though more than half of the superintendents indicated financial problems with sustaining the innovation, these problems occurred for both more and less expensive projects. Thus, the superintendents' perception of the project's likelihood of being sustained was only weakly and negatively related to its funding level during the period of the Title III grant (-.12) or to its funding per student (-.09). Nor was the superintendents' perception of the projects' likelihood of being sustained strongly related to adequacy of the districts' overall financial situation (the correlation was .16). These data are consistent with the interpretation explored in the text: Aside from the need for

Table 6.4

DIFFICULTIES IN SUSTAINING PROJECTS FROM SUPERINTENDENTS' VIEW

Type of Difficulty		Number of Times Cited[a]
Financial		58
Personnel[b]		
Staff turnover	18	
Staff resistance	12	
Administrative leadership	9	
Staff "burnout"	3	
Total, personnel		33
Political		12
Difficulties were manageable		10
Other		3

[a] 96 of 100 respondents answered the question: *"In general, what difficulties do you think schools might encounter in sustaining project activities or methods?"*

[b] Because some respondents gave more than one reason for personnel difficulties, the subtotal of the items cited exceeds the figure of 33 given in the right-hand column.

difficulties perceived by these central office respondents took a number of different forms. A few of the financial problems cited by superintendents resulted from the fact that the districts undertook Title III projects that they could not possibly afford to continue on their own funds; examples are projects that relied heavily on aides, field trips, special alternative facilities, or access to outside computer facilities.

More common were financial difficulties arising from unanticipated or "hidden" operating costs. A number of superintendents indicated that project operations were in jeopardy because the district had not planned for such technological maintenance costs as those for repairing cassettes that were central to a reading program or for updating the materials in

school districts to have a generally higher level of monetary support, the financial difficulties encountered by change agent projects are primarily management and budget allocation questions.

science kits that formed the core of a Title III science instruction project.

The most frequent source of financial problems, however, was the districts' failure to set aside funds for the support services necessary to sustain the project. Many districts seemed to assume that staff development activities purchased by federal funds were a "capital investment" which, like textbooks, had to be paid for only once (in soft money). This assumption failed to take into account either staff turnover or spreading of the project beyond its original cadre of volunteer teachers. Moreover, in several instances, materials were developed in one school and then disseminated to others without the training and support activities that had made the original project work. In short, two years after the end of federal funding, many superintendents and central office staff realized that they needed to maintain or increase staff development in order to sustain the innovation. But because districts had not taken steps to incorporate project staff training requirements into the district's regular in-service activities, or to provide for it in the district budget in other ways (through training of district resource personnel, for example), they felt unable to afford the central vehicle for sustaining the project.

A fourth cause of financial difficulties is not so much a factor identified by the superintendents, but rather a theme that ran through their responses to this open-ended question. That is, districts had trouble sustaining projects because they continued to view them as "special projects" after federal funding ended. Contrary to the experimental or developmental assumptions that underlie a federal "seed money" strategy, districts generally do not make provisions to incorporate the project once it has proven its merit. Even in our sample of relatively "successful" projects, few districts appear to have *replaced* previous practices with the new practices. Instead of routinizing the change agent strategies, districts instead tended to perpetuate the "special project" status. Doing so sometimes helped solve organizational and political problems in the district--problems relating to equity between schools or parental opposition, for example--but nonetheless made the project extremely vulnerable as budget deliberations proceeded. It is

much easier to trim funds from special projects than from what the district represents as its "education program operating budget"--an area still held somewhat sacrosanct by school board members, parents, and school administrators alike.

In summary, though a few of the financial difficulties associated with sustaining project operations were the result of events that could not have been anticipated by district administrators (such as the unexpected withdrawal of the Catholic school partner from the project), the vast majority of the problems were questions of budgetary allocations that could have been predicted and could have been planned for. One implication that clearly emerged from the preponderance of essentially foreseeable financial difficulties is that, even within this relatively select and special sample, district administrators often exhibited a budgetary management style at cross-purposes with the assumptions fundamental to a "seed money" approach to educational change or reform. A "seed money" approach presumes that when projects are successful, the district will then replace existing practices with project strategies or make them a permanent addition to the district's repertoire. Our data indicate, however, that such postfunding strategies were seldom followed; instead, projects tended to retain their special status and their vulnerability to the financial fortunes of the district.

Personnel Difficulties

The second major difficulty involved district personnel. Like the financial problems, the personnel problems were varied but more or less predictable. The ones most frequently cited related to *staff turnover*. Either through transfer or retirement, project staff dispersed over time and diluted the enthusiasm and expertise that projects need. Some districts tried to deal with this problem by intervening in teacher-transfer practices, but quickly found that inflexible union guidelines made transfers for the sake of maintaining project activities difficult if not impossible. Furthermore, very few districts had planned ahead to continue training in project methods or materials.

Staff resistance was mentioned with almost the same frequency. Particularly where the district attempted to spread or expand project

operations beyond the original core of teachers, officials met resistance from teachers new to the project. Staff resistance was also a frequently mentioned--though apparently short-term--problem for project implementation during the period of federal funding. For the original project staff, however, training and other support services in addition to active participation in project development helped overcome or temper teachers' resistance. Yet district officials typically did not provide these same devices to teachers new to project operations after federal funding had ended.[17]

Another major problem was *leadership*. A number of superintendents noted that the lack of principals' support made it difficult to sustain or spread project operations.[18] The absence of leadership or support at the central office level was also seen as a problem. At the end of federal funding, project directors, whose salaries had typically been paid out of soft money, often were promoted or reassigned, or left the district for a "better" position. Because districts generally either did not replace them or assigned their function to a middle-management administrator already burdened with other responsibilities, the usual result was a vacuum of technical expertise, bureaucratic know-how, and concern for the project.

The personnel problems associated with sustaining project operations, in short, generally appear to be the result of the district's failure to provide the necessary support, particularly in the area of training and central office leadership, that projects continue to require after the end of federal funding.

Political Difficulties

With few exceptions, the district's *political* problems had to do

[17] Somewhat related to the issue of teacher resistance is the fact that, as at least three superintendents noted, the original project staff were bored or "burnt out." The same support activities that could ameliorate resistance on the part of staff new to the project could also help to "recharge" the original staff.

[18] The correlation between principals' support for the project and the superintendent's perception of the project's likelihood of being sustained was a significant .28.

with school board or community acceptance of the project. Projects occasionally conflicted with new board initiatives--e.g., an open classroom project was seen as incompatible with school board interest in going "back to basics." Most political problems, however, stemmed from insufficient "public relations" on the part of the central office or project staff. Some projects did not have enough visibility in the district; the school board and the broader community felt they were not apprised of project activities and accomplishments or of their importance compared with other pressing priorities.[19] As a result, superintendents feared that these projects would have "rough sledding" at budget review time when school boards might severely reduce or even eliminate special projects to accommodate pressures from vocal community groups. Without active community support or a general consensus on the centrality of the project, local political vicissitudes and uncertainties cast doubt on the long-run stability of these continued projects.

Strategic Problems and Proposed Solutions

Thus, the problems encountered by district officials in sustaining project practices fell with few exceptions into three broad categories, finances, personnel, and politics.[20] Of 96 respondents, only 10 regarded

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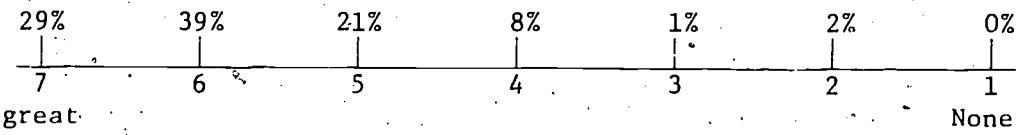
[19]The variables most strongly related to the superintendent's perception of the likelihood of the project being sustained were the project's centrality and its visibility; the correlations were .32 and .39, respectively. The specific question about visibility and the distribution of 96 responses were:

(Visibility) *How much visibility did the project achieve within the district?*



[20]The difficulties that did not fall into these categories were idiosyncratic. For example, one district had difficulty continuing the project because of new state regulations concerning pupil/teacher ratios. Another district found the project no longer appropriate because of prior miscalculation of teacher demand. It initiated its project to train a cadre of paraprofessionals with the expectation that the teacher shortage would continue; but as federal funding ended, the district found itself facing a teacher surplus, and barely able to pay the teachers they already had, let alone fund paraprofessional assistants.

continuation problems as manageable. This low figure is striking, seeing that most of the problems raised by central office officials appear predictable enough and amenable to solution through planning and management. For that reason we thought Phase II would uncover an abundance of strategies designed by local districts to deal with continuation. Accordingly, we asked superintendents to tell us: "Do you have any suggestions that would make it easier for other districts to sustain the activities of innovative projects similar to this one?" A total of 80 of the 100 respondents replied. We expected them to draw on successful strategies they had employed as well as on the wisdom of hindsight. As we will discuss, however, their suggestions were not useful on the whole, and indeed implied that few districts had developed strategies for change.

We believe this failure on the part of school districts to plan adequately for sustaining change reflects more general district attitudes, two of which emerge from the superintendents' replies. The first and most prevalent attitude was that the ultimate responsibility for sustaining changes does not rest with the local school district. From this perspective, school managers either argued that the federal government should provide the funds necessary for project maintenance and follow-on, or expressed regret that such funds were not available. They made such comments as, to select a few, "What's needed is follow-on funding from any source--federal government, state government, local taxes, foundations. The biggest problem with innovative projects is that the federal funding goes away and so the projects go away . . . . All this money comes in from Title III and then ceases. What we need is continued follow-through . . . . A tapering off of federal funds after the third year . . . or a longer period of funding . . . federal maintenance of successful projects . . . . The availability of seed funds and then continued support of services from the state or USOE . . . provide a procedure where the federal government could phase out some funding and then phase in some other funding so the first wouldn't be cut off suddenly." Such comments are directly contrary to the assumptions underlying federal "seed money"; they can be seen as an unwillingness on the part of school administrators to take responsibility for the

fiscal fate of projects they initiated. In this context, the lack of strategies for sustaining change is not surprising.

The second district attitude was more realistic and more rare. This attitude was that the responsibility for sustaining project changes rests squarely on the district. As one superintendent commented:

> . . . The first thing [is that] a district should never apply [for Title III funds] unless it can sustain [the project] itself at least for three years after the ending of funding. Inability to implement the project after the grant is over is just throwing money away. Title III programs fail because districts latch onto the money for the sole purpose of getting funds and have no plan to sustain the project.

Rather than faulting federal policies for their lack of follow-on funding or "abrupt" termination, school managers who took this attitude applied for and spent federal funds with special attention to their short-term nature and acted to maximize longer-term local benefits from special funding mechanisms such as Title III.

