ED 405 693   EC 305 403

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TITLE   Research Design, Measurement Methodologies and
                Procedures Utilized by OSEP-Funded Projects.
INSTITUTION   Temple Univ., Philadelphia. Center for Research in
                Human Development and Education.
SPONS AGENCY   Special Education Programs (ED/OSERS), Washington,
                DC.
PUB DATE   Mar 90
NOTE   51p.; In: Designing and Evaluating School Learning
                Environments for Effective Mainstreaming of Special
                Education Students: Synthesis, Validation, and
                Dissemination of Research Methods. Final Report; see
                EC 305 400.
PUB TYPE   Reports - Research/Technical (143) --
                Tests/Evaluation Instruments (160)

EDRS PRICE   MF01/PC03 Plus Postage.
DESCRIPTORS   *Disabilities; Elementary Secondary Education;
                Federal Aid; High Risk Students; Interviews;
                *Learning Processes; *Mainstreaming; *Performance
                Factors; Regular and Special Education Relationship;
                *Research Design; *Research Methodology; Research
                Needs; Research Projects
IDENTIFIERS   Office of Special Education Programs; *Research
                Cooperation

ABSTRACT
                This study addressed research collaboration on a
range of instructional and administrative issues concerning how best
to serve the educational needs of students with disabilities or at
risk in general education classrooms. A group of expert researchers
(N=31), funded to conduct research on the General Education
Initiative (GEI), was interviewed to examine the research variables
they selected and their procedures for implementing them. The
selected research variables were arrayed against a framework of
variables found to be influential in learning. Issues concerning the
procedures that researchers follow to select their methods for
operationalizing the variables were considered. Needs for technical
assistance in this area were presented. Finally, patterns of
collaboration and suggestions to facilitate additional collaboration
among researchers were elicited. The study found a lack of research
on parental factors related to the GEI and on the issues of common
demographic and marker variables or instrumentation. Appended are the
interview protocol and a list of influential variables in learning
addressed by 28 federally funded projects. (Contains 14 references.)
(DB)

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RESEARCH DESIGN, MEASUREMENT
METHODOLOGIES AND PROCEDURES UTILIZED
BY OSEP-FUNDED PROJECTS

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EC 305 403

ABSTRACT

Research integration in fields in which research is prolific continues to be a problem. In this study a group of expert researchers funded to conduct research on the GEI were interviewed to examine the variables they selected and their procedures for operationalizing them. The variables were arrayed against a framework of variables found to be influential in learning. Issues concerning the procedures researchers follow to select their methods for operationalizing the variables were considered. Needs for technical assistance in this area are presented. Finally, patterns of collaboration and suggestions to facilitate additional collaboration among researchers were elicited.

OPERATIONALIZING THE MARKER-VARIABLE SYSTEM: RESEARCHERS' SELECTION OF MEASUREMENT TECHNIQUES

Much of the literature in any scientific field is contributed by relatively isolated investigators, and the resulting research often consists of a multitude of uncoordinated studies. Attempts then are made to integrate the field using techniques of synthesis such as literature reviews and meta-analyses. However, the synthesis is impeded by the limited scope of the individual studies and of their samples, and the difficulties in aligning the studies either conceptually or methodologically (Bell & Hertz, 1976). According to Bell and Hertz, the problem of integrating research on a given topic particularly needs to be addressed when there is a "quickening of interest in the field, indicating that a large number of studies will soon be carried out, and yet sufficient work has already been done so as to make it possible to establish . . . empirical anchors" (p. 10).

One useful strategy to facilitate integration in such circumstances is to identify marker variables (Bell & Hertz, 1976). A marker variable is defined as "a background variable (not necessarily the focal variable in the study) that is sufficiently relevant to the measures being used by most studies in a defined research area that it facilitates the general alignment of findings from one study to another" (Bell & Hertz, 1976, pp. 8-9). While more substantive than demographic variables, both types of variables are useful to those who attempt to synthesize findings across multiple studies in a given field.

It is recommended by Bell and Hertz that agencies, such as federal offices that support research, would serve the progress of a field of knowledge if they would both encourage and respond to efforts by investigators to join together in achieving better definition of measures and samples and to facilitate collaboration in planning and execution of studies. They believe that support of efforts for collaboration is especially important when "early efforts have burgeoned into a plethora of uncoordinated constructs, techniques, and measures" (p. 11).

This study addresses research collaboration with particular respect to the literature addressing how best to serve the educational needs of at risk and handicapped students. A series of interviews was conducted with senior researchers who were funded to explore the initiative of the Office of Special Education Programs, U.S. Department of Education, concerning a range of instructional and administrative issues in educating learning disabled and mildly handicapped students in general education classrooms. The variables addressed by the researchers were identified and considered in light of a framework of variables important to the learning process. In addition, operationalization strategies of these expert researchers were elicited, and responses related to stimulating and facilitating collaboration among researchers were obtained.

In the past, there have been some attempts to cope with a field of study in which the literature was growing and synthesis was difficult to build. Within the field of child development, for example, there was an attempt to develop methods of aligning studies in intervention with disadvantaged children in the first three years of life. The problem of specifying sample characteristics in a uniform system for all studies was addressed by a small group of investigators, who began by exchanging reports on research results and then turr to develop a uniform set of sample characteristics. A formal project (Gordon, Beller, Lally, Moreno, Rand, & Freiberg, 1973) was supported by the Office of Child Development to standardize methods of measuring socio-emotional variables for this group. Bell and Hertz (1976), in tracing some of the roots of previous attempts to develop marker variable systems, describe two instances in which a group of investigators came together; that of cognitive research (French, Elstrom, & Price, 1963; French, 1973) and of the psychophysiology of sleep (Rechtschaffen & Kales, 1968).

