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ABSTRACT
                The Research and Development Exchange (RDx) is a
network of regional educational laboratories and university-based
research and development centers working to support state and local
school improvement efforts. Initiated by the National Institute of
Education in 1976, the RDx is composed of eight Regional Exchanges
and four central support services. In 1979 members of the RDx agreed
to collaborate in the development of a resource base on the
identification and validation of promising educational programs,
practices, and products. This paper provides a brief history and
description of the following validation processes: the Joint
Dissemination Review Panel (JDRP); Identification, Validation,
Dissemination (IVD); Sharing Business Success (SBS); Project
Information Packages (PIPs); and the National Education Practices
File. Some of the issues in validation discussed in the paper include
replication versus adaptation, the evaluation experience of the
project staff, state responsibilities before validation, the degree
of rigor applied in validation, and the nature of on-site visits. A
bibliography on validation processes and the abbreviated form of
original IVD submission requirements are appended. (Author/MLF)

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The Search for Quality Control in Dissemination
of Educational Products and Practices:
A Look at the Literature and Major Issues

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The Search for Quality Control in
Dissemination of Educational Products and Practices:
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INTRODUCTION

The concern about validation of educational programs and practices--a
relatively new one for the educational world--has been a phenomenon of the
seventies. Four early influences creating this phenomenon were (1) the need
to justify the substantial amounts of federal monies that had been pouring
into local education agencies which would not continue to be available in such
sizeable sums, (2) the need to justify the expenditures by demonstrating that
the outcomes of federally funded LEA programs are generalizable, (3) the need
to attest to the reliability of the programs and practices to be disseminated,
and (4) the limitations on the ability of such national systems as ERIC to
effectively dissemination "exemplary" programs and practices.

In response to the first three concerns, the United States Office of Education
sponsored a number of early efforts to build quality control into the
identification and review of effective programs and products. These early
attempts led ultimately to the development of two separate processes: the
Dissemination Review Panel (DRP) process and the Identification, Validation,
Dissemination (IVD) process. Both were put into operation in 1972 for
essentially the same purpose:

to establish credible standards and procedures for identifying successful programs, to provide for consumer protection when user school districts are searching for successful programs which will help them solve educational problems or meet identified needs and to prevent the continued use of scarce funds in "reinventing the wheel."[1]

In 1979, after two years of pilot testing, a procedure for validating successful school business practices was published by the Research Corporation of the Association of School Business Officials in cooperation with the United States Office of Education and the State Departments of Education. The Sharing Business Success handbook outlines validation procedures for such practices as budgeting and financial planning, data processing, negotiations, office management, operation and maintenance of plants, personnel management, plant planning and construction, professional development, property management, pupil transportation, purchasing and supply management, school food and nutrition management, school safety, and energy conversation.

Other efforts which will be discussed in this paper include the Project Information Packages (PIPs) Project and the Bibliographic Retrieval Service's (BRS) National Education Practices File.

OVERVIEW OF MAJOR VALIDATION PROCEDURES

The Joint Dissemination Review Panel

Approximately 250 programs have been validated since 1972 by the Joint Dissemination Review Panel (JDRP), originally the Dissemination Review Panel. In 1975 the review panel was enlarged by the addition of representatives from the National Institute of Education (NIE) and assumed its new title. From

1975 to 1980, the panel was composed of 22 members, eleven from USOE, appointed by the Commissioner of Education, and eleven from NIE, appointed by the Director of the Institute. Members of the panel were chosen for their experience in education and for their ability to analyze evaluative evidence on the effectiveness of educational products and practices. Although the advent of the Department of Education and, more recently, the Republican administration, has led to no immediate changes in the composition of the panel, it is possible that there will be modifications in the coming year or two.

JDRP review was originally confined to programs developed with federal funds. The panel now reviews a broad range of programs which come from all states and which have been developed with funds from a variety of sources. Only proprietary projects and products are not eligible for review.

The Joint Dissemination Review Panel Ideabook[2], the major publication of the panel, establishes, and explains in detail, criteria for evaluating programs, giving samples of convincing and non-convincing data from validation applicants. The Ideabook also lists typical evaluation hazards which validation teams should be alert for.

Six questions must be addressed by a validation team as it examines an educational practice, although the Ideabook makes it clear that evidence of "effectiveness is the sole criterion for approval by the JDRP"[3]:

1. Did a change occur? Was the change a positive one that was in some way related to the objectives?

2. Was the effect consistent enough and observed often enough to be statistically significant?

3. Was the effect educationally significant?. . . In judging the educational significance of an intervention's impact, two factors must be considered: the size of the effect and the importance of the area in which it happened. There ought to be a reasonable balance between the two factors. The chance that a small gain would be considered educationally significant is higher in a broad or educationally important area than in a narrow or less important area.

4. Can the intervention be implemented in another location with a reasonable expectation of comparable impact?

    Is the project setting unique?
    Is the project effect solely due to the unique characteristics of the staff?
    What evidence is there to suggest that the intervention would work with different participants, in a different setting, and with a different staff?
    What components are essential? Can these be disseminated?

5. How likely is it that the observed effects resulted from the intervention?

    Can plausible alternative explanations be generated?
    Can the alternative explanations be rejected?

6. Is the presented evidence believable and interpretable?

    Are there any apparent inconsistencies in the data presented?
    Are enough data presented to satisfy the skeptical evaluator?
    Are the inferences drawn from the data consistent with the evidence?
    Has evidence been presented that common errors have been avoided?[4]

Project staff who decide to submit their project for review by JDRP follow a specific format for submitting materials (see page 5). They can submit no more than 10 pages of explanation and documentation. The difficulty of selecting the most appropriate information and of demonstrating avoidance of typical evaluation pitfalls leads most project directors to hire outside evaluators.

PROGRAM AREA: (e.g., Title III, reading, career education, environmental education, education for the
handicapped)

I. INTERVENTION TITLE, LOCATION:

Specify the title of the intervention and the location for which evidence of effectiveness is being
submitted.

II. DEVELOPED BY:

Indicate who developed the intervention originally, even if this happened at a different site than the
one for which evidence of effectiveness is being presented.

III. SOURCE AND LEVEL OF FUNDING:

List all funding sources for the intervention at the location for which evidence of effectiveness is
presented and, for each source, list the amount of funds (see Figure 1 for an example).

IV. YEARS OF INTERVENTION DEVELOPMENT:

Indicate the year or years during which the intervention was originally developed or tested.

V. BRIEF DESCRIPTION OF INTERVENTION:

Briefly describe the intervention for which claims of effectiveness are being made. The description
should cover at least the following points:

What is the intervention?
What are its objectives?
What claims of effectiveness are being made?
What is the context in which it operates?
Who are the intended users and beneficiaries?
What are the characteristics of the groups on which the intervention was developed and tested?
What are the salient features of the intervention?
What are the costs of adoption and maintenance of the intervention?

VI. EVIDENCE OF EFFECTIVENESS:

Describe the evidence of effectiveness for the intervention. This section should deal with each of
the following points, although not necessarily in the same order:

Interpretability of measures: Evidence that the quantitative measures are reliable and valid
indicators of the effects claimed.

Credibility of evidence: Who collected and analyzed the data, what assurances are there that
the findings are objective?

Evidence of impact: What is the evidence that something happened? What are the effects claimed
for the intervention?

Evidence of statistical reliability of the effects: What is the evidence that the effects happened
often enough and with sufficient reliability to be likely to happen again under similar circumstances?

Evidence that the effects are educationally meaningful: What is the evidence that the effects are
large enough, powerful enough, or important enough to be educationally meaningful, regardless of
their statistical significance?

Evidence that the effects are attributable to the intervention: Can alternative explanations
such as practice effects, maturation, selection of superior treatment groups, etc., be ruled out?

Evidence of generalizability to the populations for which the product or practice is intended:
Evidence that the product or practice has been tested widely enough and under sufficiently
diverse circumstances to give assurance that the effects claimed may be similar when the
product or practice is used elsewhere for the populations intended.

The review process actually begins with the belief of a project officer that the project is worthy of national dissemination. All submissions are reviewed in-depth by the originating federal program office. They are examined for factual accuracy, social fairness, and possible harm to users, as well as for evidence of effectiveness. The final review is conducted by a seven-member sub-panel of the JDRP convened by the Executive Secretary. A vote is taken on the submission immediately after the review--a simple majority is required for a favorable decision. JDRP has been known to ask for resubmission where evidence is less than adequate for a decision. The minutes of all reviews are available to project staff and the general public.

Projects that are approved by JDRP become eligible for, but are not guaranteed, dissemination funds distributed by the Department of Education to selected projects. These projects become part of the National Diffusion Network (NDN), a nationwide system established to assist schools, postsecondary institutions, and others in improving their education programs through the adoption of exemplary education projects approved by JDRP; such projects are known as Developer/Demonstrator (D/D) projects. With these funds, and with the assistance of State Facilitators (SFs)--offices located with each state and funded by the Department of Education to help local schools and others learn about and adopt D/D projects--the staff of validated projects can assist in the adoption or adaptation of their programs or practices at other sites. D/D projects are described in the NDN catalog, Educational Programs that Work, which is distributed nationally.