In our Phase II sample, as well as in our experience, districts subscribing to this second point of view were rare. However, there was a subsample of about ten respondents who did see the Title III funds as seed money and managed the funds accordingly. When these superintendents offered suggestions concerning what districts could do to sustain the changes associated with a Title III project, they generally agreed not only about *what* it was important to do, but also about *when* it must be done. In particular, they emphasized the importance of generating support for the project in the school community and of the early incorporation of the supports necessary for making the project a standard part of district operations. In both of those areas, they stressed that activities aimed at project continuation must be planned and begun at the same time the project proposal is being developed and project implementation begins. The problem of sustaining a project, in other words, is not an issue to be considered only when the last federal check arrives.[21]

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[21] The quantitative analysis also offers some support for the importance of planning for a project's continuation at its inception. The

The superintendents advised that the support of the community and the school staff should be cultivated from start to finish during the period of federal support, not merely when continuation decisions are to be made and implemented. One superintendent commented: "The most basic thing to insure the continuation of the project is to involve the teachers, students, and members of the community in the very beginning." Similarly, another said: "You've got to convince your Board and your community at the outset that it is worthwhile; after you get into it, you have to work to keep the support level high." A third superintendent explicitly acknowledged the necessity to conduct a "public relations" effort if support for continuation is to be had when federal funds terminate: "During the grant period, generate a high *visibility* for successes--particularly in the areas of student growth and teacher acceptance. A project needs high visibility from the outset."

Mobilization strategies that involve and inform the community in the project's early stages can give the district the political backing it will need later on in dealing with the personnel and political problems that typically face a special project continued on district funds. As one superintendent suggested: "You have to have meetings to sell the program to the community by presentations to ethnic groups, sports groups, all kinds of groups. Inform them. You don't sustain anything that is not supported by the community because that is where the taxes come from." To build support within the school board, another superintendent stressed: "You have to relate the project to accepted goals and objectives of the school board."

After federal funding ends, efforts to mobilize support for the project should be stepped up. Specifically, the teacher resistance or principal indifference encountered by many districts as they attempted to spread project operations could be ameliorated by providing the same orientation (or "sales") sessions plus involvement in planning for

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problem-solving variable, "Initiate projects if the district can continue," had a strong and positive correlation (.31) with the superintendent's perception of the likelihood of the project being sustained.

implementation that were provided for the original project staff. A number of district managers mentioned the wisdom of assigning original project teachers to many of these advocacy or training roles; doing so not only excites the interest of other teachers, but also "recharges" the original project teachers. One superintendent advised: "Just get it in the budget and go out and do a lot of selling to the teachers. We had a lot of visitation--we found they would learn from one another." In short, these superintendents foresee lukewarm support from the school board and resistance from nonproject teachers unless *active* measures are taken from the outset to combat these continuation problems.

The second strategic area--early planning for the incorporation of the project--is related to the need to generate ongoing support. The first general piece of advice offered by these school managers is that administrators should assume from the beginning that the project will become a regular part of school operations--not simply a special project. As one superintendent said, it is necessary to "plan the project from the start to be self-sustaining."

What perspective and activities does this type of planning require? It implies an integrated effort to incorporate the project in all key school district operations: the educational program, the budget process, personnel procedures, and staff support activities. It assumes an intention to *replace* existing practices with special project practices if they prove successful. A number of officials commented that an "incremental" view of federal projects such as Title III is bound to cripple them from the start. One superintendent observed, "There is a need for new programs--but they [officials in adopting districts] have to be willing to substitute new programs for old." Or, as another superintendent said, "You have to realize that once money comes in to develop a program, it can be carried on with local funds--because once it is started it is no more costly than a regular program.

Our respondents also suggested a number of strategies for incorporation that explicitly address the continuation difficulties discussed earlier. For example, like other respondents in our sample, this subsample of school managers acknowledge the critical importance of training for district staff after federal funding ends. However, they also see

a number of ways that the district can continue to provide this project support on their own. One strategy relies on project staff to function as trainers once the project is on its own. "My main suggestion is that there has to be a saturation relative to staff development. The project should be able to sustain itself after the funding has ended and if you concentrate on staff training during the period of funding, these teachers should be able to help you do this." Another superintendent suggested allocating special project funds to train central office personnel so that, as federal funds and the project director go away, someone is available to run training sessions and coordinate the implementation efforts in new school sites as well as keep the enthusiasm high in the original project sites. On this point, as one superintendent emphasized, "You have to train your regular staff to be able to handle what needs to be done and it has to be done in the regular work schedule of the school system." This latter comment emphasizes the point of view that is requisite to dealing with the problems of continuation--that is, that the project should not continue as "special" but that the necessary supports should be institutionalized into the regular school operation. Or as one superintendent commented, ". . . you have to fuse the project into the ongoing structures [and then] avoid words like 'change' or 'innovation.'" To accomplish this, "[District officials] should carefully analyze the numbers of people and kinds of activities required to sustain operations during the *first* year of research and development." Based on this analysis, then, provisions should be made within regular district budget and staff to accommodate these requirements. A central element in this accommodation is to view project funds as supporting *installation* costs, or to use the "soft" money to institutionalize the project. One manager cautioned: "Make certain that during development, the project funding is spent on materials, methods and in-service training. This is necessary to do before funding is exhausted or frittered away on additional personnel--which are always lost after the project is completed."

In summary, the effective strategies our respondents identified represent a particular view concerning the role of special funding and an early, active involvement in planning for project support on district

resources. Thus the financial difficulties associated with continuation would be seen as budgetary allocation problems that would be made more manageable by replacing existing practices with special project practices, and incorporating many of the support activities necessary to sustain what would be now seen as a "regular" school program. Personnel difficulties--resistance, turnover, "burn-out"--would be addressed through active promotional and training activities. The political problems that often hamper continuation would be meliorated through explicit attention to the building of a constituency for the project.

PATTERNS OF INSTITUTIONALIZATION

Thus far we have examined the continuation decision and the difficulties of sustaining continued projects from the viewpoint of the district. It would be misleading, however, to assess continuation from that viewpoint alone, because in practice continuation consists of what is done at the school level and, above all, at the classroom level. What the district preaches and what the school practices may be two different matters. Sometimes it is even possible to view a project, simultaneously, as continued because the district has mandated continuation, and as discontinued because schools and classrooms have ignored or paid little more than lip service to the district's continuation strategies and policies. Obviously, any meaningful analysis must consider both the harmony and the discord prevailing between the two levels. The analysis in the remainder of this section begins by reviewing the role of the continuation decision in the local process of change.

The typical continuation decision was strikingly similar to the earlier decision to adopt a project. For one thing, the dominant actors were school district officials and school board members, rather than the district staff who were instrumental in project implementation. Furthermore, political and organizational concerns again were likely to be dominant over the educational merits of the project and the educational needs of the district. For the purposes of our analysis, however, the most important parallel was that neither decision was self-executing with respect to its content. Just as "adoption" did not furnish an accurate forecast of implemented practice, neither would a tally of "continuation

decisions" give an accurate estimate of the return on the federal investment.

Once adopted, change agent projects went through the difficult and uncertain process of implementation. Volume III describes this process and delineates four patterns of implementation: technological learning, nonimplementation, cooptation, and mutual adaptation. Our Phase I research suggested that only those projects that followed a pattern of mutual adaptation were effectively implemented and resulted in significant change in teacher behavior.

Similarly, continued projects went through a process of *institutionalization*, which was as difficult and uncertain as implementation, and which likewise assumed a variety of patterns. Specifically, it consisted of the interplay between decisions and behavior at the district level and at the classroom and school level; it involved both assimilation of project precepts by school staff and incorporation of project procedures and activities by the school system.

Our fieldwork experience suggests, however, that individual assimilation sometimes occurred even without formal district incorporation, and vice versa. This "loose-coupling" produced four patterns of institutionalization: discontinuation, isolated continuation, pro forma continuation, and institutionalization.

Discontinuation occurred when neither district officials nor school staffs chose to continue project operations in any form. At the district level, this resulted either from an explicit decision to drop the project or from "benign neglect." In either situation, a year after the close of the Title III grant, the teaching staff were not using project methods or materials in about 70 of our original sample of 194 projects. These total discontinuations occurred because the projects were not well implemented and therefore "failed." Most of them, too, seemed ancillary to the district's and staff's concerns in the first place; they were begun for opportunistic reasons and disappeared with the last federal check.

Because neither district officials nor project staff seemed to learn much from discontinuation of this type, the federal investment was essentially wasted. Perhaps worse, project "failure" sometimes bred cynicism among the project staff, not only toward federal policy and district

officials but also toward educational reform. Opportunism can leave a bitter aftertaste.

At least three discontinued projects, however, provided a significant learning experience in the view of project participants and district officials. All three began as serious efforts to meet educational needs--e.g., remedial math for underachievers--but their mobilization activities did not involve the staff nor engage their interest and commitment; they were, in short, top-down innovations. One, a packaged curriculum innovation, essentially broke down during implementation; the other two were altered to fit into the standard routines of the staff and simply produced no real change. District officials were aware of these problems, and told us that they had learned the importance of teacher participation and of mutual adaptation during implementation. Currently, these officials have begun to incorporate such strategies into reincarnations of the original Title III projects.

Learning from "failure" seemed to be the exception rather than the rule, however. It appears to us that federal grant money generally did not serve an experimental, or trial-and-error, function in cases of discontinuation. Organizational learning seemed more likely to occur on continued projects.

In the second pattern, *isolated continuation*, district officials did not actively or explicitly turn the project off, but gave it inadequate or no support. The project methods or materials were continued nonetheless--essentially in isolation from other schools--by project teachers who integrated them into their classroom practices. We observed a number of variations of this pattern. For example, an elementary school in an upper middle class community had a project involving differentiated staffing and released time for teachers to do planning and training. Because district officials felt the project could not work in the more difficult conditions of other district schools, they gave it as little formal recognition and visibility as possible. The project was "tolerated" because of its popularity with teachers and the community. When federal funding ended, the principal tried to keep the project going on a greatly reduced budget and was denied a request to have a district specialist assigned to the school to promote project strategies. In

another case, a nationally validated project involving multiage grouping was originated in a "showcase" school. Although the school continued to receive a supplementary budget for the "special project," district officials otherwise ignored the project and gave only incidental support to other schools or teachers wanting to try project methods. These instances of isolated continuation were possible largely because of the "loosely coupled" nature of the school system. But without assured support from the district, such "pockets" of change were likely to experience the above-mentioned financial, personnel, and political difficulties of sustaining themselves. For example, they were vulnerable to staff turnover and principal transfers. Moreover, insofar as their operations depended on special budget allocations or support activities, they remained subject to being severely hampered at the first "financial squeeze."[22]

In contrast to the "grass roots" nature of isolated continuation is the third pattern, which we call *pro forma continuation*. It represents a situation in which the district established the innovation or some aspect of it as official policy, but teachers did not use the project very extensively in their classrooms. In some cases, school-level staff simply did not employ project precepts; in others, project methods or materials were "continued" only in a ritualistic sense. For example, one reading project developed specialized materials and a curriculum keyed to diagnostic-prescriptive procedures. Because of political pressures (the school board wanted to combat declining test scores) and organizational considerations (district officials had used part of their federal grant to develop procedures for marketing the materials and training manuals to other school systems), district officials and the school board decided to adopt this approach to individualization on a districtwide basis. Site visits by the Rand staff confirmed the survey responses of teachers--that is, teacher utilization of the reading

[22] In several instances, superintendents or assistant superintendents chose a deliberate strategy of cutting back on a project and keeping it in a special status to "buy time" until outside funding could be found. This strategy developed during the period of school district growth and the influx of federal money. It seems particularly risky in the current period of enrollment decline and financial retrenchment.

program was minimal and appeared to be only symbolic. Teachers conformed with project forms and nomenclature but essentially ignored the substance of project strategies. Furthermore, district officials seemed aware of the pro forma ritual being enacted at the classroom level, but apparently believed that the mere existence of the formal district mandate would help to mollify the concerns of school board members.