A further example of coordination across studies, in this case provided by the U.S. Department of Education, is the first-grade reading study project (Bond & Dykstra, 1967). In this case the U.S. Department of Education funded multiple studies of first-grade reading instruction, including several distinct approaches, each of them explicated at various sites across the nation. In addition, the Department funded a special project for coordination of the

studies under the leadership of Professor Bond and Dykstra at the University of Minnesota. Lead researchers of all projects were convened by Bond and Dykstra. Working committees were formed to seek agreement on efforts for coordination, such as tests that would be used in common across projects to measure instructional outcomes. Procedures for general analysis of data (across projects) were also established. For example, a broad study seeking to identify ATI's (Aptitude Test Interactions) was planned and eventually executed. This effort involved a large number of the nation's top researchers in the field of reading instruction and was carried through with good cooperation and notably good results. It involved all of the researchers in planning and carrying out the coordination. It was definitely not a top down operation, except in the sense that the staff of the Federal sponsoring agency was aware of the need and opportunity for coordination and offered support for the meetings and leadership required to carry through the entire effort.

A data base has been established at MIT into which researchers in child language may deposit their own data and withdraw data from other researchers. According to Butler (personal communication):

> A variety of systems for storing the data in accessible forms (thus also requiring that data be provided to that system in specific coding systems) has permitted researchers in child language (who typically deal in very small N's) to draw from much larger pools of similarly gathered data. A massive study of more than 500 subjects is now being entered into the data base, which combines the resources of researchers at the Harvard Graduate School of Education, those at MIT, and other university-based researchers; all at little or no cost to individual researchers. The MIT program is working well . . . the individual researchers may use combined data in a variety of ways, none are coerced to either provide or utilize the data, there are systems which permit multiple uses, and yet the data base is constrained in manageable ways. Such a "marker system," if you will, demonstrates great potential for collaborative research or for individual use of well-gathered data by others.

Directly related to the content area of this research, Keogh and her colleagues (Keogh, Major-Kingsley, Omori-Gordon, & Reid, 1982) reported an attempt in the field of learning disabilities to encourage cooperation and coordination among researchers. In attempting to synthesize the research on learning disabilities, it became clear that one of the major problems was in the way that the research was reported. The lack of reporting on basic demographic variables and other factors made it difficult to align the studies. The UCLA Marker Variable Guide (Keogh, et al, 1982) was developed as a list of variables or markers to describe samples of subjects in learning disabilities research. The indicators were not to be used as an attempt to limit what research is done or reported, but rather to facilitate "commonality of reporting that will allow determination of samples equivalence" (Keogh et al, 1982, p. 81). Although published in 1982, the Guide has seen little implementation.

More recently, on February 26, 1989, the National Joint Committee on Learning Disabilities produced a statement indicating their concern about the lack of consistency in describing subjects in learning disability research, and provided a list of subject descriptors which they recommended for use in learning disabilities research. International efforts have also been directed towards facilitating syntheses across countries. There is increasing movement, in part sponsored by the United Nations, towards utilizing the same instruments or comparable approaches in measuring mathematics and science achievement across nations (H. Walberg, personal communication).

Current efforts to develop alternatives to educate the mildly handicapped are in a state in which collaboration among researchers and the development of a marker variable system could be beneficial. The so-called GEI (General Education Initiative), or shared responsibility position, conforms to Bell and Hertz's indicator for the ideal time for a marker variable system, i.e., where there has been a quickening of interest in the field, a large number of studies either in progress or being planned, and sufficient work having already been done, making it possible to establish the relevant empirical anchors. In recognition of this state of affairs, this project was funded by the Office of Special Education and Rehabilitative Services to conduct such a process: to synthesize the current state of research and practice, and provide a synthesis

of the knowledge base (see Deliverable D, "A Decision-Making Framework for Description of Innovative Education Programs").

Certain assumptions underlie the study, as they relate to methodology. It is assumed that perceived cumulativeness in a research domain is in part a function of certain conventions of evidence and methodology shared by the research community. As Hedges (1987) suggests: "the study of relative cumulativeness across research domains becomes (at least in part) a study of conventions used by the research community for achieving a sense of cumulativeness" (p. 453). As we look for research to inform policy, it is important that inconsistent research results not be primarily due to differences in methodology. While there is no implication here that researchers' independence or freedom to design or operationalize their research should be constrained, the question is being asked if there is some responsibility to look at research procedures to determine where collaboration and agreement might be possible to more readily achieve comparable findings.

Moreover, there is increasing interest in the way that given professionals think about their work. From Schoen's (1983) work on the reflective practitioner to work on teachers' thinking (e.g., Clark & Peterson, 1986), it is a reasonable move to examine the thinking processes of researchers. Examining how expert researchers think about and plan their research might enable us to learn something about this process that would be useful in the teaching of new researchers, as well as in knowing how we might improve the cumulativeness of research in a given field.

A marker variable system (Reynolds, Wang, & Walberg, 1989) has been developed from an extensive and systematic review of the literature. This comprehensive set of variables has been organized into an inclusive conceptual framework of six categories and 228 items. These have been presented to a wide range of stakeholders responsible for research and practice in education. In addition, each item has been rated for the degree of empirical support found for it in the literature (Wang, Haertel, & Walberg, 1989).

The second step in this synthesis is the focus of this study, whose

purpose is to examine which of these variables have been utilized in the burgeoning research on the General Education Initiative, and the instrumentation issues involved in their operationalization. Several related questions were asked:

1. Which variables identified as influential in learning have been included in the OSER-funded research on the GEI?

2. How have the variables been operationalized in terms of measurement procedures and instruments?

3. What factors influenced the selection of measurement procedures?

4. How might collaboration among researchers on variable selection and instrumentation be facilitated?

5. What technical assistance needs are common among researchers in the field regarding instrumentation/operationalization of these influential variables?

