DOCUMENT RESUME

ED 102 248 UD 014 782

TITLE	Research for New School Programs: A Guide for Program Planners.
INSTITUTION	Center for New Schools, Inc., Chicago, Ill.
SPONS AGENCY	Illinois State Office of the Superintendent of Public Instruction, Springfield. Illinois Network for School Development.
PUB DATE	20 Jul 73
NOTE	31p.
EDRS PRICE	MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS	Data Analysis; Educational Planning; *Educational Programs; *Educational Research; Experimental Programs; *Guides; Measurement Techniques; Pilot Projects; Program Development; *Program Planning; Program Proposals; Public Schools; *Research Methodology; Research Utilization

ABSTRACT

This research guide is designed to help people who are working on the development of new educational programs for public schools. By outlining some of the major questions and problems that relate to research of new programs and by suggesting some practical steps, this guide attempts to aid planning groups in the use of research techniques. Research requires consideration of how information is collected and analyzed. The researcher considers the effect of the research approach itself on his conclusions. Before developing a research plan, the basic reasons for doing the research must be clarified. Once the overall questions of the research are clear the next step is to determine what approaches to the collection, analysis, and presentation of information will most productively lead to the research goals. The uses, limits, and costs in terms of time and money are indicated for each approach discussed here as well as some suggestions for implementing that approach. Once the information is collected, the analysis of the information will determine the quality of the conclusions. Much of the best analysis of new school programs has been done by program participants who have had no formalized training in research. The choice of how to present research conclusions should be based on your audience as well as the purpose for presentation. (Author/JM)

RESEARCH FOR NEW SCHOOL PROGRAMS: A Guide for Program Planners

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July 30, 1973

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July 30, 1973

TO: Dr. Michael J. Bakalis
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State of Illinois

Dear Dr Bakalis:

In partial fulfillment of the terms of our contract with the Office of the Superintendent of Public Instruction, Center for New Schools respectfully submits Research for New School Programs: A Guide for Program Planners.

This guide was developed on the premise that aiding planning groups to develop competencies in research will facilitate the process of improving the quality of public education. We are convinced from our work that local community planning groups have the abilities to carry out productive research. They need to learn some specific methodological techniques and need to be encouraged to step into areas that they fear belong only to the experts. We hope that this guide serves that purpose for both the Affiliates of the Illinois Network for School Development and for other local groups in the state concerned with improving education.

Sincerely,

Richard Johnson
Donald R. Moore
Thomas A. Wilson

Executive Associates
Center for New Schools

TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. MAKING RESEARCH USEFUL: DECIDING WHAT YOU WANT TO KNOW	2
III. SEVERAL APPROACHES TO COLLECTING INFORMATION	7
A. ACHIEVEMENT TESTS	8
B. QUESTIONNAIRES	11
C. INTERVIEWS	14
D. OBSERVATION	20
IV. ANALYSIS	24
V. PRESENTATION	26
VI. PUTTING IT ALL TOGETHER	27

I. INTRODUCTION

This research guide is designed to help people who are working on the development of new educational programs for public schools. It has not been designed to be a comprehensive guide to researchers. Rather, by outlining some of the major questions and problems that relate to research of new programs and by suggesting some practical steps, this guide attempts to aid planning groups in the use of research techniques.

It is written from the Center for New Schools extensive experience in helping plan, implement and research new school programs. We have worked with both the theory and application of educational research techniques within the context of planning and implementing new educational programs. This work includes a comprehensive research project as part of our work in helping to establish an alternative urban public high school, and several more limited evaluation projects of new school programs in the Midwest. Our work has been supported by the University of Illinois, the National Institute for Education, the National Institute for Mental Health, and the Carnegie Foundation.

Our approach to research has been developed to aid the process of setting up and then continually improving a new educational program. We became convinced through our work that much of the traditional wisdom about educational research was not very helpful to program planners. We think it is important that research be designed to meet the needs of the planners as opposed to the research theoretician. We hope that this guide will help program planners by raising some of the issues that we have encountered in our work and by suggesting some practical steps about research that we have found effective.

II. MAKING RESEARCH USEFUL: DECIDING WHAT YOU WANT TO KNOW

Research is not a mysterious, unusual process. In our everyday life it is usually enough to say you know something, e.g., "Everyone says the new principal is really good." Research methodologies permit more specific conclusions. "Eighty per cent of the parents believe that the principal is doing a good job because (list of reasons). The other twenty per cent had these criticisms: (list of criticisms.)" Further, research gives you the advantage of being able to clearly indicate how you know what you know. If a skeptic asked a researcher how he knew about the parents he could respond, "We interviewed a representative sample of parents in the school. Here are the questions we asked and here is how we analyzed the responses we received."

Research then requires consideration of how information is collected and analyzed. The researcher carefully outlines his approach to collecting and analyzing information before he begins and keeps careful track of any changes in his methods. Further, he considers the effect of the research approach itself on his conclusions. Because he makes his assumptions and plans explicit and clear, another person can follow the process and hopefully arrive at similar conclusions. This helps to assure that the information and conclusions are not limited to the perception and understanding of one individual.

Research plans are made before the work begins. This insures that a carefully considered plan is followed. In practice, the process of completing a research project is complex, and untidy. Sometimes it is necessary to change the initial plan due to unforeseen

problems or because new, more important questions to be researched surface in the process. Nevertheless, the ability of the researcher to explain clearly to others how he knows what he knows is basic.

Before developing a research plan, the basic reasons for doing the research must be clarified. Much useless research might have been avoided if someone had seriously asked the researcher before he started "Why do you want to know that?" or "If your project works out as you plan, what good will it do?"