Identification, Validation, Dissemination (IVD)

The IVD process was initiated jointly by the National Advisory Council for Supplementary Centers and Services, State ESEA Title III Coordinators and ESEA Title III personnel in the U.S. Office of Education, and the National Association of State Advisory Council Chairmen, with input and assistance from the State Departments of Education. Although IVD was initially designed for the validation of Title III (now Title IV) programs, the developers hoped that the process would be used for validating other programs as well. In fact, most states that use the IVD process use Title IV funds to validate programs funded under that Title.[6]

The IVD process represented for its developers a quality control effort which would serve a dual function:

> First, it would provide a systematic mechanism by which the educational value and effectiveness of emerging programs, practices, and products could be reviewed and assessed as to their success; i.e., the purposes and outcomes of developmental projects would be "proven to work." Second, the validation process would enable the creation of a bank of proven educational practices. Once programs and products have been validated as effective and exportable, they could be entered into this bank of successful programs. The validation program, therefore, addressed the need to identify and to certify programs and practices that could facilitate constructive educational changes in our nation's public and non-profit private schools, and provided guidance not only in establishing the educational worth of a project at its original site but also in its successful replication in other school systems.[7]

The IVD process is guided by a handbook called Sharing Educational Success: A Handbook for Validation of Educational Practices. The original handbook made very explicit the procedures to be used by the state, by the validation team, and by project staff. It offered three very general criteria, but the forms

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in the handbook made very explicit the requirements for meeting these criteria. Projects were given no guidance in Sharing Educational Success regarding evaluation hazards or kinds of data that represent proof of achievement gains.

In 1979, a revised edition of Sharing Educational Success was completed by the U.S. Office of Education in cooperation with the Association of State Advisory Councils and the State Departments of Education. Three major considerations led to the need for a revised edition: (1) the states felt the need to develop a cadre of individuals at the state level who would be well trained and who would ensure quality control of the validation standards nationally; (2) there was a need for state autonomy in the validation process--autonomy which would allow the states to modify, within federal guidelines, processes and procedures for project validation; and (3) there was a need to reduce the cost of the IVD process for both the states and the federal government.[8]

In the IVD process, each state validates projects that it believes are exemplary, based on the following criteria:

1. Effectiveness/Success: Project objectives identified for validation are supported by convincing evidence showing statistically and educationally significant outcomes.

> The documented effectiveness or success of a program or practice
> is of paramount importance for validation. A program or
> practice can be "proven to work" in numerous ways including:
> (1) by demonstrating with convincing evidence that the program
> will bring about desired change or improvement over the existing
> practices, (2) by demonstrating a more efficient or cost-
> effective program or practice through improved management,
> resource utilization, etc., or (3) by demonstrating with
> convincing evidence that a desired objective may be accomplished
> without detriment to the existing program.[9]

2. Exportability: Information is provided to demonstrate project or practice is capable of being diffused to other school districts and can be adopted or adapted by other school districts with similar needs and environments.

> For the project as a whole (or for each applicable component) information required includes evidence of educational significance, a description of the minimum level of adoption or replication which would produce similar results, and information about the target population; staffing and training requirements; materials, equipment, and facilities; replication costs; and special problems.[10]

Sharing Educational Success describes six steps to be taken in the validation process. These steps can be modified by individual states to meet their own needs, and time- and money-saving options are suggested.

1. LEA completes and submits application for validation to the state agency or office responsible for coordinating validation activities at the state level.

2. Preliminary review by the state agency for validation followed by:
   a. approval for validation team review; or
   b. return to the LEA for revision according to suggestions; or
   c. disapproval for further validation.

3. Selection of the validation team:
   a. the team leader to be selected from out-of-state from the list of USOE-trained team leaders within the region,
   b. two team members selected from within the state from the list of State-trained members.

4. Review of application by individual team members. (This may be done as individuals in isolation from the other team members or the team may be convened to review an individual application or serve as a panel to review a group of applications):
   a. the team leader makes recommendations to the state agency responsible for validation that the identified revisions are to be completed before the on-site team visit is conducted.
   b. the team leader informs the state agency responsible for validation that the on-site visit be conducted according to the existing application.

5. Conduct of the on-site visit. The most frequent procedure is to send all team members on-site. Some states have designated an individual team member to conduct the on-site visit as a cost savings measure. The individual conducting the on-site visit serves the role of collecting and clarifying any incomplete or missing information identified by the review of the application by the whole team.

6. The primary decision of the validation team is either approval or disapproval under the IVD standards.

   If approved the team might also make the following recommendations:
   1. Submission to JDRP
   2. State Dissemination
   3. A special component or product be recognized as worthy of distribution.[11]

An abbreviated form of the application requirements for IVD validation is on pages 13 and 14.[12] The requirements set forth in the original edition of Sharing Educational Success, again in abbreviated form, can be found in the Appendix.

The IVD process requires no commitment from the federal government beyond assistance in training validation teams. After a program or practice is validated, the developers of Sharing Educational Success recommend that the state take one or more steps:

Successful completion of the federal-state IVD process would be tied to a "pay-off" to the project and to the state. Such rewards may include, but not be limited to, entry into a state-operated diffusion network, access to funds for project diffusion, preliminary screening for national JDRP validation, or to otherwise serve as a vehicle for educational improvement within the state.[13]

The Department of Education may furnish technical assistance for state-level diffusion, but only if a state-validated project is also approved by JDRP.

State Variations. The IVD process has been somewhat controversial since its introduction. Some states still use this process, some states have modified or adapted the process to meet their own needs, and a few have no validation procedures at all.

An August 1977 survey of certification methods applied to innovative public school programs conducted by Ray E. Foster of the Educational Innovations Section of the Florida Department of Education [14] found that, of 50 states and territories responding to the survey, 45 responded positively to the following question:

> Does your state education agency use a formal method to review and
> certify project developed programs (e.g., those developed under ESEA
> IV-C Innovation) before promoting their widespread use?[15]

A total of 33 respondents (73%) reported using the IVD process, although only 5 of these used that process alone; 22 used the IVD process and the JDRP process; and 6 used those two processes in conjunction with a state-developed process.[16] Six states indicated discontinued use of IVD, and five states that were using the IVD process at the time of the survey indicated that they were in the process of developing their own certification methods.

A conclusion of the team conducting the survey was that "it appears that the current trend is toward state-developed certification methods and away from IVD participation."[17]

A more recent survey, conducted in 1980 and 1981 by the Research and Development Exchange, shows that the state of affairs has not changed much

since the 1977 survey. Of the fifty states surveyed by the RDx, all responded. Forty-five reported that they have some form of established procedure for validating promising educational practices. Alabama, Hawaii, Louisiana, Mississippi, and Nevada reported that they do not have a procedure. Approximately two-thirds (29) of the states that have validation programs employ either the IVD procedure (23 states) or some modification of the IVD procedure (6 states). Typical modifications of IVD involve the use of in-state site reviewers to reduce costs and/or the use of state review panels in conjunction with the site visits. Roughly a third of the states (N=16) reported that they use their own state-developed validation processes. The state-developed-processes differ from IVD with respect to the specific criteria and operational procedures used to verify the effectiveness and transportability of the promising practices. Two of the states with their own processes (New Hampshire and Pennsylvania) viewed them as modifications of the JDRP process.[18]

Sharing Educational Success mentions two benefits which accrue to states which develop their own validation process:

> A few states have developed a state-level IVD process which draws upon many of the significant elements of both IVD and JDRP, but represents more than a composite of these two processes. In general, the state IVD process attempts to develop a state-administered procedure for the quality control of programs, practices and products that are consonant with and responsive to the needs of an individual state. Further, because the validation process involves the participation of individuals and projects that come from a more limited geographical area, the major benefit expected to accrue is that the validation process promises to be more cost-effective.[19]

IVD SUBMISSION REQUIREMENTS
(Abbreviated Form)

Part I. Information and Overview

A. **Applicant Information** (including expenditures)

B. **Project Abstract or Overview**

A two-page summary describing key elements: target group, needs addressed, what you did (process), results, significance of results, and cost and exportability factors.

Part II. Effectiveness/Success

A. **Purpose and Objectives**

1. Identify the major purpose of the program or practice.
2. List the anticipated changes or objectives of the program or practice.
3. Identify how much change in process or behavior was expected for each objective if this was not included in the statement of objectives.
4. Describe how the major objectives are interrelated and if they are of equal importance.
5. Identify new or unanticipated objectives as well as any objectives that were deleted during the project.

B. **Program Activities**

1. Describe the process(es) including each key element, such as:

   a. What the learner did differently
   b. What the teacher did differently
   c. Use of traditional or non-traditional materials
   d. Special management plan(s)
   e. Duration and intensity of process (i.e., daily schedule)
   f. Involvement of parents and/or community

C. **Evaluation Design**

1. Describe briefly the evaluation design utilized in the project. (Time series, baseline, norm referenced, traditional experimental-control design, discrepancy model, case study, etc.)

2. Establish that the evaluation instruments or data gathering techniques utilized were valid, reliable and sensitive....The following format is suggested for each instrument:

   a. Test or data gathering device
   b. Validity
   c. Reliability
   d. Norm group (if norm-referenced tests)
   e. Criteria levels (if criterion-referenced tests)
   f. Other relevant characteristics

3. Show that evidence was systematically gathered and recorded.

D. **Results and Analysis**

1. Report the results of the process intervention. Relate these results to specified objectives, both process and product. Indicate whether results met or varied from expectations.

   The following format would be helpful in responding for each objective:

   a. Expected change or anticipated outcome
   b. Actual change or results. Utilize charts, graphs, statistical summaries where appropriate
   c. Significance of results--either statistical or otherwise. If other than statistical provide rationale for evaluation of significance.