Method

Subjects

A list of 34 projects, funded for their first year between 1985 and 1988 by the Office of Special Education and Rehabilitative Services, to develop a knowledge base for the GEI, was obtained from the funding agency. The subjects of this study are the Principal Investigators (PI's), or their designated representative(s), who were the recipients of the grants in these competitions. The subjects for this study represent 29 of the 34 projects. A total of 31 individuals were interviewed; for four of the projects, two individuals were interviewed jointly. Three of the individuals interviewed were each funded for two projects. For a variety of scheduling and other reasons, it was not possible to interview anyone from five of the projects.

Procedures

The design of the study involved interview data, collected by telephone, using a structured interview protocol. A list of names, phone numbers, and

project abstracts for each research grant funded under the GEI was obtained from OSERS. The original intent had been to conduct much of the process through an evaluation of the grant proposals of the funded projects. However, informal contact with several of the PI's indicated that there had been multiple changes from the original submissions. A pilot project was conducted using written materials and phone contact during the summer of 1988, and presented at a meeting in Washington, DC, conducted by the Center for Research in Human Development and Education staff of this project. Based on feedback from those attending this meeting and other members of the project advisory board, the structured interview protocol was developed.

The interview protocol (found in Appendix A) focused on questions related to the major variables and measurement methodologies utilized. The following were identified for each funded research study:

1. Demographic variables about the sample.
2. Independent and dependent variables.
3. Research procedures for collecting data on each variable;.
4. The reason for selection of the measurement procedure or instrumentation.
5. Strengths and limitations of the instruments.

In addition, other questions were asked related to:

6. Interest/experience of the researchers in collaboration with other researchers, as well as ideas about facilitating research collaboration.
7. Interest and need for additional resources/technical assistance with respect to instrumentation to measure the variables.

An introductory letter was sent to each PI, explaining the nature of the project and requesting participation. (A copy of the letter sent during the second phase of interviews is included in Appendix A). The letter was followed by a phone call to the PI's, confirming their interest in participating in the interview process, inviting them to designate themselves or a senior researcher on the project for that purpose, as well as setting a time convenient to interviewers and interviewees. The interviews were designed as structured conversations between researchers, i.e., interviewer and interviewee, and were

conducted in a conversational format between colleagues about research.

Three research associates conducted the interviews. One interview was conducted to pilot the interview protocol, and two additional interviews were conducted jointly by the interviewers to promote standardization of the format. The remaining interviews were conducted individually. The interviewers completed the written protocol, which was then coded for analysis.

Results

Research Variables

The first question addressed which variables identified as influential in learning have been included in the OSER-funded research on the GEI. Each demographic, independent and dependent variable was identified and coded for 28 projects (the results of one project interview were received too late to be included in this analysis) according to the Marker Variable Framework described by Reynolds, Wang, and Walberg (1989). When a variable did not fit the original framework, it was coded as a new item. All variables were coded within the six categories used in the framework, but 23 new items were developed. Appendix B consists of a copy of the complete framework, so that the number of variables not included as well as those found in these studies can be seen. The mean number of variables per study was 11.5; the range varied from 2 to 24. Data from five interviews were coded, separated by two raters to determine reliability. A coder reliability of .88 was obtained.

Demographic Variables

One of the major concerns in development of a marker variable system for research is the presentation of consistent background and demographic data in all studies relevant to the same topic. In the 28 projects analyzed, the mean number of demographic variables was 5.07, with a range of 0 to 14 demographic variables collected by the researchers.

However, the specific demographic data gathered varied widely. The highest consistency is over relatively few categories, including: type of district, i.e., suburban/rural/urban; type of school, i.e., public/private; special education classification; grade level; socio-economic status; gender; and ethnicity. Only three (gender, classification, and grade level) were found in half or more of the studies. The demographic information generally was collected from school records, and some researchers expressed some concern about accuracy of data.

In all but one study the school system's special education classification of the student was accepted, and it was unclear if the basis for the classification would be presented to readers of the research. Given the documented variability of classification systems across schools, there is cause for concern when we come to ask what type of population a program has been demonstrated to serve.

Variables by Category

A second question involves which of the variables in the Marker Variable System have been pinpointed for study by these funded grants. The frequeny count for variables will be presented in terms of the 6 categories and 30 subcategories, rather than the 228 specific items (although these data are available in Appendix B). None of the studies included variables from category 1, State and District Variables; 15 of 28 included variables in category 2, Out of School Contextual Variables. Of these, 12 studies only included Community Variables (consisting almost entirely of the Suburban, Rural, Urban item), although three had variables in the Home Environment and Parental Support Subcategory. In addition, the research studies examined variables in the other categories as follows: 22 of 28 studies for category 3, School Level Variables; 27 of 28 for category 4, Student Variables; 6 of 28 for category 5, Program Design Variables; and 17 of 28 for category 6, Implementation, Classroom Instruction, and Climate Variables. Currently, school and student variables are the major focus of the research, which is appropriate given the nature of the GEI initiative under which these grants were funded.

Instrumentation

Specific to this study are the questions relating to measurement and instrumentation. The data were arrayed to determine if the same variable is being assessed in different ways by the different researchers. Table 1 shows that 72 variables were assessed by researcher-created instruments, in comparison to 48 variables assessed through published instruments. Tables 2 and 3 indicate the number of different achievement and observation measures in use in these studies. Table 4 shows the number of times individual instruments were used across studies. Academic achievement demonstrates this variety. Reading achievement. a common variable in the studies, was measured by group achievement tests, including: CTBS, Stanford Achievement, Metropolitan, Iowa Test of Basic Skills, and the California Achievement Test. Individual tests were also used, including the WRAT and the Woodcock-Johnson, as well as curriculum-based assessment and curriculum-based measurement techniques. In addition, some studies used grades or teacher rankings.