The final pattern of continuation, *institutionalization*, occurs when project-related change becomes part of the standard educational repertoire at both the district and the classroom level. We estimate that between 5 and 15 percent of our sample of change agent projects had been fully institutionalized at the time of the Phase II research, or approximately two years after the end of federal funding.[23] This figure is based on responses from the district-level questionnaires and on fieldwork evidence for the 40 or so projects that had, according to teacher and principal survey responses, a high degree of assimilation--i.e., of continuation of project methods at the classroom level. Most of these relatively "successful" projects were still regarded as special projects and were still experiencing difficulties in sustaining themselves. Only about ten had become regularized by the district so that they were no longer plagued by the financial, personnel, and political problems discussed earlier and were no longer uncertain about their future.

The low proportion of "continued" projects in our sample that appear to have been institutionalized attests to both the difficulty and the complexity of this process. In particular, because school districts are not generally well-integrated organizations, in order for the continued project to be institutionalized, project support requirements must be accommodated in most key areas of district operations: the budget, personnel, curriculum support activities, the instructional program, and facilities maintenance. Such accommodation of project

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[23] The survey did not contain any reliable measurements of these patterns and hence no quantitative analysis was conducted of them. Our impression is that most of the projects in the Phase II sample were of the isolated continuation variety and perhaps one-third were pro forma. Even if these figures were reliable, they should not be taken as representative of all former Title III projects.

support requirements (e.g., the regular training necessary to project operations, the technological maintenance costs, centralized coordination) does not simply "happen" as a result of a decision to continue. Rather, strategies of the type discussed earlier need to be developed for incorporating the project into district procedures; and this requires the early and active attention of district officials to all relevant areas of system operations.

To repeat, institutionalization is no more certain or straightforward than implementation. And our data suggest that, contrary to the hopes of federal planners in using "seed money" strategies, full institutionalization occurred in relatively few cases.

Chapter 7
CONCLUSION

This report has presented findings of Phase II of Rand's study of local innovative projects funded by federal change agent programs. Phase I identified factors affecting project initiation and implementation. Phase II explored the longer-run effects of federal policies aimed at stimulating local educational reform through the provision of "seed money." To that end, we examined a sample of ESEA Title III projects one to two years after the end of federal funding. This chapter summarizes the findings of the study, which addresses three questions:

- What does the continuation of specially funded projects mean and how should this process be assessed?
- What influences the nature and extent of continuation at the classroom level?
- How do districts deal with change agent projects at the end of federal funding and how do their actions affect the long-term fate of the projects?

One note of caution: This was an exploratory study. The quantitative analysis is subject to methodological reservations, and our qualitative conclusions are open to rival interpretations. These caveats notwithstanding, we believe the findings summarized below provide a number of valid working hypotheses about the long-term prospects for federally sponsored educational change.

THE MEANING OF CONTINUATION

A central theme of our research is that "continuation" is a complex phenomenon that cannot be accurately assessed merely by tallying district decisions to continue or drop projects. Such an approach would be misleading for a number of reasons. For one, few projects in our sample were continued precisely as they were implemented during their period of special funding. District officials chose among a variety of

options: Some decided to expand project operations, others to reduce or eliminate some project components, still others to reallocate personnel and streamline procedures, and so on. Similarly, depending on what they learned from the project, teachers often modified their classroom activities in idiosyncratic ways as they continued using various aspects of project methods or materials. Consequently, even when the level or scope of a project remained approximately the same, the substance of project-related activities was typically modified after funding ended, to reflect the preferences and priorities of individual staff as well as the fiscal realities of the district.

Because the "continued" components of a project may differ significantly from the shape they took when the innovation was originally adopted, it is best to think of continuation not in terms of a formal project structure but in terms of the persistence of project-related changes after federal funding ends. Continuation should be defined in terms of the continuing *effect* of specially funded activities on classroom practices.

It is no easy task, however, to assess the continuing effect of an innovation. One difficulty that confounds attempts to apply aggregate measures to project outcomes is the "loose coupling" of school district activities: A decision at one level in the system may or may not have a significant influence on behavior at another level. For example, a district may announce its official decision to continue a project, but the extent to which teachers continue to use project methods and materials may be only incidentally related to that decision. Conversely, the district may drop a project, but classroom teachers may elect to continue some of its features on their own without formal district sanction, or even knowledge. Similarly, a central office decision to continue project operations at selected schools may be effectively meaningless if teachers respond with mere pro forma compliance. An assessment of the extent of continuation therefore must encompass the decisions and actions of *both* the district and the classroom teachers.

At the classroom level, the crux of the matter is the extent to which teachers have *assimilated* project methods or materials into their regular classroom practice. At the district level, the issue is the district's

commitment to the long-term stability of the project. This commitment requires the *incorporation* of project requirements into such district operations as budget, personnel, curriculum, and facilities planning.

In the end, however, effective continuation depends on the choices and behavior of classroom teachers. Unless they have assimilated project methods or materials into their classroom activities, continuation will amount to no more than ritual. But if they are to receive the support they need to sustain project-related changes in the long run, the district at its level must incorporate the necessary arrangements.

FACTORS INFLUENCING PROJECT CONTINUATION IN THE CLASSROOM

The complex interplay between project characteristics and local institutional setting determined how well projects were implemented during the period of federal funding, and how much change they produced in teachers' behavior. We found that effective implementation was essential to the teachers' assimilation of project methods and materials, and to the continued use of the projects in the classroom. Therefore, we sought to identify project and institutional factors that affected continuation both directly and indirectly.

In general, neither funding levels nor educational methods employed had a significant effect either on initial project outcomes or on continuation in the classroom. Project "success"--both short-term and long-term--had little to do either with the size of the federal grant or with the particular educational technology pursued. Rather, the likelihood that the federal investment would "make a difference," and the usefulness of a particular educational technology, were largely determined by local choices and local institutional characteristics. In other words, the project's resources and educational methods mattered less than how it was carried out.

Local Choices

Two kinds of local choices had major effects on continuation in the classroom: the scope of change attempted by the project and the implementation strategies selected to put project plans into practice.

The scope of change attempted--its amount, its complexity, and the

effort it required of project staff--is a project design factor that can vary even for similar educational technologies. It strongly affected project continuation for at least two reasons. First, teachers responded to challenge: The more change that was asked of them in their classroom activities, the more change they were likely to make. Second, teachers were likely to take ambitious projects seriously and to see them as an opportunity to improve their skills and grow professionally; but they needed to have the goals made clear to them during implementation. When this was done, they responded with the commitment, enthusiasm, and extra effort required for effective implementation and change. Not surprisingly, when teachers worked hard to carry out an ambitious change effort, they were likely to continue using project methods or materials after the end of federal funding.

The *implementation strategies* chosen for a project constituted a second critical factor. Two strategies were particularly important for promoting the learning and motivation of classroom teachers: their participation in project decisions, and staff support activities.

Teachers' sharing in decisionmaking about the project's adaptation gave them a sense of "ownership," aided implementation, and thus enhanced the likelihood that they would continue using what they assimilated from the project. Their participation was facilitated by staff meetings and especially by local materials development.

A well-executed staff support strategy proved crucial to effective implementation and continuation. A number of valuable project activities can accompany training: assistance from project or district staff, regular meetings, the use of outside consultants, observation of other classrooms, and the like. When those activities were practical and timely in the projects we studied, they were a major determinant of whether skill-specific training given to project teachers actually led to long-term change in classroom practice. Taken together, staff support activities and teacher participation in project decisions promoted *mutual adaptation*--i.e., teachers could adapt the change agent project to the reality of their own classrooms, and in turn be changed by it. These strategies thus helped teachers to assimilate and continue new practices.

Institutional Factors

Two institutional factors influenced project continuation in the classroom: the quality of management leadership and support, and the characteristics of project teachers.

The *leadership* of the project director and the school principal had a major influence on project implementation and eventual continuation. The project director, not surprisingly, was important to effective implementation. A skillful director was able to facilitate the task-learning necessary to implementation, and to specify clearly the goals and methods of the project. Well-conducted staff training and timely and practical staff support activities usually reflected the substantive expertise and skilled interpersonal relations of a good project director.

Project directors' influence on continuation, however, was likely to be indirect, because they often were reassigned, were promoted, or left the district at the end of federal funding.

The principal was the key to both implementation and continuation. During project implementation, principals lent moral and organizational support to the project director and the project staff, ran interference with nonproject staff and anxious parents, and created the organizational climate of acceptance for the project in the school. Without that encouragement, staff typically did not expend the extra time and effort necessary to effective implementation. After the end of federal funding, the principal influenced continuation in equally direct ways. Often, because of turnover in the original cadre of project teachers, projects would have decayed without active efforts by principals to bring on new staff.

Principals often sent subtle but nonetheless influential messages concerning the legitimacy of project operations in the school--messages that teachers could not help but receive and interpret in terms of their own professional self-interest. It was extremely difficult for teachers to go on using project methods or materials without the principal's explicit support. Finally, because the districts in our sample often took a laissez-faire attitude toward the project after the conclusion of the federal grant, it was often up to the principal to

"fight" for the project and protect it from the financial, personnel, and political problems that could erode its continuation. In short, the principal was the "gatekeeper of change."

The other major element of the institutional setting that influenced project continuation in the classroom was the *characteristics of project teachers*. More experienced teachers seemed to be less flexible during implementation and less susceptible to change. Teachers who had a sense of efficacy--who felt they could "get through to even the most difficult or unmotivated students"--were associated with more effectively implemented projects and with more project-related teacher change. The verbal ability of teachers had no significant effect on implementation, teacher change, or continuation, but was positively related to improved student performance.