   For overall project results:

   a. Estimate of educational or practical significance of findings
   b. Brief interpretation of results

2. Show that the results were systematically and competently analyzed.

3. Report unanticipated outcomes of major importance and significance.

Part III. Exportability

The documented success of a program is an essential part in making that program available for diffusion. The actual process of diffusion may require a different, but related, set of program activities and materials. This section will identify and document the program's capability to diffuse a successful program.

1. Educational Significance

   Importance to the educational community, magnitude of the problem, benefits of a replication in another school site, etc.

2. Target Population

   Describe the appropriate learner population for the replication of the program and any unique characteristics about the original site that may limit the success of a replication.

3. Staffing and Training Requirements

   Describe special staffing and any training that is needed in order to replicate the program. Is such staff usually available to a school district; can the training be segmented?

4. Materials, Equipment, Facilities

   Describe all required program materials, equipment, and facilities necessary to replicate the program. Provide copies during on-site visit.

5. Minimum Adoption or Replication

   Describe what would constitute a minimum level of replication of your program that would produce similar results to these you have documented as successful. Can individual components be replicated?

6. Replication Costs

   Detail all costs, including costs of training, materials, and start-up.

7. Special Problems

   Describe special problems that are likely to be encountered in the replication and operation of your program. How can they be overcome or avoided?

Sharing Business Success (SBS)

Business practices which successfully go through the procedure outlined in A Handbook for Identification, Validation, and Dissemination of School Business Practices receive validation approval from both the State Education Agency and the Association of School Business Officials. The Process is similar to the Identification, Validation, Dissemination (IVD) process in operation but is similar to the JDRP process in its rigor.

Applicants for validation are required to submit a preliminary application which is reviewed by a screening committee. Applicants supply the following information: (1) a statement of major outcomes in objective form; (2) a description in sequence of the changes, interventions, or activities whch caused the accomplishments or outcomes; (3) a description of how the outcomes were evaluated and evidence that achievements were significant, the result of the new practice, and persistent over time; (4) a description of materials and/or equipment used by the practice; (5) a statement of all costs; (6) a description of savings in time and/or money; (7) a description and number of personnel directly affected or involved in the practice; and (8) a statement about other relevant information or special conditions bearing on the success of the practice.[20]

Those local education agencies which are invited to make full application must supply extensive information about the practice--its effectiveness, efficiency, cost, and exportability--and must undergo at least a one and a half day site visit. The criteria for success are those used by the Joint Dissemination Review Panel (JDRP).

An abbreviated form of the application for validation can be found on pages
17-19.[21]

Project Information Packages (PIPs)

Another major validation effort, undertaken by RMC Research Corporation for
the USOE Office of Planning, Budgeting, and Evaluation in the early seventies,
was a project called "The Development of Project Information Packages (PIPs)
for Effective Approaches in Compensatory Education." The concern that the
projects selected for replication under this project be "exemplary in
producing significant cognitive achievement benefits" led to a major effort to
develop and describe a validation process more stringent than that used by the
JDRP.[22] Approximtely 2,000 projects in compensatory education were reviewed
by RMC in a nationwide search. Of these, 103 were examined in depth; only 6
met all of the criteria.

An outgrowth of the work performed by RMC for the PIP program was the
publication by USOE of two volumes in a projected series of handbooks designed
to provide insight into validation procedures. The two volumes which have
been published are A Procedural Guide for Validating Achievement Gains in
Educational Projects[23] and A Practical Guide to Measuring Project Impact on
Student Achievement,[24] which discussess five evaluation models and the
procedural implications of each.

Selection of projects for the PIP program involved three levels of criteria.
In the first screening, designed to eliminate programs which were not
compensatory, four prerequisites had to be met:

SHARING BUSINESS SUCCESS

Submission Requirements
(Abbreviated Form)

I. **Basic Information**

II. **Abstract of the Practice**

Includes statement of accomplishments as objectives or outcomes, description of activities, description of materials and/or equipment, costs, savings in time and money, description of personnel, and evidence of effectiveness, efficiency, and exportability. Also includes a brief description of locally designed publications and materials and a description of unanticipated outcomes and spin-offs.

III. **Effectiveness Criterion**

Only major objectives should be presented for validation. A major objective represents a central outcome of the practice which will be reflected in the amount of effort, staff time, funds expended, and anticipated outcome.

Supply the following information for each objective:

1. Objectives should be stated in measurable terms describing who or what has been affected, when it was to be accomplished, how the accomplishments have been measured, how one will know that the accomplishments have occurred, and under what conditions.

2. Provide evidence to show that there was need for the objective.

3. Describe in detail the activities used to achieve this objective including, where appropriate, the period of operation, special materials, staffing, facilities, and inservice training, etc. What was done?

4. Describe the evaluation design, i.e., pre-post measure, baseline data, post measure only, experimental control.

5. Describe data collection procedures specifying type of data collected, method of data collection, timelines (a table format is suggested).

6. If evaluation information was collected on a sampling of the practice participants, describe sampling technique. Give sample size and evidence of representativeness.

7. Where control units or groups were used, describe how they were selected and give some indication of their equivalency to the experimental group or unit.

8. Identify and describe each instrument or measuring device used in the evaluation.

9. Give evidence that persons responsible for data collection (administration of tests, inventories, rating forms, or scales) were qualified for their tasks. If any instrument utilized required special training or procedures, so indicate.

10. Describe data verification procedures used to assure the accuracy of data. The descriptions should include the nature of and degree to which data verification procedures were used to detect and correct errors in data management.

11. Describe the data analysis procedure(s) used in data treatment and interpretation. Include names of persons or agencies responsible for data analysis.

12. Provide statistical evidence (results or findings) that the expected or acceptable level of attainment (criterion levels) was achieved.

13. Describe supporting evidence that the attainment of the objective can be attributed to the activities of this practice.

14. Provide evidence of economic or educational impact of the reported findings. Cite both positive and negative outcomes. Consider the impact of the practice on one or more of the following: management, instruction, personnel, student services, and educational climate of the school and community.

15. State the conclusions which were drawn from the results and findings reported in item numbers 12 and 14.

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SHARING BUSINESS SUCCESS

Submission Requirements
(Abbreviated Form)
Continued

IV. **Efficiency Criterion**

Efficiency is that characteristic of a practice that identifies it as being exemplary when measured by a comparison of its products with costs, time, and effort.

1. **Needs Priority Standard.** Describe how the priority for implementing this practice was determined.

2. **Cost Comparability Standard.** Describe the per unit cost of the practice and compare it with the per unit cost before the practice was implemented and with other similar practices, if known.

3. **Time Comparability Standard.** Provide data on the time (real time or staff hours) saved, as a result of this practice. Compare with other practices or with conditions before practice was installed.

4. **Product Comparability Standard.** This standard requires an assessment of the degree of magnitude of the needs alleviation. The question is not whether there is a statistically significant gain or change, but rather how that gain compares to gains made by other known practice with similar objectives.

   Provide information which compares the gains, if applicable, made by the practice with other practices previously used by (1) your school system, and (2) by other school systems.

5. **Cost Absorption.** Provide information regarding (1) what similar activities this practice replaces, and (2) how the costs were absorbed by its installation, and (3) how any savings were utilized.

6. **Long-term Benefit Comparability Standard.** Present information which show long-term outcomes and impact in terms of time and dollar cost.

V. **Cost Statement Criterion**

A summary of the expenditures (including indirect costs) for the start-up and operation of the practice. Information is given for each objective.

Item	Start-up Costs	Operational Costs	Indirect Costs
Personnel			
Staff Development			
Materials			
Equipment			
Contracted Services			
Other			
TOTAL			

VI. **Exportability Criterion**

1. **Need Standard.** Provide a description of the need for this practice in other districts. If the practice can be adopted in part, the evidence should substantiate this.

2. **Stability Standard.** Present evidence that the practice will continue in approximately the same manner for a period of time that will allow examination by interested observers.

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SHARING BUSINESS SUCCESS

Submission Requirements
(Abbreviated Form)
Continued

3. Specificity Standard.

   a. Number and qualifications of staff
   b. Effect of the practice on staff, organization, and community
   c. Description of essential equipment and facilities
   d. Description of essential materials
   e. Required staff training
   f. Community participation
   g. Description of additional factors essential to the success of the practice

4. Receptivity Standard. Describe the willingness of the school administration to act as host and assign staff to assist potential adopters.

5. Visibility Standard. Describe the activities, materials, and equipment now available which convey an understanding of the practice to a potential adopter.

6. Simplicity Standard. Describe the practice in terms of the ease of understanding, extent of training required, singleness of purpose, and adoptability without major adjustments to other organizations.

7. Availability Standard. Discuss the availability of materials and equipment that are essential to the practice.

8. Special Problems. Identify special problems (unique to this kind of practice) which the adopting district might encounter in implementing the practice and describe solutions.

VII. Certifications and Attachment of Supporting Documents

1. Provides instruction in reading and/or math.
2. Serves children in grades K-12.
3. Serves educationally disadvantaged children.
4. Has achievement test data for more than one "instance."

The second level of screening centered on the following considerations:

1. Availability

   Accessibility (can be visited for validation; personnel are
   cooperative; procedures, results, and costs are documented)

   Acceptability (operational in public schools; not primarily a
   single commercial product)

2. Cost

   Cost of equipment plus special personnel (per pupil)

   Cost of initial investment (per pupil)

3. Replicability

   All major components can be clearly duplicated

4. Effectiveness

   Achievement test data show consistently that actual post-
   treatment performance exceeds the no-treatment expectation by an
   amount which is statistically significant and equal to at least
   one-third standard deviation with respect to the national norm.
   A gain of one-third standard deviation with respect to the
   national norm was chosen as the criterion to be used in the
   national packaging effort for determining exemplary status.[25]

The final stage of screening for the PIP project required descriptions of the
experimental and comparison groups, the evaluation model employed, discussion
of possible confounding influences, and representation of evidence of
statistical significance. Projects which were still under consideration after
the final screening were then taken through the 22 steps in the "decision
tree" for validating statistical significance which is described in A
Procedural Guide for Validating Achievement Gains in Educational Projects. The

three screening workshops,[26] the flow chart for the decision tree[27] and a
brief description of the 22 steps[28] are on pages 22-27.