A perceived need to examine the data more qualitatively was clear among these researchers, many of whom collected some qualitative data. Given the recent interest in qualitative data (see also the interest in qualitative data as a topic for technical assistance conferences, listed in Table 6), it is hard to know if the use of this method reflects the current research "Zeitgeist", the problems of this area of research or some combination of the two. It should be noted that most of the research studies used multiple data collection sources for the different variables. Classroom observation, interview data, questionnaires, standardized and curriculum based assessment/measurement techniques were often found in the same study.

The reasons for selecting the instrumentation methodology were also obtained. Table 5 rank orders the reasons for the selection of methodology for 18 PI's selection of 125 measurement strategies. Some researchers reported

one reason for a selection, while giving multiple reasons for others. The two most frequent reasons, ease of use and the need to create the technique for the study because nothing else was available suggest both the autonomy of the researchers and the difficulty of doing research in the schools.

Technical Assistance

The PI's were asked to suggest the kinds of technical assistance they would have found helpful. Table 6 displays the results of that question. The need for technical assistance around qualitative methodology was apparent. In addition, there was an interest in simply having the opportunity to share ideas and problems, as well as techniques.

Collaboration

Finally, questions were raised about the level of collaboration among researchers. Table 7 demonstrates that considerable collaboration is already ongoing among these researchers. While joint data collection and instrument sharing is less common, as a group they were interested in more opportunities to share and provided numerous suggestions to facilitate that process. Table 8 documents these suggestions. Several of the suggestions could be implemented by the funding agencies when research grants on a common problem are to be funded. Table 9 includes some additional issues and concerns raised by the researchers.

Discussion

The results of these interviews with this expert group of researchers raise a number of implications and policy considerations. Using the Marker Variable System as a framework, it is possible to evaluate which variables related to learning have received more versus less attention for a given population or problem. It would appear, for example, that little work has been done so far around parental factors related to the GEI. Secondly, the issue of common demographic and marker variables has not yet been addressed in the special education research literature, in spite of the apparent need for

such consensus and the pioneering work done by Keogh early in the 1980's. Reaching consensus on some common variables across studies, as well as clarifying how to define special education and at risk populations across studies, rather than relying on definition by individual idiosyncratic school classification systems, is likely to benefit the development of research integration and has been attempted in other research areas.

Issues of instrumentation also need further consideration. Studies of the comparability of techniques presuming to measure the same variable would resolve some of the problem. Perhaps some conventions among researchers regarding the nature of and conditions in which variables such as time-on-task are measured would improve the literature considerably. Are there some variables that need to be "standardized" in terms of common meanings and comparable measurement procedures? Because of the energy and commitment of several individuals, some movement toward joint instrument use and shared data collection has begun among this group of funded projects. Two of the interviewees also mentioned consortia around research outside this particular group of projects. Collaboration within schools has become an emerging theme of the school reform movement, and perhaps the interest displayed by the researchers in further collaboration is a reflection of the times as well as their recognition of the benefits to be obtained. It might also be useful to explore how other such groups of researchers managed to reach consensus regarding meaning and measurement operations.

Many of the reasons given for the selection of the type of instrumentation reflected the "5 minutes, 5 cents rule": the measurement needs to be easy to administer, economical, and brief. This is a realistic concern. The researchers were all working in the real world (how researchers enter schools and districts is another issue worth investigating) and were working with school personnel whose main focus was not research. Although these concerns are realistic, they do not invalidate the need to monitor that the purpose or goal of the research does not become subordinate to feasibility issues. This is a difficult line, requiring considerable researcher skill. The need to develop school/research collaboration is clearly illuminated by these researchers' difficulties in gaining cooperation. Strategies such as small gifts,

using instrumentation that would provide useful feedback to the school personnel, and ease and speed of administration were strategies described by the researchers. Most of these researchers acknowledged how difficult it was to try to do good research within the confines of their funding and the problems in gaining cooperation from the schools. Collecting data for applied research in field situations is a difficult process, in which measurement issues sometimes rank second to the realities of the school culture and need to be carefully balanced by experienced researchers. Perhaps we need to consider how to make the schools more of a joint collaborator in the research process. Porter (1987) describes a pioneering collaboration effort between university researchers and teachers, which suggests integrating practitioners more directly and at an earlier point into research projects.

The researchers also made a number of suggestions to funding agencies to encourage a culture of support among researchers. Several suggested providing opportunities to collaborate early in the projects, through meeting and through sharing information and instruments. They recommended using major conferences as opportunities for additional meetings. They asked for incentives to collaborate, rather than compete. Given the competition inherent in the grant process, these researchers recognized the need to build a climate of trust. The development of research networks was seen as a possible facilitating strategy by one individual. This role of strengthening collaboration and building integration may be a function that is not usually included in describing the mission of funding agencies (see, for example, Friedman & Baldin, 1990), but its incorporation might result in important gains across a field.

The research reported here has a number of methodological limitations. The interview process was often lengthy and time consuming for the interviewee. This was particularly true when the researchers, in several cases, had several extensive projects on which to report. One researcher indicated in a later contact that he had only reported the major variables, in spite of the request to identify all the variables, and that there were additional demographic variables that he had not discussed over the phone. An additional step in the procedure would require that the researchers each receive a table

of all their responses, so that the data could be verified by them. It was determined that this would impose too great a burden on the researchers, who had been willing to donate their time for the phone interviews. The data must be interpreted in light of these limitations.

