A call for the results of needs assessment studies conducted in fourteen states in or near the Appalachian Region brought over fifty responses. Analysis of these responses showed that more needs assessment is carried out by bureaus or divisions of research, planning, and evaluation than by central administration or other programmatic divisions. As the intent of most studies was to determine the current status of educational needs, tests and questionnaires served as the prevailing methodologies. Tests were most frequently used to assess needs in specific subject areas, while questionnaires served in studies of a more general nature. This report classifies the needs assessment studies discussed by type of agency, type of office, purpose, length of report, coverage, intended user, and assessment procedure. (Author/PGD)
AN EXAMINATION OF THE RELATIONSHIPS BETWEEN RESEARCH METHODOLOGIES AND STUDY CHARACTERISTICS OF 57 SELECTED NEEDS SENSING ACTIVITIES

by

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Introduction

This paper presents an analysis of more than 50 reports of educational needs or educational goals obtained by the Appalachian Educational Laboratory during a 1977 needs assessment activity. When the reports were analyzed to determine commonality of identified needs or goals, the purpose for which they were originally obtained, staff was intrigued by the variety of techniques used to obtain and report the data. Therefore, as a separate activity, the authors have reviewed the documents with the notion of identifying relationships between the variety of research methodologies used and other characteristics of the reports. The results of that review are reported here.

Background

Staff of AEL has been periodically surveying the needs of the Appalachian Region through one means or another since the inception of the Laboratory in 1966. For example, interviews were conducted in 1967, a questionnaire was distributed in 1971, a convergence technique was used in 1973, and the expert opinions of Chief State School Officers of the member-state Region were solicited in 1976.

In late 1976, while preparing the AEL Plan for 1978-82, staff decided to collect documents reporting needs studies and goal statements from a variety of sources. Letters were sent to selected personnel in each of 14 Mideastern and Southeastern states. The request was for studies which might represent the educational needs of the states, such as ESEA Title I needs studies, vocational education studies, or other similar reports. Research Triangle Institute (RTI), Southern Regional Education Board (SREB), and Educational Testing Service (ETS) were also asked to send reports. Appendix A contains a copy of the letter and the list of states.
The Laboratory's purpose for requesting the studies was to analyze them to determine commonalities of regional needs. The resulting analysis (Miles and Bertram, 1977) provided AEI with a starting point for informed discussion relevant to the Laboratory's long-range institutional planning. Most of the state education departments and the organizations returned one or more documents. The reports received were representative of numerous levels of detail. These included, for example, a budget document for a state board of education, a comprehensive multi-faceted survey of the educational needs of the state, a five-page statement of educational goals, and reports of studies using the National Assessment of Educational Progress.

As the analysis of needs progressed, Laboratory staff became impressed with the variance of methodologies and reporting styles used with the studies. Some were highly sophisticated, using probability sampling and advanced instrument construction techniques; others were reviews of local assessments, which were combined into a narrative statement of that state's educational needs.

Purpose

Beyond the immediate intention of determining relationships between methodologies and other report characteristics, there are other reasons for examining the studies. Personnel who perform needs sensing activities at the state and local levels could benefit from an awareness of the methodologies used by their colleagues. The analysis described here may indicate that certain methodologies help attain some purposes better than others. The results of this current activity also may serve as a starting point for tracing how educational decisions get made, how data are or are not used to support those decisions, and how those decisions might or might not be improved through more acceptance of data-based reasoning.
Methodology

The sample consisted of 57 documents supplied by (a) state education agencies; (b) RTI, SREB, and ETS; and (c) educational laboratories, including AEL. Needs assessment reports prepared by other regional educational laboratories are regularly sent to AEL. These 57 reports are indexed in the bibliography.

Analysis

The reports were reviewed to determine suitable categories for comparison. The categories were applied to 15 reports and were then revised into the form included as Appendix B. Each report was analyzed using this form.

The form included two broad categories for comparing the reports. One, called "classification of study," indicated who conducted the study, its style of reporting, and its intended audience, through the subcategories: agency conducting the study, division which prepared the study, purpose, length, coverage, and intended user of information. The second broad category, "assessment procedures used in study," identified the method used to collect the data. The subcategories included: testing procedures, survey techniques, manpower analysis, analysis of existing data, review of existing reports, and multiple studies. A study could be placed in more than one of the first set of classification categories, but only one primary assessment procedure was selected in order to simplify the comparison.