National Education Practices File

NIE's Educational Resources Information Center (ERIC) has also responded to
the growing concern about identification of worthwhile educational programs
and practices. The ERIC system was originally designed to make readily
available fugitive research, conference documents, and federal reports. In
the early seventies it became evident that many of the documents in the system
emphasized practice rather than research, and the focus for the monthly
journal, RIE, changed from Research in Education to Resources in Education.
This was not enough, however, and the pressure to develop a file of
educational practices grew. A feasibility study for such a file by
Bibliographic Retrieval Services, Inc. (BRS) led to the design and development
by that organization of the National Education Practices File. One of the
major problems for BRS in developing the file was the question of how to
validate the practices. In fact, that proved impossible--some practices in
the National Education Practices File have evaluation data, others do not.
Decisions about the relative merits of the practices are left to the users of
the file.

In January 1979, NIE selected 12 pilot sites for the National Education
Practices File:

Alaska	State of Alaska, Department of Education, Juneau
California	San Mateo Educational Resources Center (SMERC), Redwood City

PROJECT SELECTION CRITERIA WORKSHEET I

Summary Page

PROJECT TITLE _____

Date   Initials

		DESCRIPTION Approach Pull-out vs. Whole class
		PREREQUISITES ☐ Provides instruction in reading and/or math ☐ Serves children in grades K-12 ☐ Serves educationally disadvantaged children ☐ Has achievement test data for more than one "instance"

		FINAL ASSESSMENT
		
		☐ Accepted
		☐ Rejected
		    Reason for rejection
		    ☐ Prerequisites not met
		    ☐ Inadequate evidence of effectiveness
		    ☐ Excessive costs
		    ☐ Not available
		    ☐ Not replicable

PROJECT SELECTION CRITERIA WORKSHEET II

Preliminary Screening Criteria

AVAILABILITY

Accessibility:

☐ Can be visited for validation

☐ Personnel are cooperative

☐ Procedures, results, and costs are documented

Acceptability:

☐ Operational in public schools

☐ Not primarily a single commercial product

COST

☐ Equipment plus special personnel less than $_____ per pupil

☐ Initial investment less than $_____ per pupil

☐ (Alternatively) Per-pupil cost over a three year operational period including start-up costs should not exceed $_____ per year

REPLICABILITY

☐ All major components can clearly be duplicated. Components include: materials, hardware, personnel, and environments.

EFFECTIVENESS

☐ Achievement test data show consistently that actual post-treatment performance exceeds the no-treatment expectation by an amount which is statistically significant and equal to at least _____ standard deviation with respect to the national norm.

PROJECT SELECTION CRITERIA WORKSHEET III

Analysis of Project Evaluation

Complete a separate sheet for each validating site or combination of sites for which separate data are reported.

PROJECT TITLE _____

Tryout Group_____

I. Tryout Summary

A. Treatment group description
   1. Number _____
   2. Grades/Ages _____
   3. SES/Ethnic _____
   4. Pre-project achievement level_____
   5. Schools/Classrooms _____
   6. Selection procedure _____
   7. Treatment period dates _____
      Hours per week _____

B. Comparison group description (if same as experimental group write "same")
   1. Number _____
   2. Grades/Ages _____
   3. SES/Ethnic _____
   4. Pre-project achievement level_____
   5. Schools/Classrooms _____
   6. Selection procedure _____
   7. Treatment period dates _____
      Hours per week _____

II. Evaluation Model Employed
    Norm-referenced
    Control group
    Regression
    Other (specify)_____

III. Confounding Influences (comment on items checked)

    Inadequate tests_____

    Ceiling/Floor effects_____

    Pretest effect_____

    Group membership effect_____

    Student turnover effect_____

    Inappropriate testing times_____

    Inappropriate comparison group_____

    Participant selection via pretest_____

IV. Evaluation Outcomes

A. Evidence of Statistical Significance_____

B. Size of Gain with Respect to the National Norm_____
   _____

DECISION TREE FOR VALIDATING STATISTICAL SIGNIFICANCE

29

DECISION TREE FOR VALIDATING STATISTICAL SIGNIFICANCE

Step 1   Are the test instruments adequately reliable and valid for the population being considered?

     Yes   Proceed to Step 2

     No   Reject test scores as measures of project success

Step 2   Are pre- or posttest score distributions of any groups curtailed by ceiling or floor effects?

     Yes   Estimate the size of the effect, record on the worksheet, and proceed to Step 3

     No   Proceed to Step 3

Step 3   Is there reason to believe that the pretesting experience may have been at least partially responsible for the observed treatment effect?

     Yes   Estimate the size of the effect, record on the worksheet, and proceed to Step 4

     No   Proceed to Step 4

Step 4   Is there reason to believe that knowledge of group membership may have been at least partially responsible for the observed treatment effect?

     Yes   Estimate the size of the effect, record on the worksheet, and proceed to Step 5

     No   Proceed to Step 5

Step 5   Is there reason to believe that student turnover may have been partially responsible for the observed treatment effect?

     Yes   Estimate the size of the effect, record on the worksheet, and proceed to Step 6

     No   Proceed to Step 6

Step 6   Does the evaluation employ a control group?

     Yes   Skip to Step 14

     No   Proceed to Step 7

Step 7   Were pretest scores used to select the treatment group?

     Yes   Estimate the size of the regression effect, record on the worksheet, and proceed to Step 8

     No   Proceed to Step 8

Step 8   Are normative data available for testing dates which can be meaningfully related to the pre- and posttesting of the program pupils?

     Yes   Proceed to Step 9

     No   Reject norm-group comparisons as adequate evidence of project success

Step 9   Do the norms provide a valid baseline against which to assess the progress of the treatment group?

     Yes   Proceed to Step 10

     No   Reject norm-group comparisons as adequate evidence of project success

DECISION TREE
Continued

Step 10   Is the comparison between the treatment group and the norm group based on pre- and posttest scores or on gain scores?

        Pre- and posttest scores   Proceed to Step 11
        Gain scores   Skip to Step 12

Step 11   Have appropriate statistical tests been employed to assess the significance of the gain in treatment group performance relative to the norm group?

        Yes   Skip to Step 22
        No   Skip to Step 13

Step 12   Are pre- and/or posttest scores available?

        Yes   Proceed to Step 13
        No   Reject norm-group comparisons as adequate evidence of project success

Step 13   Can appropriate statistical tests be employed to assess the significance of the gain in treatment group performance relative to the norm group?

        Yes   Compute appropriate statistics and skip to Step 22
        No   Reject norm-group comparisons as adequate evidence of project success

Step 14   Were the children, either matched or unmatched, randomly assigned to the treatment and comparison groups?

        Yes   Skip to Step 18
        No   Proceed to Step 15

Step 15   Is there evidence that members of the treatment and control groups belong to the same population or to populations that are similar on all educationally relevant variables including pretest scores?

        Yes   Proceed to Step 16
        No   See Appendix C (Estimation of Treatment Effects from the Performance of Non-Comparable Control Groups)

Step 16   Are post-treatment comparisons made in terms of posttest or gain scores?

        Posttest scores   Skip to Step 19
        Gain scores   Proceed to Step 17

Step 17   Can data be obtained which would enable application of covariance analysis techniques, would such analyses be appropriate, and is there a reasonable expectation that they would produce significant results?

        Yes   Conduct covariance analysis and proceed to Step 22
        No   Skip to Step 20

Step 18   Were pretest scores collected?

        Yes   Go back to Step 15
        No   Proceed to Step 20

DECISION TREE
Continued

Step 19   Have covariance analysis techniques been employed to adjust for initial differences between groups?
           Yes   Skip to Step 22
           No   Go back to Step 17

Step 20   Have appropriate statistical tests been employed to compare posttest and gain scores?
           Yes   Skip to Step 22
           No   Proceed to Step 21

Step 21   Can data be obtained which would enable appropriate tests to be made?
           Yes   Obtain data, compute appropriate statistics, and proceed
                                      to Step 22
           No   Reject posttest and/or gain score comparisons as adequate
                                      evidence of project success

Step 22   Do analysis results favor the treatment group at the pre-selected level of statistical
           significance?
           Yes   Review all evidence compiled during the validation process and
                                      use judgment to decide whether the statistical test results can
                                      reasonably be attributed to project effects
           No   Reject evidence as being inadequate to validate project success

Illinois	State Board of Education, Illinois Resource and Dissemination Network, Springfield
Maine	Mid Cost Teacher Center, Camden
Michigan	Wayne County Intermediate School District, Wayne
Minnesota	Exchange at the Teacher Center, Minneapolis Public Schools/University of Minnesota, Minneapolis
Missouri	University of Missouri-Kansas City, University Libraries
Ohio	ERIC Clearinghouse for Science, Mathematics, and Environmental Education, Ohio State University, Columbus
Oregon	Northwest Regional Educational Laboratory, Portland
Texas	Southwest Educational Development Laboratory, Austin
Texas	Texas Education Agency, Austin
Washington, D.C.	National Institute of Education, Educational Research Library

The pilot test began in May 1979, with a collection consisting of

1. All programs disseminated by NDN (and therefore validated by JDRP).

2. All Title IV-C programs for which SEAs submitted descriptions (some of which had been validated by IVD, some by state processes, and some unvalidated).