Conclusions

The results of this study suggest some future directions for the research community in special education and the institutional structures which support research. The researchers provided a number of specific suggestions for funding agencies and organizations to foster collaboration and improve the comparability of the research literature. While clearly some of these suggestions are already being implemented, additional support is worth consideration if there is to be a more integrated and meaningful research literature in special education. Individual autonomy and creativity should continue to be highly valued by the education community. Finding ways to work together to share information and instrumentation could, however, also become a valued priority.

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Table 1

Instrumentation (N=20 Projects)

File data: 73 variables

Instrumentation created for the study: 72 variables

Published instruments: 48 variables

Table 2

Achievement Measures (N=20 Projects)

Standardized Group Achievement Tests

CBTS	2
SAT	2
MAT	4
ITBS	1
CAT	3
State Level Tests	1
Local Choice	1

Individual Achievement Tests

Bass	2
CBM	4
CBA	1
WRAT (Spelling)	1
Richardson Decoding Skill Tests	1
Woodcocks-Johnson	1
Other (e.g., grades, teacher ranking, criterion-referenced):	9

Table 3

Classroom Observation Measures (N=20 Projects)

CISSAR	4
MELD	1
Modified MELD	1
SOBER	1
TIES	1

Table 4

Multiple Use of Published Instruments (N=20 Projects)

Number of Instruments used in four studies: 3

    CISSAR

    MAT

    CBM

Number of instruments used in three studies: 2

    Harter Self-Perception Scale for Children

    CAT

Number of instruments used in two studies: 6

Number of instruments used in one study: 23

Table 5

Ranking of Reason for Selection of Research Instruments

Created for study

Easy to use

Validity and reliability

Used previously by researcher
Requires little time
Theoretical relationship to construct

Instrument used in district

Sensitive to small changes

Need for qualitative data to compare with previous data
as part of common data set with another research project

Only instrument available for this variable
Face validity for teachers

Provides both research data and information for teachers
Teacher administered
Selected in collaboration with school personnel
Required in RFP
Curious about measure

(N=18 project directors for 125 measures)

Table 6

Types of Technical Assistance Requested by Project Directors

Conferences on specific topics:

Ethnographic/qualitative research	9
implementation	4
Training in utilizing specific instrument/measurement techniques:	
Classroom observation systems	4
Academic achievment measures	3
Consultation	3
Research design and analysis	3
Sustaining innovations	2
Adapting instruments to answer specific research questions	1
Methods for measuring growth and change in handicapped children	1
Discussion about appropriate outcome measures	1
Procedural issues in collecting data in schools	1

Sharing opportunities among researchers:

To avoid re-inventing the wheel	3
To provide opportunity to discuss problems/issues	2

Field needs more instrumentation for school-based research	1
Need for more technical assistance in general	1
A lab where standardized training on research instruments is available	1
Provision of "blinded" test administration, available on contact	1

Table 7

Forms of Researcher Collaboration

Discussion with othe researchers	20
Discussion with other researchers specifically about instrumentation	9
Collaboration among researchers:	
Sharing instruments	10
Common data collection	8
Joint authorship and presentations	1
Collaboration between researchers and school personnel	1
Leadership in building researcher network	1

Table 8

Researchers' Suggestions to Facilitate Collaboration

Suggestions to Funding Agencies:

1. Provide opportunities for collaboration early in projects — 5

2. Build consortia around common problems, with funding for collaboration — 4

3. Share written information and instruments of similar projects — 2

4. Provide incentives and contingencies for collaboration — 1

Other Suggestions:

5. Convene conferences on topics of interest — 3

6. Utilize major conferences (such as CEC, AERA) for opportunities to meet — 1

7. Develop climate of trust, including trusted leadership — 4

8. Joint authorships, with senior authorship rotated — 1

9. Consider time pressures on researchers — 1

Table 9

Additional Issues/Concerns Raised by Researchers

1. Collaboration should not be forced (2)

2. There is a need for more theoretical discussions in the field (1)

3. There needs to be more tolerance for divergent approaches (such as quantitative research) by funding agencies (2)

4. There needs to be recognition of how "needy" schools are; asking schools to be collaborative in research, given their own needs, is inappropriate. Funds should be built in to reward schools for participation in research (1)

APPENDIX A
LETTER TO PROJECT DIRECTORS AND INTERVIEW PROTOCOL

APPENDIX A

October 31, 1989

^F1^

Re: ^F2^

Dear ^F3^,

This is a follow-up to a letter that we sent to you last year regarding the above-named project, which is funded by the Office of Special Education Programs (OSERS) to examine a range of instructional and administrative issues in educating learning disabled and mildly handicapped students in general education classrooms. We were not able to schedule an interview with you at that time, but would now like to arrange a time to speak with you about this project.

As we indicated in the previous letter, the Temple University Center for Research in Human Development and Education was funded to synthesize the state of the field and the literature on important variables that influence student learning. To this end, we are gathering information on research methodology and research development across projects relating to these variables. We are now in the final phases of data collection for this project, and wish to arrange for your participation.

During the next month, Carol Lidz and I will conduct telephone interviews with the researchers from the OSERS-funded projects who have not yet been contacted to learn about the research questions and methodologies, data collection plans, and activities across the states. These interviews take approximately one hour. At the conclusion of this process, all project researchers who express an interest will receive a brief report of our findings.

There are several appointment times, mostly on Monday and Wednesday mornings, that are available throughout November. Veronica Norris from our office will be calling you in the next few days to schedule a time that is mutually convenient. If any of the prescheduled times is not convenient, please indicate to her the best times to reach you.

We are aware that your projects are in various stages of implementation, and that some of you will answering interview questions either prospectively or retrospectively. Either point of view is fine. In brief, we will be asking you about the following:

> -or what variables have you, or are you planning on,
> collecting your data?