These results raise questions about the design of change agent projects: Is it possible to instill a new willingness to change in veteran teachers? If not, our findings imply that innovative projects should be staffed with efficacious, less "resigned" teachers. That raises a further question: Is it possible to enhance teachers' sense of efficacy? Districts can always handpick staff for pilot projects, of course, but that amounts to a delaying strategy if the eventual intent is to spread innovations or to maintain them among the general run of teachers after the original cadre of teachers move on to other tasks. If teacher characteristics can be modified, then projects could be staffed with the usual mix of personnel, and appropriate staff development strategies could be employed to compensate for staff shortcomings. This strategy would enhance long-run continuation if its staff development component were also equipped to handle personnel turnover. Though our quantitative data do not address these issues, our field experience suggests that staff development activities could be used to raise the sense of efficacy and to rekindle the enthusiasm of most teachers.

Continuation of project methods and materials, in summary, does not depend to any significant extent on the level of project funding or on the particular technology undertaken by the local project. It ultimately depends on the motivation of teachers, principals, and district personnel, and on the choices they make to implement the project

and change their behavior. Continuation at the classroom level depends on how ambitious the project was to begin with, the implementation strategies selected to carry out project plans (particularly teacher participation and staff support activities), on the institutional support for the project, and on characteristics of the staff.

HOW DISTRICTS DEALT WITH PROJECTS AT THE END OF FEDERAL FUNDING

The end of the federal Title III grant confronted school districts with a decision that many did not seriously plan for when they originally adopted a project: They had to decide to support the project in whole or in part with district resources, or not to support it at all. The latter choice--to discontinue the project--was often easy because the project had not been effectively implemented. This implementation failure, as well as subsequent discontinuation, typically reflected a district attitude of opportunism toward the project. Ordinarily, discontinued projects had been started to take advantage of available federal funds rather than to deal with real needs, were not central to the district's major educational objectives, and received little institutional support during implementation.

The decision to continue a project was, in contrast, more difficult and complex, for it required some degree of district financial, organizational, and political commitment. Financially, the end of federal funding usually resulted in sharply reduced project budgets, particularly for expensive projects. Innovations that had used federal money to lower the student-to-adult ratio (e.g., by hiring aides) were cut back to live within the district budget; projects that had spread their resources thinly across both elementary and secondary grades were severely reduced in their scope. In most cases, districts did not provide supplementary funding for "continued" projects.

This downward adjustment for continued projects did not depend on the district's overall financial situation as much as it did on organizational considerations. For example, the central office and staff attitude underlying project adoption tended to persist to the time of continuation. Opportunistic projects were treated with benign neglect, if they were not discontinued; projects begun with an explicit commitment

from central staff were often continued, and sometimes expanded, even though they had been no more "successful" during the period of federal funding than other projects. The original organizational commitment to the project usually declined when key personnel left the district or were reassigned. Loss of leadership hurt the status of the project most severely when a superintendent who had championed the project left the district. But transfers of principals, loss of project directors, and reassignments of central office staff also eroded institutional support for continued projects. This erosion often occurred at a time when support was most needed to deal with project staff turnover, and especially with local political problems.

The basic political difficulty facing continued projects arose from the need for school board approval of a new project status. School boards often passed on the original proposal for a federally funded "trial" project without serious debate, because it did not seem to compete for district resources. At the end of the federal grant, however, the project lost its "special protection." It became subject to close scrutiny, and requests for financial, personnel, and facilities support had to be weighed against other claims on district resources; to survive, in short, it required a new legitimacy in the system's political arena. Perhaps because these innovations were usually small-scale, central office staff rarely prepared the school board or the community for the project's full acceptance. In any event, most continued projects retained their "special" status rather than being incorporated into the district's regular educational repertoire. Two years after the end of the federal grant, they still were vulnerable to financial, organizational, and political instabilities.

These continued projects appeared to fall into two general patterns. The first and most prevalent pattern in our sample can be called *isolated continuation*. In this instance, district administrators adopted a laissez-faire attitude that left project continuation to the discretion of school level staff. The continuation of project-related changes then depended on the extent to which project staff had assimilated project precepts during implementation and chose to integrate them into their classroom practices. But without the active support of district

officials, such continuation was bound to be sporadic--typically confined to the original cadre of project staff--and thus their persistence was threatened by staff turnover, principal transfers, financial pressures, and the like.

A second pattern can be called *pro forma continuation.* In this situation, district officials explicitly decided to continue the project, but despite this decision, teachers did not use project-related activities extensively in their classrooms. This essentially ritualistic pattern of continuation came about for several reasons. Some continuation decisions were themselves symbolic--for example, a central staff decision made primarily to mollify school board concerns.

Beyond a formal announcement of the intent to continue a project, district officials did little or nothing to support the continued operation of project activities in the schools. *Pro forma* continuation also resulted from inappropriate or ineffective district-level continuation strategies. If district officials simply "mandated" the installation of project activities in new sites, without first eliciting the support and commitment of staff new to the project, both teacher resistance and inadequate teacher preparation often made project operations only superficial. Or, when district administrators failed to provide the support necessary to maintain project-related change--gaining the commitment of principals or maintaining required levels of material aid, for example--teachers were not able to continue the project fully.

The majority of continued projects, in summary, represented either *isolated* or *pro forma* continuation. One other pattern occurred in our sample, however, in which project-related change became integrated into regular operations at both the district and classroom levels--that is, the projects were *institutionalized* in whole or in part. They shed their "special" status and *replaced* practices that existed before the project began. Although this pattern occurred infrequently, its characteristics suggest strategies that local policymakers might follow to secure the long-term benefits of a change agent project.

Institutionalized projects planned for eventual continuation from the outset--when the project proposal was developed. The central office staff always aimed to replace some existing practices with the project,

but were wise enough not to "oversell" the project's merits in its early phases. Though the scope of the change effort typically was limited to receptive schools, district officials paid early attention to mobilizing broad-based support for the innovation. And after federal funding ended, mobilization efforts were increased in order to pave the way for the project's transition from its "special" status to its incorporation into key areas of district operations: the budget, personnel assignment, curriculum support activities, and the instructional program.

In the budget area, the project changed its status from a special line item to an activity absorbed in the operating budget. This change was possible because school board members, who had to vote for inclusion of the project into the regular operating budget, were kept informed about the project and its accomplishments. In the personnel area, replacements for key project members were allowed a period of "learning on the job" and project participants were used as "training cadre." In the area of curriculum support services, some districts had incorporated project staff training requirements into the district's regular in-service activities, and others had trained district resource personnel in project-related skills using the federal grant money. Finally, the replacement of existing practices in the instructional area meant that the support of principals and teachers had to be enlisted so that the project would work at the classroom level.

The basic problem in achieving effective continuation, then, is for district officials to avoid the trap of viewing institutionalization as automatic; on the contrary, it calls for "remobilization" and "reimplementation." They must come to realize that the groundwork and planning for sustaining a change agent project requires the early, active, and continued attention of school district managers.

CONCLUSION

Having reviewed the federal "seed money" approach to promoting education reform, our overall assessment of its contribution to date is mostly negative. Federal funds have stimulated the local adoption of a wide variety of innovations, but adoption does not assure effective

implementation. Nor does effective implementation guarantee the long-run survival of project-related improvements.

This report has argued that the *effective* continuation of a change agent project--its institutionalization--largely depends on whether teachers assimilate project strategies and integrate them into their classroom practices during implementation. However important federal money is in getting the project started, neither its availability nor its amount heavily influences classroom practice. Nor does federal funding strongly affect those factors that really matter in promoting effective implementation, teacher change, and classroom continuation: local design choices, local implementation strategies, staff motivation, and school climate and leadership.

Institutionalization of a project also depends on the nature of the continuation decision reached by district officials, and the strategies selected to implement it. District officials typically do not make this decision solely on the basis of the project's educational or technological merit, as a "seed money" model assumes they will. Instead, other organizational and political factors moderate and determine the continuation status of a change agent project, even if the project has demonstrated its value. What is most discouraging, few districts in our sample approached the end of federal funding with institutionalization in mind. Instead, their budget and personnel decisions perpetuated the "special project" status of innovations and left them vulnerable to the financial fortunes of the district. When a district decides to continue a project permanently, that decision is not self-executing: *strategies* for continuation have to be developed. If staff are not to resist "mandated" new practices, for example, district officials once again have to win their commitment and support. Unfortunately, very few districts appear to have the management capacity to develop and implement continuation strategies that effectively sustain the changes resulting from successful innovations.

Nonetheless, total pessimism is not warranted. Our negative assessment is based on the low *frequency* of significant and institutionalized change--but such change did occur, though rarely. A primary purpose of Rand's study has been to learn from both kinds of experience,

so that we can identify factors that promote or impede the institutionalization of successful innovations. We believe that understanding these factors can provide a realistic basis for the formation of more effective local, state, and federal policy aimed at educational reform.

Appendix A

STATISTICAL TABLES FOR CLASSROOM-LEVEL ANALYSIS

This appendix displays statistics for the classroom-level analysis as presented in Tables 5.1, 5.2, and 5.3. Table A.1 below lists the means and standard deviations of the independent and dependent variables used in Tables 5.1 and 5.3 (n = 499). Table A.2 shows the zero-order correlations between the variables (plus the additional variable, Difficulty of Implementation). Table A.3 presents the partial correlations of regressing each of the (exogenous and endogenous) variables of Table 5.3 on all the other variables; these partial correlations provide an insight into the extent of multicollinearity in the data. Generally speaking, for these data, a correlation of .07 is significantly different from zero at the .01 level. Table A.4 displays the (unstandardized) regression coefficients and standard errors for the regressions of Table 5.1.