3. Programs in mathematics, science, and environmental education that were developed by R&D labs and centers and by practitioners (with a variety of evaluation data, some empirical, some subjective).

In Fall 1980, the National Institute of Education decided not to fund a full implementation of the Nationl Education Practices File. The Education Service Group, Inc., of Scotia, New York, is involved in an effort to continue the work begun during the funding period. The "School Practices Information File" is offered as part of ESG's School Practices Information Service.[29]

Other Significant Efforts

A search for exemplary projects in the area of reading was conducted by American Institutes for Research (AIR) in the early seventies for the Right to Read Office. The search involved reviewing past research studies, computer-scored abstracts, and library materials, as well as obtaining nominations from experts in the field and from staff members of educational, professional, and government organizations. Information about each program was gathered by means of a study questionnaire, the Program Information Form (PIF), and from more detailed program documents.

Over 1,500 program candidates identified through literature searches and nominations were sent the PIF; 728 completed forms were returned. The criteria for screening the reading programs included

1. Location within the United States.

2. Operation for at least one year and the expectation of two additional years of operation.

3. Availability of program evaluation evidence reported since 1968.

4. A focus on reliably measured reading achievement.

5. An adequate assessment design and statistical treatment comparing reading achievement gains for program participants with gains for a credible non-participant group.

6. Adequate size.

7. Potential for replication.

AIR reported that, ultimately, the quality of local program evaluation was the major discriminator between effective and non-effective programs in this massive search for effective reading programs. [30]

Twenty-seven of the 728 programs were recommended by AIR as having exhibited positive reading gains on the part of students over a certain number of years. Of these twenty-seven, twelve were selected by Right to Read based on the criteria of the Joint Dissemination Review Panel; these were to be packaged and disseminated individually.

Right to Read felt that many of the remaining programs for which forms had been returned also showed potential for improving reading ability. Taken together, these programs represented a wide range of approaches to teaching reading and provided a wealth of ideas that might be adapted to fit local objectives and needs. These programs are described in a separately published catalog Effective Reading Programs: Summaries of 222 Selected Programs.[31]

The Office of Dissemination and Resources of the National Institute of Education also launched a search for promising programs and practices. The Catalog of Promising Educational Programs and Practices, compiled by Automated Services, Inc., was a collection of abstracts describing selected programs operating in the nation's schools during the 1972-73 school year. Approximately 3,000 programs were identified and surveyed by mail. Of the 1,000 programs which responded to the survey, 157 were chosen for inclusion in the Catalog.[32]

The Catalog offers another example of an early attempt to establish validation criteria. "Verification" rather than "validation" was the word used in this project:

1. The program has specific, identifiable educational objectives.

2. The program has been in existence for at least one year. The local school should be planning to continue it.

3. The program has been evaluated and has been judged to be at least "promising" or "verified." The term "promising" is used to cover those programs showing potential for producing more effective results, but for which convincing evaluative data are lacking. At the other extreme, "verified" is used for programs supported by hard evaluative data on effectiveness.

4. The local district sponsoring the programs should be able and willing to respond to any inquiries on the program/practice that national dissemination may generate.

5. The program has the potential for successful replication in settings other than those for which it was originally designed.

6. The program is not dependent for success on any special feature, such as a charismatic director, expensive equipment not usually found in a local school, or exorbitant costs.[33]

MAJOR ISSUES IN VALIDATION

States which are developing or refining validation procedures must grapple with many issues. A description of some of the major issues follows.

Replication vs. Adaptation

Is it likely that an exemplary program or practice which is chosen for adoption by another school district will be replicated, or will it be adapted to meet the needs of the students and staff in that district? Obviously, there are proponents on both sides of this argument. Two examples of programs which their developers feel have led to replications all over the country are the National Diffusion Network (NDN), consisting of JDRP approved educational programs and practices, and the Experience Based Career Education Program (EBCE).

The NDN has been discussed earlier in this paper. Evaluation of that network has shown that replication has occurred:

The approach appears highly effective in creating LEA awareness, interest, and subsequent implementation of innovations being diffused. Factors accounting for successful adoptions were: (1) thorough, persistent, and well-differentiated awareness activities; (2) early involvement of administrative and instructional decision makers and emphasis on local commitment; (3) extensive use of in-person tactics at all stages of the adoption-process, including follow-up visits; (4) provision of comprehensive and well-developed materials to support adoptions; (5) personal dynamics of the Developer and management skills of the Facilitator; (6) emphasis on practitioner change, phase-in of implementation, and low reliance on expensive resources; (7) support of LEA visits to demonstration sites. Adoption patterns appeared reasonably uniform by innovation type and geographic area, but disproportionate in terms of school level and district urbanism. Much of the overall NDN success is attributed to effort and enthusiasm of participating change agents.[34]

With support from the National Institute of Education, four different EBCE programs using the community as the classroom were developed between 1970 and 1975 by educational research and development groups (the Appalachia Educational Laboratory, the Far West Laboratory, the Northwest Regional Educational Laboratory, and Research for Better Schools). In 1975, following a laudatory external review by practitioners, researchers, and experts in educational change of the programs in the four development sites (Philadelphia, Charleston, Portland, and Oakland), EBCE was approved by the Joint Dissemination Review Panel.

One component of the dissemination strategy was selection of several pilot sites for each of the four EBCE models. These sites received very extensive technical assistance from Developer/Demonstrators (50 to 80 person days for each of two years). All operational costs, however, were borne by the school

systems in the pilot sites. These "high fidelity" sites were intended as places for the program developers to learn how to implement their programs elsewhere, to see if the results would be as positive as they were in the original four development sites, and as training and observation sites for others. All people who were interested in the progress of the network could learn more about it through newsletters and conferences. Expansion of the network included $100,000 planning awards to four states, free technical assistance to thirteen other states, and dissemination of the program by the U.S. Bureau of Adult and Occupational Education. In 1976 and 1977 EBCE's were implemented in 44 states and territories.[35]

One of the most important recent documents addressing the question of replication vs. adaptation is <u>Federal Programs Supporting Educational Change</u>, the 8-volume report of a four-year study conducted by the Rand Corporation. Only a sampling of their findings is possible here.

One important finding, or perhaps we should call it a confirmation, is that LEA staff tend to seek solutions to their problems from local sources:

> Our evidence suggests that the "search for alternatives" traditionally assumed to be characteristic of the problem-solving approach to innovation did not occur. In developing projects, LEAs used information or treatments that were already known to local district personnel. This may mean that LEA staff intuitively feel that the success and suitability of an innovation depend primarily on local conditions, a view that our evidence supports. Thus, local administrators are likely to be skeptical about the reported "success" of educational methods in other districts and tend to rely on the advice of local professionals who have a thorough knowledge of particular local conditions.[36]

The Rand research group observed three types of interactions--"defined by the extent to which the project was adapted to the institution or vice versa"-- that characterized implementation processes:

1. Nonimplementation occurred when the project neither altered its setting nor was adapted to it. Some projects simply broke down during implementation, particularly if they were very comprehensive or "overly planned" and prescribed; others were ignored or received scant attention from users, particularly if they had objectives that were trivial or peripheral to classroom concerns.

2. Cooptation occurred where the staff adapted the project, usually emasculating it, to meet their own needs, without any corresponding change in traditional institutional behavior or practices. Such projects could experience a deceptively smooth implementation.

3. Mutual adaptation occurred when both project and setting were changed. Mutual adaptation could involve a variety of adjustments to the project itself—for example, reduction or modification of idealistic project goals, amendment or simplification of project treatment, downward revision of ambitious expectations for behavioral change in the staff or of overly optimistic effects of the project on students, and so on. Concomitant with these modifications in project design or objectives, new behaviors were required by project staff, as well as new attitudes necessary for integrating project strategies into classroom practices. Mutual adaptation seldom meant smooth or trouble-free implementation. Indeed, from the perspective of an outside observer, the first year or so of project operations might often be seen as chaotic, as staff tried hard to make the project work for them.[37]

Not surprisingly, a project's outcome depended on the process characterizing its implementation. Projects that either broke down or were applied in a pro forma way (i.e., were essentially nonimplemented) caused little change in teachers and little improvement in student performance; they were generally perceived as achieving a low percentage of their goals. Coopted projects not infrequently achieved an average or above average percentage of their goals, depending on their complexity and ambitiousness, but they generally did not significantly alter the teachers' behavior. Projects whose implementation is best characterized as mutual adaptation were not invariably successful, particularly when their ambition surpassed their capacity. Yet, they had a better chance of being effectively implemented. Moreover, mutual adaptation was the only process leading to teacher change; in other words, teachers changed as they (and only as they) worked to modify the project's design to suit their particular school or classroom.