-what instruments are you or are you planning on using?

-why did you choose these particular instruments?

-have there been any barriers to data collection, or do you anticipate any?

In addition to these questions, we can include any issues concerning instrumentation that you may wish to discuss.

Thank you for your interest and willingness to participate, we look forward to spending time on the telephone with you during the next month.

Sincerely,

Sylvia Rosenfield
Senior Research Associate
Professor of School Psychology

SR/ab

Name of Interviewer:_____

Date of Interview: _____

Introduction: We appreciate you giving us this time. The synthesis project is looking at the methodologies used by some of the major researchers in terms of instrumentation. We hope to make this as brief and as interesting as possible. We will be taping and taking notes.

1. Project Name:

2. Project Director:

3. Project Personnel Interviewed (Name and Title):

4. Date of Interview:

5. Phone Number:

6. Address:

7. Dates of Project:

8. Geographic Location:

For Each Variable, collect information on items 9-16.   Refer to Logistics in Practice form..

17.   What   kind(s)   of   technical   assistance   with   respect   to instrumentation would you find helpful?

Are you interested in conferences:
  On particular topics:
    consultation/implementation
    ethnographic/qualitative data?
    Other (specify):

Who would you like to have attend/present?

Other:

18.   What   kinds   of   collaboration   with   other   researchers   are   you engaged in related to this project.

Sharing instruments   _____

Discussion about:
            Literature   _____

            Findings   _____

            Instruments   _____

            Data Analysis   _____

            Common Data Collection _____

Joint Presentation of Findings _____

Other (Specify):

19. What do you believe would lead to increased collaboration on the use of similar instrumentation and/or common data collection among researchers in this field?

20. Additional Comments:

Instrumentation Survey

Logistics in Practice

9. Code _____

10. Type of Variable (circle one): DV IV DGV U

Variable	13. Measure	14. Reason for Selection	15. Strengths	16. Limitations
11. Variable Label	___ Direct observation ___ Permanent product ___ Questionnaire ___ Rating scale ___ Standard test ___ Criterion reference measure ___ Classroom observation scale ___ Anecdotal recording ___ Interview	___ Convenience ___ Availability ___ Instrument constructed for service ___ Clinical utility ___ Theoretical construct favored ___ Psychometric properties ___ critical variable ___ acceptable ___ not an issue ___ Established measure in literature ___ Previous knowledge of experimenter		
12. Instrument(s)				

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APPENDIX B
INFLUENTIAL VARIABLES IN LEARNING INCLUDED IN
TWENTY-EIGHT FEDERALLY FUNDED RESEARCH PROJECTS
ON THE GEI

Number
of Studies

District Level Demographics and Marker Variables

School district size   ———

Degree of school district bureaucratization   ———

Degree of school district centralization   ———

Presence of contractual limits on after school meetings   ———

Presence of contractual limits on class size   ———

Presence of contractual restrictions on activities
      performed by aides   ———

Degree of central office assistance and support for programs   ———

Degree of board of education support for instructional programs   ———

Per pupil expenditure   ———

Efficiency of transportation system   ———

State Level Policy Variables

Teacher licensure requirements   ———

Degree of state control over textbooks   ———

Degree of state control over curriculum   ———

Academic course and unit requirements   ———

Minimum competency testing requirements   ———

Adherence to least restrictive environment/mainstreaming   ———

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Community Variables

    Socioeconomic level of community   __2__

    Ethnic mix of community   _____

    Quality of social services for students   _____

    Rural/Urban/Suburban   __11__

Peer Group Variables

    Level of peers' academic aspirations   _____

    Level of peers' occupational aspirations   _____

    Presence of well defined clique structure   _____

    Degree of peers' substance abuse   _____

    Degree of peers' criminal activity   _____

Home Environment and Parental Support Variables

    Educational environment (e.g. number of books and magazines   _____
        in home)

    Parental involvement in assuring completion of homework   _____

    Parental involvement in assuring regular school attendance   _____

    Parental monitoring of student television viewing   __1__

    Parental participation in school conferences and   __1__
        related activities

    Parental application of appropriate, consistent discipline   _____

    Parental expressions of affection to children   _____

    Parental interest in student's school work   __1__

    Parental expectation for academic success   _____

    Parental Involvement   __2__

    Parental Satisfaction with School Program   __2__

    Family Constellation   __1__

Student Use of Out of School Time Variables

Student participation in clubs and extracurricular
school activities _____

Amount of time spent on homework _____

Amount of time spent on leisure reading _____

Amount of time spent viewing educational television _____

Amount of time spent viewing noneducational television _____

III: School Level Variables

Demographic and Marker Variables

Public versus private school _11___

Size of school _4___

Level of Chapter I (compensatory education) funding _____

Level of Title VII (bilingual) funding _____

Level of PL 94-142 (handicapped) funding _____

Mix of socioeconomic levels in the school _3___

Mix of cultural/ethnic groups in the school _3___

Mix of student language backgrounds in the school _____

Teacher age _1___

Teacher degree _2___

Teacher experience _2___

Teacher competence _1___

Teacher/Administrator Decison Making Variables

Teacher and administrator consensus on school values,
norms, and roles _____

Principal actively concerned with instructional program _2___

Teacher involvement in curricular decision making _____

Teacher involvement in instructional decision making _2___

Teacher involvement in resource allocation decisions _____

Teacher involvement in finding ways to increase academic
performance _4___

Teacher confidence in handling problems _3___

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<u>School Culture Variables (Ethos Conducive to Teaching and Learning)</u>