KEY TO VARIABLES: TABLE A.1

(1) Percent goals achieved
(2) Total teacher change
(3) Funding level of project (log)
(4) Funding per student
(5) Number of project schools
(6) Community involvement
(7) Individualization techniques
(8) Use of specialists
(9) Classroom organization change
(10) Curriculum revisions
(11) Specificity of goals
(12) Extra effort required of staff
(13) Overall change required in teaching
(14) Staff paid for training
(15) Training received (usefulness)
(16) Classroom assistance (usefulness)
(17) Consultants (usefulness)
(18) Project meetings (usefulness)
(19) Observation of other classrooms (usefulness)
(20) Participation in project decisions
(21) Quality of working relations
(22) Principal support
(23) Project director effectiveness
(24) Elementary school
(25) School size
(26) School socioeconomic setting
(27) Teachers' sense of efficacy
(28) Teachers' experience (years)
(29) Teachers' verbal ability
(30) Difficulty of implementation
(31) Total student change
(32) Continuation of project methods
(33) Continuation of project materials

Table A.1

MEANS AND STANDARD DEVIATIONS OF CLASSROOM VARIABLES

Variable Number	Mean	Standard Deviation	Minimum	Maximum
(1)	68.058	24.736	0.0	100.0000
(2)	19.118	5.8583	4.0000	28.0000
(3)	11.395	0.70365	9.2252	12.7220
(4)	167.73	257.68	11.1230	2695.6000
(5)	5.5760	5.5566	1.0000	44.0000
(6)	0.41020D-02	1.0341	-1.9340	2.4400
(7)	0.98032D-01	0.97934	-2.6140	2.1210
(8)	0.11012	1.0032	-2.0410	3.1470
(9)	0.17182D-01	1.0436	-2.0400	3.1570
(10)	0.12023	1.0096	-2.3120	3.0950
(11)	5.3520	1.3871	1.0000	7.0000
(12)	5.8040	1.4330	1.0000	7.0000
(13)	0.29200	0.45468	0.0	1.0000
(14)	0.60400	0.48906	0.0	1.0000
(15)	4.6286	1.7553	1.0000	7.0000
(16)	4.0520	2.2193	1.0000	7.0000
(17)	3.3680	2.4472	1.0000	7.0000
(18)	4.3760	2.1332	1.0000	7.0000
(19)	1.8020	2.5610	1.0000	7.0000
(20)	4.0380	1.9911	1.0000	7.0000
(21)	3.9380	1.0743	1.0000	5.0000
(22)	7.4060	1.8333	1.0000	9.0000
(23)	5.4900	1.6155	1.0000	7.0000
(24)	0.72400	0.44702	0.0	1.0000
(25)	610.01	359.97	350.0000	2500.0000
(26)	2.2820	0.90470	1.0000	5.0000
(27)	9.7380	1.4756	5.0000	12.0000
(28)	12.102	7.9631	1.0000	40.0000
(29)	42.460	5.6061	11.0000	50.0000
(30)	4.4780	1.7520	1.0000	7.0000
(31)	13.092	2.7913	2.0000	18.0000
(32)	5.1820	1.5326	1.0000	7.0000
(33)	5.8060	0.91453	4.0000	7.0000

NOTE: For key to variable numbers, see preceding page.

Table A.2

ZERO-ORDER CORRELATIONS BETWEEN CLASSROOM VAR

Variable Number	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1)	1.00																			
(2)	.33	1.00																		
(3)	.01	.09	1.00																	
(4)	.10	.09	.18	1.00																
(5)	.00	-.12	.17	-.21	1.00															
(6)	-.00	.19	.08	.04	-.10	1.00														
(7)	.13	.16	.25	.21	-.18	-.06	1.00													
(8)	.05	-.00	.10	.00	-.06	-.09	-.05	1.00												
(9)	.07	.18	.06	.02	-.11	.04	-.01	.01	1.00											
(10)	.20	.07	-.00	-.04	.04	-.04	-.04	.03	-.01	1.00										
(11)	.47	.26	.12	.11	.02	.05	.28	.06	-.01	.15	1.00									
(12)	.17	.32	.08	.02	-.15	.20	.23	-.00	.10	.13	.25	1.00								
(13)	.00	.22	.05	.00	-.10	.15	.01	-.09	.12	.11	.04	.15	1.00							
(14)	-.01	.08	.02	-.02	-.14	.04	.10	.05	-.04	.10	.10	.14	.09	1.00						
(15)	.42	.31	.00	.03	-.10	.14	.20	.08	.05	.11	.43	.25	.10	.15	1.00					
(16)	.38	.27	-.03	.11	-.04	.15	.02	.14	.07	.12	.30	.13	.02	.01	.44	1.00				
(17)	.24	.28	.09	.03	-.09	.29	.13	.03	.09	.02	.19	.12	.14	.16	.41	.29	1.00			
(18)	.28	.29	.06	.04	-.13	.19	.09	.05	.15	.15	.26	.28	.10	.16	.45	.35	.37	1.00		
(19)	.09	.19	.12	.04	-.07	.20	.10	-.09	.24	-.00	.11	.12	.10	-.00	.24	.22	.23	.25	1.00	
(20)	.27	.22	.00	.02	-.19	.21	.06	.08	.17	.11	.22	.26	.14	.16	.28	.24	.26	.45	.19	1.00
(21)	.47	.23	-.03	.06	-.05	.02	.12	.02	.07	.18	.39	.27	-.02	.17	.34	.23	.18	.35	.13	.32
(22)	.36	.16	.00	.00	-.00	.09	.01	.05	.05	.04	.27	.12	.00	-.05	.28	.16	.15	.17	.11	.12
(23)	.51	.20	-.02	.13	-.05	.12	.02	.09	.04	.15	.40	.11	-.01	.02	.38	.44	.21	.35	.14	.24
(24)	.14	.03	-.07	.04	.08	-.24	.12	.11	.00	.01	.11	-.01	-.19	-.17	.01	.11	-.02	-.02	-.00	-.16
(25)	.04	.01	.09	-.07	.03	.05	-.02	-.13	.00	.03	-.03	.10	.10	.15	-.03	-.11	-.02	.07	-.09	.13
(26)	.03	-.05	-.10	-.20	.09	.04	-.01	.07	.00	-.08	.02	.06	-.00	.01	.01	-.07	-.00	-.07	.00	.06
(27)	.22	.15	-.15	.02	-.05	-.03	.01	-.02	.00	.02	.14	.08	-.01	-.05	.16	.12	.09	.13	.01	.15
(28)	-.07	-.08	.09	-.01	.01	.04	.01	-.01	-.09	-.10	.05	.05	-.00	.02	.06	-.04	.10	-.01	.08	.03
(29)	-.00	.02	-.04	-.04	-.02	-.01	.08	.02	.00	.09	.07	.08	.00	.05	.00	-.00	.00	.05	-.00	.05
(30)	-.26	.04	.07	.04	-.06	.11	.06	-.11	-.12	.07	-.11	.21	.11	.04	-.10	-.12	-.02	.00	-.01	.04

Key to variable numbers:

(1) Percent goals achieved
(2) Total teacher change
(3) Funding level of project (log)
(4) Funding per student
(5) Number of project schools
(6) Community involvement
(7) Individualization techniques
(8) Use of specialists
(9) Classroom organization change
(10) Curriculum revisions
(11) Specificity of goals
(12) Extra effort required of staff
(13) Overall change required in teaching
(14) Staff paid for training
(15) Training received (usefulness)
(16) Classroom assistance (usefulness)
(17) Consultants (usefulness)
(18) Project meetings (usefulness)
(19) Observation of other classrooms (usefulness)
(20) Participation in project decisions
(21) Quality of working relatior
(22) Principal support
(23) Project director effectiver
(24) Elementary school
(25) School size
(26) School socioeconomic settir
(27) Teachers' sense of efficacy
(28) Teachers' experience (years
(29) Teachers' verbal ability
(30) Difficulty of implementatio

Table A.3

PARTIAL CORRELATIONS BETWEEN CLASSROOM VARIABLES

Variable Number	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
(1)	.51																												
(2)	.14	.31																											
(3)	.02	.05	.26																										
(4)	.03	.01	.19	.18																									
(5)	.04	-.03	.28	-.21	.24																								
(6)	-.10	.10	.04	.04	-.05	.27																							
(7)	.02	.02	.24	.12	-.21	-.14	.30																						
(8)	-.01	-.00	-.04	-.01	-.05	-.10	-.08	.11																					
(9)	.01	.08	.09	-.00	-.10	-.07	-.09	.03	.14																				
(10)	.03	-.03	.04	-.02	.03	-.08	-.11	.00	-.06	.14																			
(11)	.16	.02	.10	.01	.10	.02	.18	.03	-.06	.03	.40																		
(12)	-.02	.17	.02	.04	-.07	.16	.16	.02	.04	.09	.06	.27																	
(13)	-.02	.16	-.00	-.00	-.05	.02	-.02	-.09	.08	.12	.04	.05	.15																
(14)	-.11	.03	.01	.04	-.21	-.04	.04	.06	-.08	.07	.05	.02	.03	.17															
(15)	.11	.04	-.06	-.06	-.02	-.03	.11	.03	-.02	-.01	.17	.04	.02	.06	.46														
(16)	.09	.06	-.05	.05	.04	.08	-.08	.08	-.01	.03	.03	.00	-.02	-.02	.20	.37													
(17)	.08	.08	.04	-.03	.00	.20	.08	.02	.02	-.02	-.05	-.11	.06	.10	.17	.06	.31												
(18)	.07	.03	.07	-.03	-.03	.02	-.03	-.00	.03	.05	-.05	.09	-.00	.04	.20	.06	.15	.42											
(19)	-.05	.04	.07	-.02	-.00	.07	.05	-.12	.19	-.01	-.02	-.01	.02	-.05	.07	.11	.04	.07	.21										
(20)	.09	-.02	-.01	-.01	-.10	.08	.00	.10	.10	.00	.03	.05	.05	.04	.04	.05	.03	.25	.04	.34									
(21)	.21	.01	-.11	.05	.02	-.06	.00	-.06	.02	.07	.18	.11	-.11	.15	.00	-.02	-.01	.12	.03	.11	.41								
(22)	.10	-.01	.01	-.06	-.02	.08	-.07	.03	.00	-.03	.03	.01	.02	-.11	.10	-.09	.01	-.04	.03	-.02	.25	.29							
(23)	.25	-.03	-.06	.11	-.02	.05	-.06	.03	-.00	.04	.16	-.06	-.05	-.01	.03	.21	-.02	.15	.01	-.00	.01	.17	.42						
(24)	.10	.06	-.05	.01	.08	-.20	.13	.04	.03	.01	.02	.05	-.12	-.08	-.11	.08	-.00	.07	-.03	-.14	.00	.11	-.04	.42					
(25)	.10	.01	.05	-.06	.07	-.07	.03	-.09	.01	-.00	-.05	.09	.00	.07	-.38	-.06	-.04	.07	-.11	.03	.04	.03	.04	-.49	.35				
(26)	.05	-.08	-.08	.16	.09	.10	.02	-.07	.03	.06	.01	.06	-.00	.03	.05	-.10	.01	-.11	.02	.10	-.04	-.07	.02	.10	-.01	.14			
(27)	.12	.09	-.15	.05	-.02	-.07	-.04	-.07	-.03	-.01	.06	.00	-.00	-.08	.04	.01	.01	.06	-.03	.09	-.03	-.03	-.08	.05	-.00	.08	.15		
(28)	-.10	-.13	.12	-.00	-.00	.00	-.07	-.00	-.15	-.12	.02	.07	.01	.02	.07	-.06	.10	-.08	.09	.05	.01	.08	.02	.09	.00	-.02	.09	.15	
(29)	-.03	.04	-.07	-.04	-.00	-.00	.08	.03	.02	.09	.04	.02	-.00	.00	-.06	-.00	-.02	.04	-.02	.00	.06	-.08	.01	-.01	.02	.08	-.01	.20	.09