We can understand why mutual adaptation characterizes effective projects by looking more closely at implementation in the classroom. The task of teaching essentially consists of a one-to-one relationship between teacher and student. It thus necessarily depends heavily on idiosyncratic teacher and situational characteristics, and consequently, the same project will be implemented somewhat differently in each classroom and in each school. If instead a project is applied uniformly or rigidly, it is unlikely that

the new techniques will significantly or positively alter the teacher-student relationship. The development of new teaching behaviors within each classroom is a pragmatic, learn-by-doing process consisting of a step-by-step fine tuning of project design. Therefore, the process that fosters effective implementation and teacher change is one that promotes each teacher's ability, capacity, and motivation to accomplish this unique tuning.[38]

Fullan and Pomfret (1977) offered their perspective on the question of

replication vs. adaptation after analyzing fifteen studies on the problem of

defining and measuring implementation:

> In general, current central policies (at both the national and school district level) at best promote adoption. These policies do not have a strong influence on implementation because they fail to address those factors most critical for implementation. In order to support more effective implementation some major interrelated steps are necessary.
>
> First, instead of promoting specific innovations, central policy makers should be emphasizing broad-based programs and providing corresponding support for local development of specific forms of implementation, thereby facilitating clarity and explicitness of programs on the part of users. Implementation plans could be requested in advance from local authorities, and could be monitored with the expectation that specific innovative projects would be implemented and assessed.
>
> Second, local experimentation should be encouraged during implementation to develop variants of innovation in which specific goals and means are seen as consequences of exploration, negotiation, and "development in use."
>
> Third, evaluation of innovative projects at least during initial implementation should be directed toward facilitating implementation and local system capabilities through data feedback and other forms of support, rather than toward judging success or failure.
>
> Fourth, and closely related to the previous points, the incentive system for implementation would have to be drastically altered at all levels. If there is one finding that stands out in our review, it is that effective implementation of social innovations requires time, personal interaction and contacts, in-service training, and other forms of people-based support. Research has shown time and again that there is no substitute for the primacy of personal contact among implementers, and between implementers and planners/consultants if the difficult process of unlearning old roles and learning new ones is to occur. Equally clear is the absence of such opportunities on a regular basis during the planning and implementation of most innovations. All of this means that new approaches to educational change should include longer time perspectives, more small-scale intensive projects, more resources, time, and

mechanisms for contact among would-be implementers at both the initiation or adoption stages, and especially during implementation. Providing these resources may not be politically and financially feasible in many situations, but there is no question that effective implementation will not occur without them.[39]

Evaluation Experience of Project Staff

All of the validation procedures that have been developed have been intended as guides for interpreting data that have resulted from both experimental and quasi-experimental research designs. They are not intended as guides for conducting evaluations, although an understanding of the process, the criteria used in validation, and the potential evaluation pitfalls is critical for the project director who intends to try for validation and for the State Education Agency or Intermediate Service Agency personnel who will offer technical assistance to the project director as he or she prepares to submit the project for validation.

A major problem for states as they use IVD or develop their own validation procedures is the inability of most LEA personnel to deal adequately with the evaluation question as they plan and execute the research design. The National Association of State Advisory Councils (NASAC) study of the IVD process addresses this problem:

> Most personnel directly invovled with a local education agency seeking validation of its project have virtually no prior experience or expertise in evaluation. This consensus opinion is especially portrayed by project evaluation efforts associated with the design and conduct, analysis and reporting of project outcomes in a form likely to be acceptable to the validation team. Moreover, very few LEAs have the internal capabilities to assure an evaluation of a project prior to its submission for validation.
>
> The majority of projects are therefore required to seek external support for evaluation assistance. In general, the LEAs engage evaluators with

varying degrees of expertise in program evaluation and, ideally, with experience in the requirements of an IVD assessment, per se. The major implication of this decision is that the notion and purpose of evaluation takes on a very narrow objective in itself: assuring a successful validation only. Most project directors interviewed by the study team reaffirmed that, to successfully enter and "pass" IVD (and the JDRP review, if sought), the contracting of an experienced evaluator is. . . a "no-choice" segment of the decision process.[40]

Many projects which come before JDRP for validation are rejected because of a flaw in the research design or evaluation plan, according to Seymour Rubak, past Executive Secretary of the JDRP.[41] Dr. Rubak suggests that project staff become aware in the project planning stages of potential pitfalls and guard carefully against them. Hiring an evaluation specialist after the fact cannot eliminate these flaws. The JDRP Ideabook lists 14 of the most common evaluation hazards and describes how to avoid them. The flaws are listed below:

1. Claiming much, providing evidence of little.

   Where evidence matches the claims, a favorable decision is far more likely than where evidence falls far short of goals, objectives, and claims.

2. Selecting measures not logically related to the intervention.

3. The use of grade-equivalent scores.

   Grade-equivalent scores provide an insensitive, and, in some instances, a systematically distorted, assessment of cognitive growth.

4. The use of a single set of test scores for both selecting and pretesting participants.

5. The use of comparisons with inappropriate test dates for obtaining information.

   In norm-referenced evaluations, tests should be administered at nearly the same time as the test publisher tested the norm group.

6. The use of inappropriate levels of tests.

7. Missing data.

8. The use of noncomparable treatment and control groups.

9. The use of inappropriate statistical adjustments with non-equivalent control groups.

> Making between-group comparisons using either "raw" gain scores or "residual" gain scores should be scrupulously avoided.

10. Constructing a matched control group after the treatment group has been selected.

11. The careless collection of data.

12. The use of different instruments for pretesting and posttesting.

13. The use of inappropriate formulas to generate no-treatment expectations.

> Many projects use an unrealistic theoretical model or formula to calculate "expected" posttest scores from IQ or other pretest scores. If students do better than the calculated expectation, the project is considered a succes.

14. Mistaken attribution of causality.

> The plausibility of alternative explanations should be carefully examined before evaluation results are attributed to project impact, as evaluation hazards are often the cause of apparent gains or losses.[42]

One example of an attempt to educate project staff in the early stages of project planning can be found in the Right to Read Validation Procedural Guide. (Right to Read encourages all interested LEAs to have their reading programs validated.) In addition to a description of validation procedures, the Guide includes a description of evaluation hazards, a four-step experimental design, an explanation of standardized tests, a table of representative learning outcomes and possible methods of evaluation, a sample assessment planning chart, and an evaluation checklist.

State Responsibilities Before Validation

Is it the responsibility of the state to educate project directors concerning the potential hazards in project design and evaluation? The executive summary of the NASAC-IVD project describes what seems to be the process in the five IVD states which were studied (Colorado, Florida, New Jersey, Minnesota, Washington):

> The consultative role of SEA personnel, particularly those associated with Title IV-C offices, can be extensive or minimal. The degree of SEA involvement in the decision process appears to be highly dependent upon the level of expertise of the project director. . . . [S]ubstantial consultative support is directed by the SEA to those projects which do not appear to be sufficiently aware of the key elements--and pitfalls--of the validation process.

> Key projects and programs known by SEA officials as having a high probability of successful development and validation are often "pre-selected" by the SEA as likely candidates for IVD, or even JDRP review. The probable educational significance and exportability of the project to other school districts are key a priori benchmarks in the selection process. These projects, once selected, are then subjected to careful "care and feeding" throughout the developmental stages leading to the decision to seek validation, and indeed through the validation process itself.[43]

"Exemplary" vs "Promising"

A critical issue for states developing a validation process is the degree of "rigor" which should be applied in validating programs. In "Exemplary Practice: A Report on Recent Searches," Turnbull addresses this question:

> Much controversy around criteria centers on the word "rigor," which tends to mean a requirement for hard evaluation data. Advocates of rigor maintain that without requiring data there is no way of being sure of a program's effectiveness. The most stringent searches for exemplary programs have rejected hundreds upon hundreds of programs because they lacked satisfactory evaluation designs or results.

> Some critics contend that it is wasteful to locate these programs and not publicize them, since they might contain valuable ideas. Moreover, what will be the local repercussions when a program is considered and rejected? Other critics say that projects should not be penalized for

local evaluators' frequent inability to meet strict standards. A similar point is that local decision-makers do not want to apply these standards in screening projects that they might adopt.[44]

The controversy concerning the question of whether programs with no hard evidence of impact should be selected and disseminated was also addressed during the July 1974 NIE Conference on Increasing the Use of Promising Practices Information by Local Education Agencies. Participants at the conference--local educators, SEA personnel, and information services specialists--arrived at the following understandings of this controversy:

1. LEA's do have the responsibility for finally judging a program's worth.

2. Promising practices information is useful to LEA's when considering a wide range of ideas, alternative approaches and new programs focused in a single problem area, as well as when seeking a single, "exemplary" model.

3. Funds are not presently available to validate more than a handful of promising practices. Thus, hard data on outcomes will not exist in the near future for most promising practices, for reasons entirely unrelated to the value or "promise."[45]

Many states have tried to address these problems by developing their own files of exemplary programs and practices. A 1978 survey by BRS revealed that 97% of the 37 states and territories responding to the survey were building (83%) or were intending to build (14%) an educational resource base:

The focus of content is on projects/practices somehow associated with a "quality" measure, be it a defined process (validation) or a more subjective selection ("exemplary").[46]

There is inherent in these activities a potential coordination problem if states do not take some precautions during the planning stages to set up knowledge bases that will be compatible with the knowledge bases of other states and, perhaps, with the National Education Practices File. Gregory Benson expresses this concern in his report of the BRS survey:

A move toward effective educational practice "labeling laws" would go a
long way toward eliminating many of the current "linker" activities
required now because we do not know or report sufficient content, context,
and/or contextual quality indicators regarding educational practice. We
should move toward resolution of these issues together, and the one
element common to all educational change efforts is the knowledge base.
Individually, we are realizing this fact and attempting to do something
about it. . . . However, if we are to develop a national capability
reflective of our individual needs, there must be a mechanism through
which we can orchestrate our efforts.[47]

On-Site Visits

Is it absolutely essential that on-site visits be made to projects being

considered for validation? JDRP makes all decisions without on-site visits

and with only 10 pages of evidence of a program's effectiveness. Although the

panel is made up of 22 highly trained specialists, four of whom must agree

that a program or practice is effective if it is to meet with JDRP approval,

the panel has met with criticism because of its failure to include a visit to

the site of each program or practice it screens. The NASAC-IVD report

recommends the JDRP incorporate a site visit into its procedures.[48]

It would be impossible for every state with a validation program to locate a

group of evaluation specialists who would be qualified to evaluate the data

from all programs and practices submitted to the state for validation. States

would also have to maintain panels of content specialists and experts able to

validate the exportability of a program or practice. The possibility of a

regional panel established by several cooperating states might be a feasible,

though untested, alternative.