The reports were independently rated by two AEL staff members, one an experienced researcher and the other a communications specialist. Complete agreement between the two researchers was found on 87.3 percent of the categories in the 57 forms. There were no differences in rating on 24 forms. Examples of differences were that usually one team member felt an additional purpose was served, or, at times, they agreed that neither had initially
checked the appropriate response. Differences in rating were examined and discussed until consensus could be reached.

A matrix was prepared with assessment procedures on the horizontal axis and the classification of reports on the vertical axis. Tallies were entered according to the data on the consensual rating form. The matrix served as the basis for making generalizations.

Explanation of Categories.

The categories into which the reports were placed were somewhat arbitrary. Assignment to the categories was entirely judgmental; however, there was substantial agreement between the two researchers who reviewed them independently. Following is a description of the specific categories of the rating form included as Appendix B. These categories were chosen after a preliminary review of the documents.

"Agency conducting the study" was identified either as federal, regional, SEA, private or state education association. The "federal" designation was used for the National Assessment of Educational Progress, while a private agency referred to a private corporation, such as ETS. Regional Educational Laboratories were classified as regional rather than private, since they serve a designated number of states.

The researchers thought that there might be a relationship between the "office which prepared the study" and selected methodologies. Many SEA reports were prepared by research, planning, and/or evaluation bureaus or divisions. Some were prepared by the communications or public information divisions. A third subcategory was programmatic division, such as curriculum or federal programs. Some reports were prepared by the administrative division.

A variety of subcategories was identified as possible purposes for the reports. Some were obviously designed to mold opinions, others to sample
existing opinions. Some studies seemed to be designed to verify or certify that pre-determined needs did exist, while others were designed to determine the present status of a topic, such as educational attainment. Some were designed to collect data so that one program or curriculum could be selected or given emphasis over another, and several were designed to support formal proposals, usually for federal funds. Of course, many studies served more than one purpose. The one category for which there was considerable certainty was "number of pages"—they were counted.

There were three categories of "coverage"—geographical, content, and age of referent. As for geographical, the studies were designed to determine either local, state, regional, or national educational problems. In some cases, studies conducted locally were compared with national norms. "Content" was broken into three sub-classifications: subject area, educational resources, and open. Studies of administrative structure were classified under educational resources. For example, a study of desegregation procedures and resulting needs was placed in this category. The subcategory "open" was used to indicate studies or reports for which there was no apparent limit placed on the area of focus.

The third type of coverage, age of referent, was determined by the age or grade level which was the focus of the study. Subcategories were preschool, elementary, secondary, adult, and open.

The final classification category, which incidentally turned out to be quite subjective, was "intended user of information." Some reports were apparently intended for the general public, some for professional educators as a group, and some exclusively for SEA personnel. One or two were prepared for a board of education, or the federal government. Those prepared by Regional Educational Laboratories were for their use. Many apparently were intended for more than one audience.
The second page of the rating form was used to categorize the primary assessment procedure used in the study. For those which employed testing, some used standardized tests and others used curriculum specific, objective-referenced, or criterion-referenced tests. As an example of the latter, several states used items from the National Assessment of Educational Progress in order to identify state or local needs.

Some assessments were based on completion of standard forms, such as those which report the number of Title I children served. Other studies employed questionnaires of varying levels of sophistication. Several questionnaires included a Likert scale, and some were based on systematically selected samples.

A few of the reports were based either on interview data or on the results of a public opinion poll. One report was based on a sequence of what best can be described as "town meetings," where the public was invited and educational issues were discussed.

A few studies used some variation of a Delphi technique, where the respondents' subsequent replies were based on the influence of information from other respondents. Some used a convergence technique, or a process of group determination of a need through panel participation. Some studies were based on expert testimony from such persons as Chief State School Officers, who were in a position to speak for a large population.

The manpower category represented a very different type of study. Manpower studies involve assessments of supply of personnel in a specified job market compared with present and presumed future demand for services of those personnel.

Other categories of methodology were analysis of existing data, in which previously collected data were reanalyzed to indicate educational needs or review of existing reports. A final category was a series of multiple studies.
Limitations of Study

The study has several limitations—some apparent and some perhaps not. One obvious one is that the study is highly subjective. Validation of the "instrument" would therefore be difficult.

A second problem is that the categories are not all-inclusive and perhaps are not the best selection. Hopefully, the form will be improved through critique and interaction among colleagues.

A third limitation is that the design of the form has no conceptual model to tie it together; it is simply based on a review of available documents. Perhaps a more unified model can be developed as relationships between the variables become more apparent.