Use of cooperative, not exclusively competitive, goal structures   _____

School-wide emphasis on and recognition of academic
    achievement   _____

Low staff absenteeism   _____

Low staff turnover   _____

Low staff alienation   _____

Active collaboration between regular classroom teachers and
    special education teachers   __3___

Safe, orderly school climate   _____

Degree of school personnel professional collaboration   __5___

Rate of referrals to special ed   __3___

Staff satisfaction   __5___

Concerns regarding change   __1___

Teacher expectations/tolerance for student behavior   __2___

<u>School-Wide Policy and Organizational Variables</u>   __1___

Presence of "effective schools program"   __3___

Explicit school grading and academic progress policies   _____

Explicit school-wide discipline policy   _____

Explicit school-wide attendance policy   _____

Coordination of pullout programs for handicapped students
    with regular instructional programs   __1___

Use of multi-age grouping   _____

Use of instructional teaming   __2___

Use of cross-age tutoring   _____

Use of peer tutoring   __2___

Use of academic tracking for specific school   **BEST COPY AVAILABLE**   _____
    subject areas

Minimization of external classroom disruptions
    (e.g., broadcast announcements)   _____

Adherence to least restrictive environment/mainstreaming   __1___

Minimum use of suspension and expulsion as discipline tools   _____

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Accessibility Variables

    Accessibility of educational program (overcoming
        architectural, communication, and environmental barriers)   _____

Parental Involvement Policy Variables

    Parental involvement in improvement and operation of
        instructional programs   _____

    School-sponsored parenting skills workshops (e.g., behavior
        modification, Parent Effectiveness Training)   _____

IV: Student Variables

Demographic and Marker Variables

    Chronological age   6

    Socioeconomic status   12

    Gender   14

    Ethnicity   10

    First or native language   5

    Physical and health status   _____

    Special education classifications (e.g., EMR, LD)   16

    Grade level   15

    At risk   1

    Birthorder   1

History of Educational Placements

    Prior grade retentions   4

    Prior special placements   6

    Current placement in regular class versus self-contained
        special education class   3

    Age/Grade match   1

Social and Behavioral Variables   3

    Positive, nondisruptive behavior   6

    Appropriate activity level   1

    Cooperativeness with teacher   3

    Cooperativeness with peers   4

    Ability to make friends with peers   2

<u>Motivational and Affective Variables</u>   __3__

    Attitude toward school   ____

    Attitude toward teachers   ____

    Attitude toward subject matter instructed   ____

    Motivation for continual learning   __1__

    Independence as a learner   ____

    Perseverance on learning tasks   ____

    Self-confidence   ____

    Academic self-competence concept in subject area instructed   __1__

    Attributions for success and failure in subject area instructed   ____

    Self-concept   __4__

<u>Cognitive Variables</u>   __1__

    Piagetian stage of cognitive development   ____

    Level of reasoning (fluid) ability   ____

    Level of spatial ability   ____

    Memory   ____

    Level of general academic (crystallized) knowledge   __5__

    Level of specific academic knowledge in subject area instructed   __13__

    Level of reading comprehension ability   __6__

    Level of writing ability   ____

    Level of computational ability   __3__

    Level of oral fluency   __3__

    Level of listening skills   __1__

    Learning styles (e.g., field independent, visual/auditory learners,   ____
        high cognitive complexity)

    Level of spelling   __2__

    IQ   __6__

    Learning potential   __1__

    Language level   __1__

<u>Metacognitive Variables</u>

    Self-regulatory, self-control strategies (e.g., control of   __1__
        attention)

    Comprehension monitoring (planning; monitoring effectiveness   _____
        of attempted actions; monitoring outcomes of actions;
        testing, revising, and evaluating learning strategies)

    Positive strategies for coping with failure   _____

    Positive strategies to facilitate generalization of concepts   _____

<u>Psychomotor Variables</u>

    Psychomotor skills specific to area instructed   _____

<div align="center"><u>V: Program Design Variables</u></div>

<u>Demographic and Marker Variables</u>

    Size of instructional group (whole class, small group,   __1__
        one-on-one instruction)

    Proportion of students with special needs served in regular classes   __1__

    Number of classroom aides required   _____

    Resources needed   _____

<u>Curriculum and Instructional Variables</u>

    Clearly presented academic, social, and attitudinal program   _____
        goals/outcomes

    Use of explicit goal/objective setting for instruction of   __2__
        individual student (e.g., Individualized Educational
        Plans [IEPs])

    Use of mastery learning techniques, including use of   _____
        instructional cues, engagement, and corrective feedback

    Use of cooperative learning strategies   _____

    Use of personalized instructional program   _____

    Use of prescriptive instruction combined with aspects of   _____
        informal or open education

    Use of diagnostic-prescriptive methods   _____

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Use of computer-assisted instruction _____

Use of crisis management techniques to control classroom
disruptiveness _____

Use of program strategies for favorable affective climate _____

Alignment among goals, contents, instruction, assignments and
evaluation _____

Curriculum units integrated around key discipline-based
concepts _____

Use of multidisciplinary approaches to instructional planning
(including diagnosis in educational planning) _____

Presence of information in the curriculum on individual
differences and commonalities (including handicapping
conditions) _____

Presence of culturally diverse materials in the curriculum _____

Curriculum Design Variables _2_

Materials employ alternative modes of representation _1_

Material is presented in a cognitively efficient manner _1_

Materials employ explicit and specific objectives _____

Materials employ advance organizers _1_

Materials employ learning heirarchies _____

Materials are tied to assessment and diagnostic tests _1_

Availability of materials and activities prepared specifically
for use with whole classroom, small groups, or one-on-one
instruction _1_

Degree of structure in curriculum accommodates needs of
different learners _1_

Student interests guide selection of a significant portion of
content _____

Availability of materials and activities for students with
different abilities _____