Key to variable numbers:

(1) Percent goals achieved
(2) Total teacher change
(3) Funding level of project (log)
(4) Funding per student
(5) Number of project schools
(6) Community involvement
(7) Individualization techniques
(8) Use of specialists
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(16) Classroom assistance (usefulness)
(17) Consultants (usefulness)
(18) Project meetings (usefulness)
(19) Observation of other classrooms (usefulness)
(20) Participation in project decisions
(21) Quality of working relations
(22) Principal support
(23) Project director effectiveness
(24) Elementary school
(25) School size
(26) School socioeconomic setting
(27) Teachers' sense of efficacy
(28) Teachers' experience (years)
(29) Teachers' verbal ability

Table A.4

REGRESSION COEFFICIENTS AND STANDARD ERRORS FOR CLASSROOM VARIABLES

Independent Variable	Dependent Variable: Percent Project Goals Achieved		Total Teacher Change		Total Student Improvement		Continuation of Project Methods		Continuation of Project Materials	
	Regression Coefficient	Standard Error	Regression Coefficient	Standard Error	Regression Coefficient	Standard Error	Regression Coefficient	Standard Error	Regression Coefficient	Standard Error
(1) Funding level of project	1.0072	1.332	0.49629	0.3750	-0.11250	0.1660	0.26500E-01	0.9384E-01	-0.72980E-01	0.5761E-01
(4) Funding per student	0.29752E-02	0.3463E-02	0.33641E-03	0.9752E-03	0.82748E-03	0.4317E-03	0.12350E-03	0.2440E-03	0.97847E-04	0.1495E-03
(5) Number of project schools	0.13803	0.1665	-0.28000E-01	0.4688E-01	0.19995E-01	0.2075E-01	0.16445E-01	0.1173E-01	0.10441E-01	0.7203E-02
(6) Community involvement	-1.8148	0.9038	0.51542	0.2545	0.64384E-01	0.1127	0.69286E-01	0.6369E-01	-0.34137E-01	0.3910E-01
(7) Individualization techniques	0.54489	0.9842	0.17509	0.2772	0.43868E-01	0.1227	0.30196E-01	0.6936E-01	0.40908E-02	0.4258E-01
(8) Use of specialists	-0.27969	0.8521	-0.58946E-01	0.2400	-0.16963	0.1062	0.86327E-02	0.6005E-01	-0.88706E-02	0.3687E-01
(9) Classroom organization change	0.53429	0.8318	0.47356	0.2342	-0.63717E-01	0.1037	0.10814	0.5862E-01	-0.65168E-01	0.3599E-01
(10) Curriculum revisions	1.5336	0.8565	-0.12785	0.2412	0.19400	0.1068	-0.21533E-01	0.6036E-01	0.54734E-01	0.3706E-01
(11) Specificity of goals	2.7418	0.7421	0.24486	0.2090	0.18963	0.9251E-01	0.13141	0.5230E-01	0.10384	0.3211E-01
(12) Extra effort required of staff	-0.36161E-01	0.6491	0.68966	0.1828	-0.52461E-01	0.8092E-01	0.13493	0.4574E-01	0.11417	0.2809E-01
(13) Overall change required in teaching	-0.85537E-01	1.899	1.9259	0.5347	-0.15412E-01	0.2367	0.19230	0.1338	0.14359	0.8215E-01
(14) Staff paid for training	-4.4299	1.800	0.20457	0.5068	-0.47137	0.2243	0.14034	0.1268	0.37420E-01	0.7786E-01
(15) Training received	1.6188	0.6189	0.23692	0.1743	0.22032	0.7716E-01	0.97056E-01	0.4362E-01	0.30937E-01	0.2678E-01
(16) Classroom assistance	1.0623	0.4562	0.22976	0.1285	0.18134	0.5687E-01	0.62425E-01	0.3215E-01	0.82187E-02	0.1974E-01
(17) Consultants	0.85775	0.3943	0.23856	0.1110	0.93169E-01	0.4915E-01	0.54481E-02	0.2779E-01	0.15917E-01	0.1706E-01
(18) Project meetings	-0.80328	0.4952	0.69475E-01	0.1395	-0.21558E-01	0.6174E-01	-0.25437E-01	0.3490E-01	-0.18564E-01	0.2143E-01
(19) Observation of other classrooms	-0.36591	0.3536	0.89524E-01	0.9957E-01	0.40912E-01	0.4408E-01	0.15880E-01	0.2492E-01	0.31689E-01	0.1530E-01
(20) Participation in project decisions	1.0103	0.4978	-0.20927E-01	0.1402	0.13932E-01	0.6205E-01	0.90595E-01	0.3508E-01	0.46623E-01	0.2154E-01
(21) Quality of working relations	4.7173	0.9574	0.28513	0.2696	0.18239	0.1193	0.19803	0.6747E-01	0.13326	0.4142E-01
(22) Principal support	1.2032	0.5177	0.10436	0.1458	0.18619	0.6454E-01	0.99305E-01	0.3649E-01	0.44558E-01	0.2240E-01
(23) Project director effectiveness	3.6062	0.6374	0.81165E-02	0.1795	0.20877	0.7946E-01	0.32409E-01	0.4492E-01	0.43365E-02	0.2758E-01
(24) Elementary school	5.7047	2.357	1.2213	0.6638	-0.16454	0.2939	0.63461E-01	0.1661	0.14980	0.1020
(25) School size	0.67001E-02	0.2768E-02	0.51679E-03	0.7796E-03	-0.32843E-03	0.3451E-03	-0.11210E-03	0.1951E-03	0.26790E-04	0.1198E-03
(26) School socioeconomic setting	0.80285	0.9567	-0.44336	0.2694	-0.45467E-01	0.1193	-0.24279E-01	0.6742E-01	-0.35037E-01	0.4139E-01
(27) Teachers' sense of efficacy	1.7545	0.5831	0.41239	0.1642	0.44285	0.7269E-01	0.12221	0.4109E-01	0.45866E-01	0.2523E-01
(28) Teachers' experience (years)	-0.31208	0.1081	-0.10068	0.3043E-01	-0.26065E-01	0.1347E-01	-0.12014E-01	0.7615E-02	-0.14343E-02	0.4675E-02
(29) Teachers' verbal ability	-0.89656E-01	0.1506	-0.33042E-01	0.4241E-01	0.50092E-01	0.1877E-01	0.13680E-01	0.1061E-01	0.87537E-02	0.6516E-02
R^2	.50		.30		.39		.36		.32	
Barten's R^2	.47		.26		.36		.32		.28	
N	499		499		499		499		499	

Appendix B

THE SOURCES OF VARIATION IN TEACHER RESPONSES

A continuing theme of this research has been the extent to which the outcomes of projects depend on the way they are carried out--that is, on their implementation. We have argued that the strategies whereby a project is installed and modified to meet local needs may be much more critical for results than is the educational theory underlying an innovation, or the initial project design. As a consequence, we would expect that teachers in the same innovative project--and even in the same school--would have different experiences with the innovation, *depending on their implementation experiences*. In other words, we would say that an innovative project is not a uniform educational treatment; rather, it is a loosely structured intervention in the on-going life of a school, and its effects depend on the often unique ways that it is actually carried out in each classroom.

Because we expect the results of a project to be affected by its implementation in individual classrooms, we have based our analysis not only on data collected for whole projects or schools, but also on data gathered from more than one thousand teachers. Each teacher was asked to report on the innovative project in his or her classroom. In the two surveys we conducted (in 1973 and 1976), we found that the teachers varied considerably in such areas as

- Their understanding of the project;
- The extent to which they took part in designing, preparing for, modifying, and adapting the innovation; and
- The extent to which the innovation influenced their teaching practices.

Moreover, our 1973 survey revealed that project teachers, principals, and district officials often sharply disagreed about the outcomes of a project. (We argued that this disagreement between teachers and their superiors may have been due to systematic differences in the way implementation affected them.)

Both our data and our theoretical understanding of the change process lead us to believe that teacher-to-teacher variation is an important part of the story of every innovation. But how important are these differences empirically, compared with the differences among projects and among schools? It was possible that the variation among teachers in our sample was an artifact of the way in which we collected the data; perhaps, that is, it merely reflected differences among schools and projects. If this were true, some of our analysis might be invalid, particularly our conclusions about relationships involving nonschool and nonproject variables. This appendix explores this issue by assessing how much of the variance in teachers' answers is due to teachers being in the same school or on the same project. The analysis supports the basic assumption made by Chaps. 4 and 5.

ANALYZING DIFFERENCES IN TEACHER BEHAVIOR

We need to estimate the relative magnitudes of several sets of behavior: behavior that varies between individual teachers (their idiosyncratic behavior), behavior that varies between innovative projects (representing the unified responses of teachers to their projects), and behavior that varies between project teachers in particular schools (representing the effect of policies in different project settings).

By use of the statistical technique known as analysis of covariance, we may break down the parts of teachers' responses in the following partition:

Teachers' responses = (part due to the project) plus leftover nonproject component. (1)

From such a breakdown, we can measure the proportion of variation in teachers' responses that may be attributed to the project. For example, if the classroom-to-classroom variance in a project's success were very small, then factors common to all classrooms and teachers in the project were more important than differences among teachers. Once we have estimated the amount of variance among all the sampled teachers taken together that is due to each teacher's particular project, we can compare

it with the amount of variance that would be statistically attributable to random groupings of teachers not necessarily in the same project. If the difference is large, we know that the project per se "determined" teacher responses; if the difference is small, then merely knowing what project a teacher belonged to tells us little about the teacher's answers.

A second comparison can be made between the effect of the project on teachers, and the effect of a particular school *within* a project on teachers. This is done by comparing two statistical formulations:

Teachers' responses = (part due to project) plus leftover nonproject component. (1)

Teachers' responses = (part due to school within the the project) plus leftover nonschool component. (2)

Because all schools in our survey took part in some project, Eq. (2) cannot account for less of the variance in teachers' behavior than Eq. (1). If the school formulation (2) accounts for substantially *more* of the variance in teachers' responses than does the project formulation (1), then knowing at which school a teacher taught *within* a project adds significantly to the precision of an estimate of that teacher's response, even beyond knowing which project the teacher took part in.

In summary, by use of a statistical analysis of covariance, we make two comparisons:[1]

- First, we compare the variance explained by the project in which each teacher worked with the variance explained by purely random groupings of teachers;
- Second, we compare the variance explained by the project in which each teacher worked with the variance explained by

[1]The comparisons are based on the R^2 statistic, the amount of variance "explained by" the independent variables. The independent variables consist of a set of dichotomous variables standing for each of the projects and each of the schools where teachers in our sample were interviewed.

the particular school within a project to which a teacher was assigned.

From these two comparisons we derive estimates of the magnitude of *project effects* and *school effects* on the behavior of individual classroom teachers.