A fourth possible problem is that the studies which were analyzed may not have been representative of those conducted in the included states. The personnel may have misunderstood the AEL communication or it may not have been sent to the appropriate persons in the state education agencies and other organizations.

In spite of these limitations, the study reviews a substantial number of current needs assessment documents, and the results, however provisional, are described in the following section.

Presentation of Results

All 57 studies were classified as described previously. For some studies, certain classification categories were not appropriate or did not discriminate sufficiently to permit coding of items. For example, the office within the agency which conducted the study was not always discernible by the researchers.
**Frequency of Methodology Usage**

A preliminary concern of the present study was the frequency with which various methodologies were used to support statements of educational need or of educational goals. As indicated in Table 1, some type of questionnaire was used in more than one-fourth of the studies examined by the AEL research team. As described previously, the questionnaire ranged from a highly structured scale with sophisticated techniques for analysis to simple forms designed to elicit specific information. Generally, there was little indication within the report concerning the processes for testing and validating questionnaires before they were used to collect data.

Some type of testing, either standardized or criterion referenced, was used by less than one-third of the studies as a primary methodology. It is also of interest that about the same number of reports depended on some form of criterion referenced testing or some form of standardized testing.

The fourth favored methodology was analysis of existing data, with seven reports depending heavily on this method. This method would appear to be least costly of the various methodologies used in the studies, although the planning specialist is dependent on the conceptualization used by those designing the original data collection.

The other methodologies were found to have been used in either one, two, or three studies as indicated in Table 1. In light of the vast expenditure for educational personnel, the fact that so few studies employ manpower analysis is somewhat surprising. The town meeting procedure might be examined further as a way of involving the public in education decision-making. The infrequent use of public opinion polls by educators might also bear further study. The final listing, multiple studies, is deceiving, since most of the studies examined
did use a multiplicity of research methods. In most cases, an attempt was
made to determine the primary methodology, and in only one case was that
not possible.

Table 1

Frequency of Assessment Procedures
Used as Primary Methodologies

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Comparison of Methodology with Other Study Characteristics

Table 2 is the matrix which compares the classification of studies against
the various methodologies used. By way of interpretation, the first column of
Table 2 indicates that eight studies completed by SEAs used standardized testing.
## Table 2

Frequency of Types of Studies According to Methodologies Employed

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METHODOLOGIES

- Spec
- Comp
- Q're
- Intr
- View
- PHop
- Poll
- Town
- TOW
- DLP
- CONV
- Tech
- Expt
- Mnptr
- Extm
- Extm
- Mult
- STDY
as a primary methodology. The next column indicates that six studies completed by SEAs used some form of criterion referenced test as a primary methodology.

In the following sections, the various methodologies will be discussed according to each of the classifications listed on the first page of the reporting form (Appendix B). Summary generalizations will be presented following the description of results presented in Table 2.

**Agency conducting study.** According to the data presented in Table 2, a federal agency had completed only one of the studies, and used analysis of existing data as the primary methodology. Three regional agencies, which were regional laboratories, had completed 17 of the studies. They had used questionnaires for seven of them, analysis of existing data for three, a convergence technique, expert testimony, and review of existing reports for two each, and a manpower study for one needs sensing activity. The state education agencies were more dependent on standardized testing, criterion referenced testing, and questionnaires than any other methodologies. Private agencies, such as ETS, tended to use more of a variety of different methodologies than did either the SEAs or regional laboratories.

**Office which prepared the study.** A majority of the studies appeared to have been conducted by bureaus of research, planning and/or evaluation within the various agencies. These bureaus or divisions tended to use standardized testing and questionnaire analysis as their primary methodologies.

The two uses of expert testimony as a research methodology were by administrative divisions within the organization, rather than by the research and evaluation divisions. The programmatic divisions within the agencies did not vary substantially from the research and evaluation divisions in their use of varying methodologies.

**Purpose.** As one might expect, more studies seemed to be designed to determine status than for other purposes listed in Table 2. The methodologies for
status determination were primarily standardized testing, criterion referenced
testing, and questionnaire administration, although a few studies employed
analysis of existing data, manpower analysis, and review of existing reports.
When opinion sampling was the purpose, a questionnaire methodology was usually
selected. On occasions when opinion setting tended to be the purpose, the
selected methodologies were either convergence technique or expert testimony,
although the Delphi technique, town meeting, and questionnaire were used on
one occasion each.