Availability of materials and activities for students with
   different learning styles   _____

Developmental issues considered   _____

Student experiences considered   _____

VI: Implementation, Classroom Instruction, and Climate Variables

Classroom Implementation Support Variables

Creation and maintenance of necessary instructional
   materials   _____

Adequacy in the configuration of classroom space   _____

Availability of classroom aides   _____

Use of written records to monitor student progress   _____

Establishing efficient classroom routines and communicating   ___1___
   rules and procedures

Developing student self-responsibility for independent study   _____
   and planning of one's own learning activities

Classroom Instructional Variables   ___3___

Prescribing individualized instruction based on perceived match   ___1___
   of type of learning tasks to student characteristics (e.g.,
   ability, learning style)

Use of procedures requiring rehearsal and elaboration of new   _____
   concepts

Use of clear and organized direct instruction   _____

Systematic sequencing of instructional events and activities   _____

Explicit reliance on individualized educational plans (IEPs) in   _____
   planning day-to-day instruction for individual students

Use of instruction to surface and confront student   _____
   misconceptions

Use of advance organizers, overviews, and reviews of objectives   _____
   to structure information

Clear signalling of transitions as the lesson progresses   ___1___

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Classroom Instructional Variables (continued)

Significant redundancy in presentation of content   _____

Teacher conveys enthusiasm about the content   _____

Directing students' attention to the content   _____

Using reinforcement contingencies   __1__

Setting and maintaining clear expectations of content mastery   __1__

Providing frequent feedback to students about their performance   __1__

Explicitly promoting effective metacognitive learning strategies   _____

Promoting learning through student collaboration (e.g., peer
tutoring, group work)   __1__

Corrective feedback in event of student error   _____

Flexible grouping that enables students to work to improve   _____

    and change status/groups

Teaching for meaningful understanding   _____

Degree to which student inquiry is fostered   _____

Scaffolding and gradual transfer of responsibility from   _____

    teacher to student

Degree to which assessment is linked with instruction   _____

Skills taught within the context of meaningful application   _____

Good examples and analogies to concretize the abstract and
familiarize the strange   _____

Consideration of the teacher's use of language in the instructional
process   __1__

Explicitly promoting student self-monitoring of comprehension   _____

Quantity of Instruction Variables   __1__

Length of school year   _____

Length of school day   _____

Time on task (amount of time students are actively engaged in
learning)   __8__

Time spent in direct instruction on basic skills in reading _____

Time spent in direct instruction on basic skills in mathematics _____

Time allocated to basic skills instruction by regular classroom
teacher _____

Time allocated to basic skills instruction by special education
teacher _____

Difference between academic learning time and allocated
learning time _____

Time spent out of school on homework _____

Time spent out of school viewing educational television _____

Time spent out of school in informal learning experiences (e.g.,
museum trips, scouts) _____

Nature of regular classroom content missed by students during
participation in pullout programs _____

Attendance __1__

Tardiness __1__

Classroom Assessment Variables

Use of assessments to create detailed learner profiles rather
than simple classifications or unelaborated total scores __1__

Use of assessment as a frequent, integral component of
instruction __1__

Accurate, frequent measurement of basic skills in reading _____

Accurate, frequent measurement of basic skills in mathematics _____

Classroom Management Variables

Minimal disruptiveness in classroom (e.g., no excessive noise
no students out of place during instructional activities,
no destructive activities) _____

Group alerting (teacher uses questioning/recitation strategies
that maintain active participation by all students) _____

Learner accountability (teacher maintains student awareness
of learning goals and expectations) _____

Transitions (teacher avoids disruptions of learning
activities, brings activities to a clear and natural
close, and smoothly initiates new activity) _____

Teacher "withitness" (teacher is continually aware of events and activities
and minimizes disruptiveness by timely and nonconfrontational
actions) _____

Student and Teacher Interactions: Social Variables ___2___

Student initiates positive verbal interactions with other
students and with teachers _____

Student responds positively to questions from other students
and from teacher _____

Teacher reacts appropriately to correct and incorrect answers _____

Teacher reinforces positive social interactions with students
rejected by peers _____

Teacher provides explicit coaching on appropriate social
behaviors _____

Teacher provides explicit coaching to reduce aggression _____

Student and Teacher Interactions: Academic Variables

Teacher asks academic questions frequently ___1___

Teacher asks questions predominantly low in difficulty _____

Teacher asks questions that are predominantly low in
cognitive level _____

Teacher maintains high post-question wait time _____

Frequent calls for extended, substantive oral and written
response (not one-word answers) _____

Classroom Climate Variables

Cohesiveness (members of class are friends sharing common
interests and values and emphasizing cooperative goals) ___1___

Low friction (students and teacher interact in a
considerate and cooperative way, with minimal
abrasiveness) _____

Low cliqueness (students work with many different classmates,
and not just with a few close friends) ___1___

Satisfaction (students are satisfied with class activities) ___1___

Speed (the pacing of instruction is appropriate for the majority
of the students) _____

Task difficulty (students are continually and appropriately
challenged) _____

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Low apathy (class members are concerned and interested in
    what goes on in the class)   _____

Low favoritism (all students are treated equally well in the
    class, and given equal opportunities to participate)   _____

Formality (students are asked to follow explicitly stated rules
    concerning classroom conduct and activities)   _____

Goal direction (objectives of learning activities are specific
    and explicit)   _____

Democracy (all students are explicitly involved in making some
    types of classroom decisions)   _____

Organization (class is well organized and well planned)   _____

Diversity (the class divides its efforts among several different
    purposes)   _____

Environment (needed or desired books and equipment are
    readily available to students in the classroom)   _____

Competition (students compete to see who can do the best work) _____

NOTICE

REPRODUCTION BASIS