THE VARIANCE IN INDEPENDENT VARIABLES

Tables B.1 and B.2 show the results of the statistical tests of whether teachers' behavior is individually idiosyncratic, is shared by teachers in the same school, or is shared among the teachers in a project. Separate statistical analyses were performed for twenty variables, which are defined and analyzed in Chaps. 4 and 5. Table B.1 shows the extent to which teachers' responses covaried according to their project. The strongest effect of teachers' innovative projects on their responses was found for the group labelled "Very high." When there was no discernible correspondence of teachers' responses to their innovative projects, variables were labelled "Insignificant" (because the pattern of responses was not significantly different from those we might expect without knowing each teacher's innovative project). Levels of project effect on teachers between these two extremes have been categoriezed "Moderate," or "High," according to the value of the "increment due to project." Table B.2 shows the extent to which teachers' responses covaried according to their school, *beyond* the covariance that was attributable to their project. When the effect of being in a particular school was most strongly reflected in teachers' responses, the indicator is categorized "Very high" in school effect; when a teacher's school had no apparent effect on the pattern of responses, beyond the effect already measured for the innovative project, the indicator is categorized as "Insignificant." Table B.3 summarizes all of these findings regarding the strength of project and school effects on teachers' reports.

Insignificance of Background Related to School or Project

Teachers' reports of their background characteristics showed no

Table B.1

TEACHER VARIANCE EXPLAINED BY TEACHER'S PROJECT: INDEPENDENT VARIABLES

Variable (Teacher's Responses)	Variance Explained in Test ANOVA (R^2)	Increment Due to Project (Test R^2)[a]	Significance of Increment
Experience (years)	.241	None	Insignificant
Sense of efficacy in teaching	.238	None	Insignificant
Verbal ability	.235	None	Insignificant
Usefulness of first-year training	.258	None	Insignificant
Specificity of goals	.353	.095	Moderate
Overall change required	.270	.012	Moderate
Project director effectiveness	.319	.061	Moderate
Usefulness of classroom assistance	.267	.009	Moderate
Frequency of staff interactions	.346	.088	Moderate
Usefulness of pretraining	.283	.025	Moderate
Quality of working relacions	.283	.025	Moderate
Principal support	.351	.093	Moderate
Usefulness of later training	.299	.041	Moderate
Use of specialists	.358	.100	Moderate
Usefulness of consultants	.393	.137	High
Extra effort required	.365	.107	High
Curriculum revisions	.386	.128	High
Individualization techniques	.515	.257	Very high
Community involvement	.590	.332	Very high
Classroom organization change	.472	.214	Very high

NOTE: Entries are based on a regression of each variable on a vector of dichotomous variables, each corresponding to an identifier of a project in the survey. R^2 from this basic regression is shown in the second column.

[a]"Increment Due to Project" is the difference between the variance explained in the test regression (R^2) and the R^2 that could occur by chance if the independent variables (here, the identifiers of particular projects) were not related to the dependent variable. The statistical test for the significance of this relationship is $F(67, 353) \geq 1.36$ for $p < 0.05$. This corresponds to a critical value of the R^2 statistic for a "significant" regression of $R^2 \geq 0.259$.

Table B.2

TEACHER VARIANCE EXPLAINED BY TEACHER'S SCHOOL: INDEPENDENT VARIABLES

Variable (Teacher's Responses)	Variance Explained in Test ANOVA (R^2)	Critical Value for Test R^2	Increment Due to School (Test R^2)[a]	Significance of Increment
Sense of efficacy in teaching	.353	.395	None	Insignificant
Verbal ability	.364	.393	None	Insignificant
Experience (years)	.383	.398	None	Insignificant
Usefulness of classroom assistance	.401	.418	None	Insignificant
Overall change required	.404	.421	None	Insignificant
Usefulness of first-year training	.408	.411	None	Insignificant
Project director effectiveness	.450	.460	None	Insignificant
Frequency of staff interactions	.477	.481	None	Insignificant
Specificity of goals	.483	.487	None	Insignificant
Individualization techniques	.607	.615	None	Insignificant
Usefulness of pretraining	.438	.431	.007	Moderate
Extra effort required	.499	.496	.003	Moderate
Usefulness of consultants	.519	.518	.001	Moderate
Quality of working relations	.446	.431	.015	High
Curriculum revisions	.524	.513	.011	High
Community involvement	.684	.675	.009	High
Usefulness of later training	.471	.443	.028	Very high
Use of specialists	.519	.490	.029	Very high
Principal support	.554	.485	.069	Very high
Classroom organization change	.601	.581	.020	Very high

NOTE: Entries are based on a regression of each variable on a vector of dichotomous variables, each corresponding to an identifier of a school in the survey. R^2 from this basic regression is shown in the second column.

[a]"Increment Due to School" is the difference between the variance explained in the test regression (R^2) and the R^2 that could occur by chance if the independent variables had no explanatory power beyond that of the *project* regressions (reported in Table B.1). Since the increment required to establish statistical significance will vary depending on the variance explained by the project regressions, the appropriate critical value is reported in the third column. This value of R^2 corresponds to the statistical test of whether $F(56, 298) \geq 1.38$ for $p < 0.05$.

evidence that similar teachers tended to teach in particular schools or projects. Their years of experience, sense of efficacy in teaching (their avowed ability to "get through" to even the most difficult or unmotivated students), and their performance on a brief test of verbal ability were not significantly related to the project or the school in which they taught. In other words, there was no tendency in our sample for certain teachers to be selected to participate in specific programs (or schools within programs), or voluntarily to "select themselves" into programs. Therefore, differences among schools or programs are probably not due to systematic differences

Table B.3

SUMMARY OF VARIANCE EXPLAINED IN INDEPENDENT VARIABLES

School Effect	Project Effect: Insignificant	Moderate	High	Very High
Insignificant	Experience Sense of efficacy Verbal ability Usefulness of first-year training	Specificity of goals Overall change required Project director effectiveness Usefulness of classroom assistance Frequency of staff interactions		Individualization techniques
Moderate		Usefulness of pretraining	Usefulness of consultants Extra effort required	
High		Quality of working relations	Curriculum revisions	Community involvement
Very high		Principal support Usefulness of later training Use of consultants		Classroom organization change

in the backgrounds of participating teachers. Surprisingly, teachers' assessments of the usefulness of training provided during the project's first year also showed no effect from projects or schools. Although teachers' experiences with training for an innovative project may well be very important to project implementation and outcomes, such experiences evidently vary widely within schools and programs. Perhaps teachers' evaluations of first-year training depended on particular conditions they encountered in their own classrooms.

Weak Association of Specificity of Goals and Overall Change Required with Project

Moderate effects due to their projects (but no significant pattern of school effects) occurred for reports of two major factors: the specificity of the projects' goals and the overall change required in teaching. While we would certainly expect a pattern of similar reports for particular projects and not for participating schools on these variables, the smallness of the project effect is noteworthy. It suggests that teachers in the same project often differ substantially in their perceptions of project scope and goals.

In addition, teachers' responses moderately reflected their projects (and not their schools) for three variables: project director

effectiveness, the usefulness of classroom assistance, and the frequency of staff interactions. Teachers evidently were fairly diverse in their reactions to both project directors and classroom assistance, perhaps because of the importance of individual personality interactions in these relationships.

Moderate Effect of Project and School on Preproject Training

Teachers on the same project tended to evaluate their pre-implementation training similarly, within projects, but there were measurable differences in how teachers responded to the training depending on the school they were in. District policies regarding such training were not washed out by individualistic responses; in addition, it appears that differences between teachers (and the problems they face) in different schools may have caused the training to be evaluated differently in different schools. Perhaps because teachers had no direct personal experience with the project when they received this training, their responses were not completely fragmented or idiosyncratic. Still, the amount of teacher-to-teacher variation in their assessments is quite high.

Project Effects Due to Extra Effort Required and Use of Consultants

The variation in the usefulness of outside consultants and in extra effort required reflected first the projects, and then, to a more moderate but significant extent, the schools within projects. Because outside consultants are generally hired by district officials, and such consultants often give the same prepared advice and remarks to different audiences, it is not surprising that a high level of similiarity in project teachers' reports was found. The school effect shows that, however predictable a consultant might be, he or she is received differently in different school settings. The importance of the school setting certainly extends to problems it faces--and therefore, to the way its staff responds to a consultant's comments. The finding that teachers in a project were in considerable agreement on the extra effort it required of them may reflect the project's implementation more than its technology, or design, or students. Effort depends on implementation

decisions regarding training, district support, and teachers' freedom to adapt the project to their needs. In addition, the *school* differences in effort suggest that the original design of the project does not by itself account for the predictability of teachers' effort.

Greater Effect of School Than of Project on Working Relationships

While teachers' extra effort was strongly related to the project served by each teacher and only moderately to the particular school within a project, the quality of working relationships depended only moderately on the project and quite highly on the individual school. Because teachers exposed to the same project and district policies nonetheless display major differences in their views of working relationships at the school level, we may infer that the organizational climate of each school influences the receptivity of teachers to new policies and projects. The statistical finding provides evidence for the assumption made in Chap. 5 that the unique identity of the school environment extends to the climate that teachers create for their work, quite independently of the effects of the district or project in which they work.

Variation of Principals' Support by School

Teachers at the same school tend to view their principal's support for the project similarly, as Chap. 5 assumed. Teachers' reports of their principal's support toward the innovation also reflected the teachers' district and project. The pattern of principals' attitudes is not unaffected by some of the overarching policies or characteristics of the project, across the individual schools in the project.

Dominance of School Effects Over Later Training

Unlike teachers' reports regarding training they received before or during the initial year of an innovative project, their assessments of training in later periods were very highly related to the school in which they taught. (There was also a moderate relationship to the innovative project as a whole.) This suggests that some of the classroom-to-classroom variability that is associated with the diversity of

teachers' initial reactions to the implementation of an innovation may be somewhat resolved by the passage of time. In addition, it may be that school policymakers learn how to sharpen their training programs and make them more coherent as they gain experience with the project.

Variability in Educational Method

The use of individualization techniques was very highly related to the innovative project in which a teacher participated, and not at all to a teacher's school within the project. Teachers understood and reported, with remarkable consistency, the extent to which a project used individualized methods. Evidently, project officials can successfully communicate this dimension of an innovation to teachers. Moreover, there is essentially no systematic deviation from project-wide individualization reports by teachers in particular schools.

Each of the other techniques reflected substantial school effects, indicating that an innovative project "mutates" depending on the school in which it is tried. Community involvement showed a very high relationship to the project as a whole, but also a high dependence on the school *within* a project in which it was employed. The particular ingredients of community involvement were evidently affected by local conditions, and a common project policy apparently left room for schools to differ in their use of community-oriented techniques.