On those few occasions where program emphasis seemed to be the purpose,
analysis of existing data, questionnaire development, and standardized testing
were the selected methodologies. If the purpose was to support proposals under
development, the studies tended to employ questionnaire administration, expert
testimony, or review of existing reports as primary methodologies.

Length of report. Generally, the research team felt that brief reports
were aimed more at the general public, while more lengthy reports were designed
for specialized audiences. As the criteria were applied during the analysis,
the brief reports tended to use as primary methodologies questionnaire
development and expert testimony. Slightly longer reports used curriculum
specific testing, questionnaires, and review of existing reports as primary
methodologies. The more lengthy reports tended to employ standardized testing,
questionnaire administration, criterion referenced testing, and, to a lesser
extent, manpower analysis and analysis of existing data as primary methodologies.

Coverage. The few reports which were local in nature either used criterion
referenced testing or questionnaire development. The state-level reports used
standardized testing, criterion referenced testing, and questionnaire develop-
ment as primary methodologies, while a few reports also used manpower analysis,
analysis of existing data, and an assortment of other methodologies. The
region-level reports tended to use questionnaire development, and some also used analysis of existing data, convergence techniques, expert testimony, and review of existing reports. The national-level reports used questionnaires, interviews, public opinion polls, and analysis of existing data.

As for content coverage, the reports tended to either be for specified subject areas or open, regarding the referent of the study. Those specific subject areas tended to use standardized or criterion referenced testing, while those which were open, tended to use questionnaire administration as a primary methodology.

There was a fairly good distribution of reports across the different age and grade levels, although only one study was of preschool education needs, and it used an analysis of existing data methodology. The studies of elementary and secondary education needs tended to use standardized testing, criterion referenced testing, and questionnaire development as primary methodologies, while the studies which were open regarding age and grade level tended to use questionnaire development and analysis of existing data, along with other methodologies to a lesser extent.

**Intended user of information.** Very few of the studies were intended for the general public, and those that were tended to depend on a variety of methodologies, including questionnaire administration, criterion referenced testing, public opinion polls, Delphi approaches, analysis of existing data, and multiple studies. A wide majority of the studies were rated as intended for all professional educators, and those tended to use questionnaire development, standardized testing, criterion referenced testing, and analysis of existing data as primary methodologies. The reports intended for SEA personnel were dependent more on standardized testing and criterion referenced testing than on other methodologies, and those intended for state boards of education were usually dependent on standardized testing.
Reports intended for use by regional laboratories primarily included questionnaire development and expert testimony methodologies.

**Generalizations**

The data of Table 2 tended to group rather nicely, and no striking surprises were found. However, several generalizations can be drawn from the data analysis. First, questionnaire development and administration was the primary methodology used by most agencies. There was also a number of reports which used some form of testing as a primary methodology.

More of the studies collected happened to be prepared by state education agencies, and most of the needs sensing activities are apparently being completed by bureaus or divisions of research, planning and/or evaluation than by central administration or other programmatic divisions. The research, planning and evaluation divisions also tended to use testing and questionnaire development as primary methodologies.

The purpose for most of the studies appeared to be status determination, and these more frequently use tests and questionnaires as opposed to other methodologies. There was also some opinion sampling through use of questionnaires.

Most studies designed to assess needs in specific subject areas used some form of testing, while those which were rated as "open" regarding subject or other topic of concern, tended to use questionnaires or interactive types of methodologies.

Most studies tended to be done for elementary and secondary grade level children, and were designed for use by all professional educators.
Recommendations

The AEL research team has several recommendations concerning use of the information contained in this report:

1. Those who are planning needs sensing activities at all levels might well examine the types of methodologies used for different purposes by their colleagues.

   If most educational planners are using some form of questionnaire to collect data, there may well be a sound reason, which might be considered by those planning their own needs sensing activities. On the other hand, the research specialists might look at those methodologies not frequently used and examine the few cases in which they were applied. For example, it would appear that some form of public opinion poll would be more likely to produce desired results for those wishing to sample opinion than would complete dependence on questionnaires, but that contrast is beyond the confines of the present study and depends on further analysis of methodologies.

2. Those responsible for training educational researchers should encourage examination of various methodological techniques.

   Questionnaires may be simple to design, and data from them are probably easier to analyze; however, educational planners should be familiar with the use of other methodologies so they can apply them in appropriate situations. Perhaps a matrix which contrasts various methodologies with possible uses would be helpful for practicing educational planners.

3. Consideration of the various styles of reporting used to communicate the results is another important area of investigation.