The use of on-site teams means that apparently weak data or inconsistent

evidence, a frequent problem for local projects, has a second chance. An

evaluation specialist working with project staff on site can assist the staff in presenting the data in a different way or can help them clarify the evidence. For those programs or practices which are not ready for validation, an on-site team will be able to offer guidance for future attempts at validation.

The importance of the on-site visit was an issue discussed at the six-state validation conference sponsored by the Southwest Educational Development Laboratory's Regional Exchange Project in April 1979.

> The temptation to validate a program based only on developer-writer descriptions plus examination of program products should be resisted. Ask whether the program, the process, or the product is to be validated. The validation questions which need to be answered will differ for each category, and the usefulness of the validation data will differ accordingly. Paper files—collections of reports, brochures, teaching materials, and the like—will testify to procedures and processes, in general, and will indicate the quality of the teaching materials. What will not be clear is the actual operation of the program in a school, and its effects on teachers, students, and school routine. Paper files will not show whether implementation is occurring in all classrooms, or whether the manner of implementation differs significantly across classrooms. So-called program files, on the other hand, address these questions because they will provide for on-site visits either through a visiting validation team during the validation process, or by the establishment of demonstration sites during the dissmination stage.[49]

A serious problem with on-site visits is potential inconsistency between teams. Training for the IVD process is conducted by personnel who have been trained by USOE. Although this strategy is intended to minimize the teams' differences in operation, IVD has drawn criticism because this decentralization procedure has led to site reviews which vary greatly in stringency.[50] States that do their own training might reduce this problem to some extent, but any time that more than one team is responsible for conducting the site visits in a state, the possibility of inconsistency among teams becomes a potential weakness in the procedure.

The NASAC review of the IVD procedure led to a strong recommendation for continuance of on-site validation of programs and practices. The executive summary lists several potential solutions to the problems of high administrative costs of the program and the need for increased state autonomy:

1. The U.S. Office of Education [should] train persons designated by Federal-State authorities as validation on-site team leaders. The training would be conducted in accordance with the national validation process and within joint Federal-State guidelines. An attempt should be made to train one person per state, but it is recommended that at least two people be trained as team leaders for each state. (State Facilitators--with existing NDN and state-agency linkages--are among the types of individuals seen as being appropriate team leaders.)

2. The USOE-trained team leaders would have the resonsibility to work with the Chief State School Officer within his or her state, or a person designated by the CSSO, to acquaint the SEA with the new validation process. The goal of this task would be to either gain SEA acceptance of the joint-agency process, or to assist in the modification of a State-sponsored process to correlate as closely as possible with USOE-approved procedures.

3. The team leaders would have the responsibility, in cooperation with SEA officials, for coordinating the validation of submitted projects. Included in this responsibility would be the charge of organizing and training team members from within the state, and for conducting the on-site visitation itself. Moreover, it is recommended that small numbers of trained persons be maintained within each state to ensure the availability of well-qualified staff for each specific area of the validation process and to promote consistency of judgments.

4. Should an out-of-state team member be selected for participation in an on-site validation, funds should be provided within the grant awarded to the coordinating agency to facilitate coverage of such costs as would accrue to the agency. (For example, if a State Facilitator Project is selected to serve as the USOE-designated team leader/trainer, funds would be included in the NDN's grant award to the Project to cover costs of out-of-state validators.)

5. In order to promote State autonomy, or SEA options in the on-site validation process, the Chief State School Officer should have the choice of trained team leaders within his or her state or region. The CSSO would have the authority to select preferred team leaders to coordinate all validation on-site activities within the State.[51]

Other Issues

Several additional issues surface when the literature on validation is
examined and when practitioners are asked about their concerns:

1. It is important to keep in mind the teacher or the classroom as the
   unit for validation and not focus exclusively on administrative
   concerns, because it is the teacher who must know the essential
   elements of the innovation; understand why all of those elements are
   important; understand the purpose, use, and value of evidences of
   effectiveness and the teacher's role in collecting the evidence; and
   determine the feasibility of the program in the classroom.
   (Participants in SEDL Validation Conference)

2. There must be a distinction made between the various stages during
   the life of a program: the development, the validation, and the
   dissemination stages. Too often, the distinction is lost and
   pressure to validate a program still in the developmental stage
   results in completing neither of the first two stages
   satisfactorily. Emrick and Peterson, among others, have concluded
   that the implementation process takes three to five years, and only
   at that time can one begin to collect meaningful evaluation data.
   (SEDL Validation Conference)

3. Should projects that are not state or federally funded be considered
   for validation?

   > Programs based on "validation" activities rule out
   > non-mainstream programs which do not offer themselves well to
   > evaluation. Some programs are easier to evaluate than others.
   > Try to evaluate a physical fitness program which must rely on
   > data which shows "how many students would have suffered from X
   > but didn't because of this program." Programs that started out
   > as R&D projects are traditionally easier to validate than

programs which have grown in a district over a number of years
without a project base. Thus R&D projects are validated more
often than home grown programs forcing the innovative teacher
who does not have federal or state funding support out of the
idea market place.[52]

4. What are the state's responsibilities after validation? Among the
possibilities are (a) setting up a repository of materials and/or
descriptions of validated programs and practices; (b) producing and
disseminating descriptive brochures; (c) providing funds for
validated projects to develop brochures to answer requests for
information; (d) sponsoring awareness conferences and educational
fairs; (e) funding replication/adaptation grants; and (f) offering
technical assistance to LEAs replicating/adapting programs or
practices.

5. What should be the responsibilities of the project staff of validated
programs? These typically include (a) answering requests; (b)
printing and distributing a fact sheet or brochure describing the
program; (c) scheduling and handling visitors; and (d) participating
in educational fairs. Some project staff also become very involved
in helping other LEA's replicate/adapt their program. NDN Developer/
Demonstrators, of course, receive funds to participate in such
activities; most state validated projects do not. An issue discussed
by participants in a May 1979 seminar on validation sponsored by the
Research for Better Schools Regional Exchange Project was the
question of how to provide incentives for program developers to
facilitate effective dissemination.

6. There are a number of additional problems associated with cost.

   Turnbull outlines some of the difficulties which need to be addressed:

   > . . . when a program has been developed at one site, it is very
   > difficult to specify the initial costs and the recurring costs
   > that another site would experience. Besides separating these
   > sorts of costs, there are several other problems: LEAs
   > experience regional differences in salary scales and other
   > resource costs; schools start with different existing resources;
   > local accounting practices may be inaccurate or at least highly
   > individualistic; and different configurations of a program may
   > result in different per-pupil costs. . .[53]

   Another cost associated problem discussed by participants in the

   RBS-sponsored validation seminar was how to help developers continue

   effective programs after federal funding is withdrawn. This is

   especially a concern for Title IV-C funded projects, which have a

   five-year limitation on funding.

7. Should second generation programs--programs which result from an

   adoption or replication--be validated and/or disseminated? Second

   generation program directors, while possibly not aware of the details

   of a program's creation, may be more objective about program effects

   than the developers. Adopting sites may have a clearer insight into

   implementation problems and needs and may know more about matching a

   school's needs with an already developed program rather than a

   developing one. Potential adopters may value those insights as much

   as program details. And, of course, it is those second generation

   sites that "prove" whether the program can be transported, and

   therefore validated, and therefore disseminated! (SEDL Validation

   Conference)

FOOTNOTES

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31. Effective Reading Programs: Summaries of 222 Selected Programs (Urbana, Illinois: Right to Read and the ERIC Clearinghouse on Reading and Communication Skills; distributed by the National Council of Teachers of English, 1975).

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33. Catalog of Promising Educational Programs, pp. 1-11.

34. John A. Emrick and Susan M. Peterson, A Synthesis of Findings Across Five Recent Studies of Educational Dissemination and Change, Executive Summary (San Francisco, California: Far West Laboratory for Educational Research and Development, 1978), p. 5.

35. Paper written by Lois Ellin-Data for discussion of results of the Rand Study (December 1978), pp. 26-27.

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38. Berman and McLaughlin, Vol. VIII, p. 17.

39. Michael Fullan and Alan Pomfret, "Research on Curriculum and Instruction Implementation," Review of Educational Research, 47 (Winter 1977): 391-392.

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41. Telephone conversation with Seymour Rubak, March 26, 1979.

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48. "The IVD Process," p. 16.

49. A Regional Conference on Validation: How, What, and Why (Austin, Texas: Southwest Educational Development Laboratory, Regional Exchange Project, 1979), p. 88.

50. "Exemplary Pracdtice: A Report on Recent Searches," p. 12.

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52. Letter to Linda Reed from Norm Sims, October 10, 1979.

53. "Exemplary Practice: A Report on Recent Searches," p. 13.