The use of new classroom organization patterns depended very highly on each project but the school also defined the innovation. These school-to-school differences show the difficulty of imposing such techniques as open education or differentiated staffing on diverse groups of teachers. They also show how much these innovations tended to develop organically, in concert with the conditions of support and learning that are present in each school.

Both project and school determined the teachers' descriptions of curriculum revisions. The variance in teachers' descriptions of the use of specialists depended mostly on the school and moderately on the project.

VARIANCE IN PROJECT OUTCOMES

Tables B.4 and B.5 give the results of the statistical tests of whether the variance in the dependent variables used in Chap. 5 reflected the project, the school, or individual variation among the teachers. Table B.6 summarizes all of these findings regarding the strength of project and school effects.

Changes in Teaching

Most of the behavioral outcomes, especially those focusing on teaching changes that resulted from the innovation, bear only a moderate relationship to the overall project (and none to the teachers' school within the project). The pattern of teacher responses regarding their basic skills teaching, affective development teaching, and

Table B.4

TEACHER VARIANCE EXPLAINED BY TEACHER'S PROJECT: DEPENDENT VARIABLES

Variable (Teacher's Responses)	Variance Explained in Test ANOVA (R^2)	Increment Due to Project (Test R^2)[a]	Significance of Increment
Change in basic skills teaching	.306	.048	Moderate
Change in affective development	.300	.042	Moderate
Change in dealing with special learning problems	.315	.057	Moderate
Improvement in student behavior	.294	.036	Moderate
Continuation of project methods	.279	.021	Moderate
Change in classroom organization	.414	.156	High
Improvement in student achievement	.379	.121	High
Percent project goals achieved	.398	.140	High

NOTE: Entries are based on a regression of each variable on a vector of dichotomous variables, each corresponding to an identifier of a project in the survey. R^2 from this basic regression is shown in the second column.

[a]"Increment Due to Project" is the difference between the variance explained in the test regression (R^2) and the R^2 that could occur by chance if the independent variables (here, the identifiers of particular projects) were not related to the dependent variable. The statistical test for the significance of this relationship is $F(67, 353) \geq 1.36$ for $p < 0.05$. This corresponds to a critical value of the R^2 statistic for a "significant" regression of $R^2 \geq 0.259$.

Table B.5

TEACHER VARIANCE EXPLAINED BY TEACHER'S SCHOOL: DEPENDENT VARIABLES

Variable (Teacher's Responses)	Variance Explained in Test ANOVA (R^2)	Critical Value for Test R^2	Increment Due to School (Test R^2)[a]	Significance of Increment
Change in basic skills teaching	.427	.449	None	Insignificant
Change in affective development	.373	.444	None	Insignificant
Change in dealing with special learning problems	.416	.456	None	Insignificant
Improvement in student behavior	.406	.440	None	Insignificant
Change in classroom organization	.497	.535	None	Insignificant
Improvement in student achievement	.487	.507	None	Insignificant
Continuation of project methods	.443	.428	.015	High
Percent project goals achieved	.542	.522	.020	High

NOTE: Entries are based on a regression of each variable on a vector of dichotomous variables, each corresponding to an identifier of a school in the survey. R^2 from this basic regression is shown in the second column.

[a]"Increment Due to School" is the difference between the variance explained in the test regression (R^2) and the R^2 that could occur by chance if the independent variables had no explanatory power beyond that of the *project* regressions (reported in Table B.4). Since the increment required to establish statistical significance will vary depending on the variance explained by the project regressions, the appropriate critical value is reported in the third column. This value of R^2 corresponds to the statistical test of whether $F(56, 298) \geq 1.38$ for $p < 0.05$.

Table B.6

SUMMARY OF VARIANCE EXPLAINED IN DEPENDENT VARIABLES

School Effect \ Project Effect	Insignificant	Moderate	High	Very High
Insignificant		Change in basic skills teaching Change in dealing with affective development Change in dealing with special learning problems Improvement in student behavior	Classroom organization change Improvement in student achievement	
Moderate				
High		Continuation of project methods	Percent project goals achieved	
Very high				

their dealing with students' individual learning problems showed some similarity among teachers in the same project, but the similarity did not come close to dominating these classroom outcomes. The same finding holds for improvements in student behavior. Being in a particular project simply did not determine the bulk of these project outcomes for teachers. This suggests that research investigating innovations and their results should analyze individual variations among teachers. Summarizing the results of an innovation for all of the teachers in a project ignores and throws away a wealth of information pertaining to the large *individual* component of innovative outcomes.

Project Effects on Achievement and Classroom Organization

Teachers' judgments about the change in their classroom organization practices and their assessment of improvements in student achievement showed a high level of systematic response by teachers in the same project (though there was no additional similarity of responses for teachers in the same school). The extreme difficulty of classroom organization projects probably explains the coherence of teachers' responses to this measure; a project that did not *intend* to change classroom organization would probably produce uniformly low reports of classroom change, while projects attempting major classroom organization changes evidently had sufficient impact and novelty to produce a common perception of change for their teachers. Similarly, it is possible that the emphasis (or lack of it) on student achievement gains by district policymakers may contribute to a consistency in teachers' efforts to improve achievement.

Continuation--A School Phenomenon

Teachers' continuation of project methods showed a high level of similarity among teachers in the same school and moderate similarity for teachers within a project. This result lends credence to our data-analysis approach of examining the classroom level separately from the district level.

Project and School Effects on Implementation Effectiveness

Teachers' reports of percent project goals achieved showed a high tendency to conform within particular projects and within schools, even after taking account of project effects. When teachers evaluated the project as a whole (rather than their own experiences as participants in the project), they tended to gravitate toward the opinions of their colleagues.

Appendix C

PARENT INVOLVEMENT

Unlike the other Titles of ESEA--specifically, Title I and Title VII--Title III grants carry no requirement to involve parents in project operation or governance. When parents were involved in Title III projects, their involvement was part of the local district staff's strategy to assist implementation. In our sample, approximately 25 percent of the teachers stated that parent involvement was a major goal for their projects.[1] It can be inferred from the distribution of teacher responses to the survey question that parent involvement was by no means a "popular" or a routinely elected implementation strategy; but when it was made a major project goal, it was regarded as an important part of project operations--not as an incidental activity, as is so often the case in Title I projects.

Furthermore, our analysis suggests that if project staff chose parent involvement as a goal (or, as we inferred above, if projects really wanted to involve parents), they usually succeeded in doing so. We asked teachers to what extent the strategies used by their projects were effective in promoting parent participation.[2] The correlation

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[1]The specific question asked of teachers and the distribution of the 1010 responses were: (Parent Involvement as a Goal) "*To what extent was parent involvement a major goal of this project?*"

7.1%	8.0%	9.4%	13.2%	11.7%	17.7%	33.0%
7	6	5	4	3	2	1
To a very large extent						Not at all

[2]The specific question and the distribution of the 533 responses were: (Success in Involving Parents) "*How effective were these strategies in involving parents?*"

9.0%	14.1%	20.5%	23.4%	15.0%	13.2%	4.9%
7	6	5	4	3	2	1
Very effective						Not at all effective

between this question and the question concerning parent involvement as a major project goal is approximately .76, indicating that those projects genuinely wanting parent involvement were usually able to devise strategies to obtain it. In the past, the apparent failure of many Title I and other projects to promote parent involvement has been blamed on "parent apathy"; one inference of our analysis, however, is that "project apathy" is more to blame, because many projects did not really want to involve parents in the first place. Our analysis suggests that the effectiveness of parent involvement strategies, like that of many other educational strategies, depends on a point of view about parents' role in the governance and operation of school affairs--a point of view that is independent of mandates or guidelines.

It is not enough merely to want parent involvement. Strategies to gain it must be devised, and some are much more effective than others. Teachers were asked what strategies their projects had used.[3] We examined the overall relationship between their resp[illegible] to this question and their ratings of how effective the strategies had been. The resulting partial R of .26 is high enough to suggest that strategies per se do matter, but is low enough to indicate that a great deal depends on the strategy chosen.

Of the seven strategies identified, parent training was found to be the most effective. Parent involvement in classroom activities--

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[3]The specific survey question and the distribution of responses were: (Parent Involvement Strategies) *"Which of the following strategies, if any, was used to involve parents in the project?"*

	%	No. of Responses
No parent involvement strategy	58.1	385
Parent training	26.9	177
Parents hired as paid aides	26.6	175
Other parent involvement in the classroom	38.9	257
Home visits by teacher	16.4	107
Parent participation in project planning or decisionmaking	26.3	173
Parent participation in school planning or decisionmaking	20.4	134
Other (please specify)	21.8	143

other than as paid aides--was also very effective. Together, these two strategies corroborate the importance of *active* parent participation, a theme that has recurred repeatedly during the past decade's experience with these strategies. Most failures to engage parents have been failures by design, with parents relegated to the role of passive "recipients," in which they have little power over program operation or the educational process. Such strategies are typically variations on the PTA or newsletter model: Information about project operations is dispensed, and decisions are perfunctorily reviewed with parents. Parents have largely ignored pro forma efforts of this kind, especially low-income parents for whom time is at a premium.

The success of parent training in our sample of Title III projects suggests that most parents, not merely parents of the "disadvantaged," are eager to learn what they can *do* to further their children's education. Parent training enables them to acquire and apply educational skills in the home or classroom.

In short, effective parent involvement strategies are those that parents perceive as supporting their active role in their children's education and providing information about more effective parenting. Organizing and carrying out these strategies require considerable staff time and effort--effort that is unlikely to be expended unless project staff members genuinely value parent involvement. Consequently, the relationship between parent involvement as a goal and effectiveness in achieving parent participation is not surprising.

How does parent involvement relate to project outcomes? Traditionally, parents have been "silent partners" in education, and PTA meetings have often been more social affairs than working sessions. Against this background, a serious and successful effort to involve parents in project operations signifies a decided change in point of view concerning the governance and conduct of school affairs; in such cases, one would expect to encounter attempts to alter still other "traditional" aspects of classroom management and practice, such as student/teacher relations or teacher roles. Our analysis supports this proposition. Projects that had parent involvement as a major goal also resulted in significantly more teacher change in a number of areas:

teachers' ability to recognize and solve individual students' special learning problems; teachers' classroom organization techniques; and teachers' ability to work with students in affective development. Parent involvement did not alter the way in which teachers taught basic skills. It seems likely that projects pursuing parent involvement were less concerned with innovation in particular subject areas than with a more general change in school or classroom climate and management. Thus, it is not unexpected that parent involvement was also positively related to change in student attitudes or behavior, but not to student achievement.

Parent involvement as a project goal was positively related to continuation of project *methods*, but not to the continuation of project *materials*, after the end of federal funding. This finding supports the notion that active parent involvement is part of a point of view about the delivery of educational services--an approach to education that assumes considerable change in traditional attitudes and therefore requires considerable initial commitment on the part of staff.