   Perhaps informal word-of-mouth or staff memoranda rather than formal reports, better enhance the support of important educational decisions. Presumably, some types of reporting are more effective when decisions by large groups are required, such as by all instructional personnel of a state, than when the decision is to be made by a smaller group, such as a state board of education. The reporting style and possibly the selected methodology should be related to the intended audience, but additional study is needed to guide the selection of the communication strategy.

4. The approach used in this study should be further refined and standardized so that we who are involved in needs sensing activities can continue to compare purposes, methodologies, and resulting studies and continue to improve our products.
Additional classifications should be considered, and other methodologies should be added to the list. For example, one criterion not approached in this study was the cost of the study. Presumably, the cost of standardized testing of large numbers of children is greater than completion of a few interviews, but then, interviews are more expensive when an equal number of interviews and group tests are completed. The question is one of expected costs compared with benefits received for various purposes, all of which suggests a complex study.

5. Other educational researchers should use the classification processes described in this report.

The study herein reported is intended as a beginning in the area of general report evaluation and classification. If found to have merit by colleagues, the study could be expanded into a general classification procedure useful to multiple audiences. The validation of the procedure will require rating of additional reports by additional researchers.

6. This research should be expanded to determine the effect of needs sensing activities on those who make important educational decisions.

No attempt was made in this study to trace decisions which were based on the data, but most professionals agree that the ultimate purpose of collecting the data is to make possible effective educational decisions. Perhaps some methodologies, or some classifications of studies, are more frequently used for educational decision making, while others tend to be filed away or used only for further interaction among those who conduct the studies.
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Other Documents of Interest


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APPENDIX A

Sample Letter and List of States
September 24, 1976

Dr. Richard K. McKay
Assistant State Superintendent
Division of Research, Evaluation, and Information Systems
Maryland State Department of Education
P. O. Box 8717, Baltimore-Washington International Airport
Baltimore, Maryland 21240

Dear Dick:

During the past two or three years, many of the state education agencies have completed studies of educational needs. In particular, studies may have been conducted in conjunction with State ESEA Title I programs, with the Emergency School Assistant Act (ESAA)' funding, and with certain vocational education programs.

AEL staff has completed numerous needs assessments of the Region during the past ten years. This year, rather than attempt the collection of large quantities of original data, we are trying to develop a composite of already prepared needs studies from the states in and around the Region.

If studies of educational needs have recently been completed by the Maryland State Department of Education, we would appreciate receiving copies so they can be studied and compared with similar studies from the states. If the comparison is successful, we will, of course, make copies of the composite available to you and your staff.

Thanks for your cooperation in our effort to continue monitoring the educational needs of our Region.

Sincerely yours,

Charles L. Bertram
Associate Director for Planning and Evaluation Services

cc: Frederick Brown
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APPENDIX B

Classification Form
Title of Report

Agency/State ___________________________ Date of Report ________ I.D. No. ______

I. Classification of Studies

A. Agency Conducting Study

1. Federal ___

2. Regional ___

3. SEA ___

4. Private ___

5. State Educ. Assoc. ___

B. Office Which Prepared Study

1. Bureau of Research, Planning and/or Evaluation ___

2. Public Information Division ___

3. Programmatic Division ___

4. Administrative Division ___

C. Purpose

1. Opinion setting ___

2. Opinion sampling ___

3. Status determination ___

4. Program emphasis ___

5. Support of proposals ___

D. Length of Report (pages)

1. 1 - 5 ___

2. 6 - 15 ___

3. 16 - 50 ___

4. 50 + ___

E. Coverage

1. Geographical

   a. local ___

   b. state ___

   c. regional ___

   d. national ___

2. Content

   a. subject area ___

   b. educational res., org. ___

   c. open ___

3. Age of Referent

   a. preschool ___

   b. elementary ___

   c. secondary ___

   d. adult ___

   e. open ___

F. Intended User of Information

1. General public ___

2. All professional educators ___

3. SEA personnel ___

4. Board of Education ___

5. Regional Laboratories ___

6. Federal Government ___
II. Assessment Procedures Used in Studies

A. Testing
1. Standardized
2. Curriculum Specific, Objective Referenced, or Criterion Referenced
3. 

B. Survey or Report Completion
1. Forms Completion (like LEA to SEA)
2. Questionnaire
3. Interview
4. Public Opinion-Poll
5. "Town Meeting"
6. Delphi
7. Convergence Technique
8. Expert Testimony
9. 

C. Manpower Study

D. Analysis of Existing Data

E. Review of Existing Reports

F. Multiple Studies