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APPENDIX

ORIGINAL IVD SUBMISSION REQUIREMENTS
(Abbreviated Form)

PART I--Information and Project Description

A. **PROJECT INFORMATION** (Including expenditures)

B. **BRIEF DESCRIPTION OF PROJECT**

Goals and objectives
Context: community, school, student characteristics
Program description: grade level(s), years of operation, sample size, curricula, materials, staffing, facilities, time involved, parental involvement, preservice/inservice training, etc.
Costs: total, per pupil, initial implementation, ongoing maintenance, etc.

C. **EVIDENCE OF EFFECTIVENESS**

Summarize in appropriate detail the evaluation evidence for the effectiveness of the program or model in question. In order to be acceptable, the evaluation need not be a strict experimental design (i.e., longitudinal measures, random assignment to treatment and control groups, etc.), although this type of evaluation evidence would be the most desirable. However, in order for a project to be validated and recommended for wide scale adoption there must be some kind of high quality, objective, methodologically sound, quantitative assessment which demonstrates that the project in question is effective and superior to other more commonly used approaches or methods. Thus, in order to approve the dissemination of any projects, the Panel will require a detailed summary of the relevant evidence including such things as:

- who conducted the evaluation;

- sample sizes;

- improvements or gains in whatever outcome measures were employed;

- the statistical reliability and educational significance of these improvements;

- some evidence that the improvements can be attributed to the program and are not just "normal" or "natural" gains (i.e., control group or norm comparisons, or some estimate of what would have occurred in the absence of the program).

D. **EVIDENCE OF RESOURCE SPECIFICATIONS**

Summarize in appropriate detail the evidence presented for start-up, operation and management resources and costs.

E. **EVIDENCE OF PROJECT EXPORTABILITY**

Summarize in appropriate detail the processes required for adoption of the project by another school district including material, equipment and staff training.

F. **LOCALLY DESIGNED PUBLICATIONS AND MATERIALS**

List locally developed publications and materials available for dissemination. Give title, description and cost.

G. **UNANTICIPATED OUTCOMES AND SPINOFF FINDING**

Summarize by listing of unanticipated outcomes and spinoff findings.

PART II--Effectiveness/Success

Project objective(s) identified for validation have been attained and the performance of the learner has been improved.

Directions: Evidence on effectiveness/success is to be reported by objective. Part II has 15 items. Respond to all 15 items for each nominated objective. You will need as many sets of Part II blank forms as you have objectives.

Only major objectives should be presented for validation. List these objectives below. Number consecutively. The handbook contains only one set of forms. Reproduce as many sets of forms as you need.

A major objective represents a central or primary goal of the project which will be reflected in the amount of effort, project staff time, funds expended and anticipated behavior outcome. Ordinarily the major objectives will be limited to two or three for each project and will reflect student learner outcomes.

1. State each major objective to be validated on a separate set of Part II, Effectiveness/Success, forms. Number each objective for identification. From here on, identify the objective by its assigned number. You will need as many sets of Part II forms as there are objectives to be validated.

   Objectives should be stated in measurable terms reflecting who, upon completion of the project intervention (treatment), will be able to do what at what level of performance. Any objective not meeting the necessary specifications of measurability will be eliminated from further review, investigation and validation.

2. Provide evidence to justify the need for the objective under consideration by describing the needs assessment procedures and the related findings.

   A direct relationship should exist between the identified needs and the anticipated behavioral change defined by the major project objectives.

3. Briefly describe the intervention process for this objective including where appropriate the following elements: grade level(s), number of participants, period of operation, curricula, special materials, staffing, facilities, scheduling patterns, parental community involvement, preservice/inservice training, etc.

4(a). Provide the evaluation design (pre-post test, baseline data, post test only, experimental control, etc.), which, when implemented, will provide the information necessary to determine to what extent the objective was actually attained.

4(b). For the objective under consideration, describe data collection procedures specifying type of data collected, method of data collection, timelines, responsible persons, etc. Chart format is suggested.

4(c). If evaluation information was collected on a sampling of the project's participants, describe sampling technique. Give sampling size and evidence of representativeness.

   If sampling procedure was not used, write "Not Applicable" (NA) below.

4(d). Provide supporting evidence that the attainment of the objective can be attributed to the project intervention (treatment) activities.

4(e). Where control groups exist, describe how they were selected and give some indication of their equivalency to the project group.

   If control groups were not used, write "Not Applicable" (NA) below.

4(f). Identify and describe each instrument utilized in the evaluation. Instruments can be standardized or locally developed tests, questionnaires, interview forms, rating forms, inventories, etc. Include information concerning the instrument's validity, reliability, and sensitivity to measure the range, scope, and nature of the behavior measured.

4(g). Give evidence that persons responsible for data collection (administration of tests, inventories, attitude scales, etc.) were qualified for their tasks. If any instrument utilized required special training or procedures, so indicate.

4(h). Describe data verification procedures used to assure the accuracy of data for each objective. The descriptions should include the nature of and degree to which data verification procedures were used to detect and correct errors in data management.

4(i). Report the data analysis procedure(s) used in data treatment and interpretation. Include names of persons or agencies responsible for data analysis.

5. Provide statistical evidence that the objective was attained at or above the criterion level(s) established for that objective.

6. In addition to previously cited statistical evidence provide evidence of educational significance of the reported findings.

7. State the conclusions which were drawn from the results reported.

PART III--Resource Specifications

Resource Specifications: Sufficient information is provided concerning needed start-up, operational and management resources in kind and amount which, when combined with Part II, Effectiveness/Success, and Part IV, Exportability data, will help an interested school district make an informed decision about adoption/adaption of the project practice.

Resource by Type and Amount

Objectives addressed by the practice:

1. -
2. -
3. -

Unit of Intervention_____

ITEM 1/	START-UP COSTS		MANAGEMENT COSTS		OPERATIONAL COSTS	
	PRODUCER	ADOPTER	PRODUCER	ADOPTER	PRODUCER	ADOPTER
Resource listing by Federal Code (see page 40; use only those budget items appropriate to the specific practice).	$	$	$	$	$	$

PART III--Resource Specifications by Category

Directions: If the practice can be adopted in parts the parts should be identified and data provided for each.

1. Present data on costs of the following:

	Start-up Costs	Management Costs	Operational Costs
a. Staff Development			
b. Materials			
c. Facilities			
d. Contracted Services			
e. Equipment (rental, purchase)			
f. Travel			
g. Other (describe below)			
h. Total cost of the practice			

i. Give total number of learners upon which costs were based. _____

j. Divide i into h and derive per learner costs for each column. _____

PART IV--Exportability

> A validated practice is exportable if (1) it is feasible to transport it to other school districts and (2) it can be adopted or adapted by other school districts with similar needs and environments. Used interchangeably with portable, replicable, and communicable. However, in this section questions 1-13 will be judged in terms of completeness of response.

1. Provide a description of the need for this project in other districts. (The purpose of this question is to determine the potential number of adopters for your program. You might include interest already shown in your project, results of State needs assessments, etc.) If the project can be adopted in part, the documentation of evidence should substantiate this for each applicable component.

2. Will the learner activities be continued with State or local funds? (Other than ESEA Title III)

3. If the project is validated, and funded for dissemination, is the Board of Education willing to operate the project as a demonstration site (i.e., accept the role as a producer school. See definition.).

4. Provide a detailed description of the target population (e.g., age, ethnic composition, income level, teacher experience, family, urban/rural).

5. Summarize the learner involvement in the program you feel necessary for an adopter to obtain similar results.

6. Describe the nature of the institutional variables (e.g., the school administration, teaching staff, physical facilities) which you feel would be critical to the success of the project in an adopting district.

7. Describe any community and home involvement critical to the success of the project (e.g., the necessity for parental and community participation, etc.).

8. Describe clearly and precisely the activities critical to the success of the project. These should be the project elements of your program which would have to be installed in another district for you to recognize the program as an adoption. If your project can also be adopted in part based on the separate objectives, cluster your responses by objective. Briefly discuss the pros and cons of partial adoption vs. full adoption of the program.

9. List essential materials (software) used by students, teachers, and others and the source. Cost figures for items listed should be included in the Resource Specifications Section. List the source of the materials. Review these in terms of the previously determined critical program elements.

10. Describe any essential equipment (hardware) and/or unique facilities required for the project for adoption and its use by activities. Cost figures for items listed should be included in the Resource Specification Section.

11. Describe the types, numbers and qualifications of personnel required to operate the project successfully. View this in terms of what another district will need to adopt your program.

12. Describe procedures and materials necessary for personnel training and technical assistance required for installation of the program in another setting.

13. Identify special problems (unique to this kind of project) which the adopting district might encounter in implementing the project and describe solutions. Exclude problems which will not have a bearing on the exportability of the project.

The RDx Collaborative Effort on the Validation of Educational Programs and

Practices includes four products:

Survey of State Procedures for the Validation of Educational Programs, by
Linda Reed, Ed Patrick, and David Holdzkom. St. Louis, Missouri: CEMREL, Inc.,
for the R&D Exchange, 1981.

Survey of State Procedures for the Validation of Educational Programs.
Executive Summary, by Linda Reed, Ed Patrick, and David Holdzkom. St. Louis,
Missouri: CEMREL, Inc., for the R&D Exchange, 1981.

The Search for Quality Control in Dissemination of Educational Products and
Practices: A Look at the Literature and Major Issues, by Linda Reed.
St. Louis, Missouri: CEMREL, Inc., R&D Interpretation Service, 1981.

Validation of Educational Programs, Practices and Products: An Annotated
Bibliography, prepared by Karen Temmen, Mary Ann Isaacs, and Sandra Ruder.
St. Louis, Missouri: CEMREL, Inc., for the R&D Exchange, 1981.