The questions for which answers are wanted and the approaches for collecting the information to answer the questions must be judged in terms of the basic purpose for doing the research. Deciding the purpose for collecting the information will directly shape the decisions about how to collect that information. The following examples illustrate how the research purpose affects the whole plan.

1. Proving it works. One group of planners working on a new program to increase students' reading ability decided the thing that they wanted to know most was the effect of their program on students' reading scores on standard tests. They selected a series of reading tests which were administered to the students before entering and after completing the program. They compared the students' scores to see if some had improved and were able to judge the program's success.

2. Selling the program to a board of education. Many program planners have to prove the validity of their program to an outside group which will affect or control the program, such as a board of education. One such group decided that the board would listen most closely to program information if the

research was conducted by an educator whom the board judged to be legitimate. A prestigious local educator was hired. He started, at the group's suggestion, by asking the board members what questions they would like to have answered. He prepared a careful oral presentation of his findingsusing an overhead projector. The content of the report was designed to directly answer the questions board members had raised.

3. Resolving conflicts over issues in the schools. The staff at a certain school was divided as to the advisability of mixing new entering students with the old students, or setting up new groups only of new students. After several meetings where the issue was batted back and forth it was decided to find out what the students thought. A brief questionnaire was designed and a representative group of students were polled. The results of the poll were reported back at a staff meeting and the decision was made.

4. Dealing with long term problems in the school. Several staff members at another school were concerned that teachers and administrators were not taking proper responsibilities in the disciplining of students. An interview for all of the staff was developed by the concerned staff members. Teachers were asked to list specific incidents where they had seen problems in staff response to students' behavior. Each teacher was then privately interviewed by a person from outside the staff. The information was presented to the staff in the form of case studies

built upon the specific incidents that staff people had identified as significant. The case studies were presented in a workshop. The resulting discussion on expectations about student behavior, control, and staff responsibility was productive. Instead of the usual challenges or righteous generalizations which frequently characterize this subject, a fruitful discussion was held dealing with specific problems of discipline in the school.

5. Supporting long-term planning. A planning group designed a school program to meet certain well specified goals. They wanted to know how this program affected the students in terms of those goals and to learn about the social and educational processes that led to the results. The group thought several different approaches to collecting information would achieve the best results. They developed questionnaires about students' perceptions of school and of the designated goals. The questionnaires were administered to students before they entered the program and after they had been in the program a year. The planning group hired a participant-observer to be in the school on a half time basis to carry out a careful observation in the areas of interest. An interview format was developed which permitted short interviews of a small number of students representative, by race, sex and age of the total student body. These interviews were administered monthly. They developed a process so that the information would be available to them in both raw and analyzed forms, allowing them to deal directly

with it in their planning. The information was used in planning sessions which involved not only the original planners, but also program participants.

From these examples the effect of the reseach goals on the methods used to collect and analyze information is clear. Most school research programs combine several of the purposes presented in these examples.

While careful advance planning of research projects is crucial, planners should not be inflexible if they see that their initial approach needs to be modified to better reach their prime research goals. In some cases when the research is designed as an experiment in itself such changes or modifications cannot be made because they would destroy the basic design of the research.

Researchers should consider the possibility that they may learn something that they had no intention of learning in their planning, often referred to as "serendipity". Serendipitons findings do not result from a laissez faire approach toward research, but from plans which led to in depth examination of crucial parts of the program.

Advance planning of research projects is difficult work. Deciding on program goals, on what the purpose of the research is and on how best to meet that purpose is hard both because people will have different ideas about each issue and because the thinking is abstract. This process can be more productive if program planners visit other programs and talk with people who have actually worked on new program research. Two guides which might help are It Works This Way For Some: Case Studies of Fifteen Schools and Planning for a Change: A Resource Catalogue. They were prepared by Center for New Schools under contract with the Illinois Network for School Development and are available from the Network at the office of the Superintendent for Public Instruction, Springfield, Illinois, 62706.

III. SEVERAL APPROACHES TO COLLECTING INFORMATION

Once the purpose and the overall questions of the research are clear the next step is to determine what approaches to the collection, analysis and presentation of information will most productively lead to the research goals. The following sections discuss approaches to the collection, analysis and presentation of information. This section presents several approaches to the collection of information. The uses, limits and costs in terms of time and money are indicated for each approach as well as some suggestions for implementing that approach.

III. A. ACHIEVEMENT TESTS

Achievement tests measure a student's progress in a course of study or academic skill. Many achievement tests are designed by teachers to test how well their students have leamed a lesson or a series of lessons.

Standardized achievement tests have been carefully developed by professional researchers. They are standardized in the sense that the same questions have been asked of many different students. Uniform questions provide comparison between the tested students with all students who have ever taken the test. Standardized, therefore, means that the questions are the same and that a great deal of information is available as to how well a student at a certain grade level or age has done in the past on the test. When a study indicates the reading grade level of students, standardized tests have been used.

1. Uses:

- Students' achievement is crucial to most educational programs, thus its measurement is important to the research of educational programs.
- Standardized tests provides a measure of leaming on a very carefully specified criteria, such as the ability to add, or the ability to read certain kind of material.
- Achievement tests answers, particularly those from standardized tests, are easily translated into numbers that can then be treated statistically.
- Standardized achievement tests permits comparisions between different students and between the same students over a period of time.

2. Limits:

- Achievement tests are based on a limited definition of learning. The method of testing, which is usually reading a passage and then answering questions by writing or checking boxes, limits the definition. For example,

a person who has learned auto mechanics by watching and doing, but has not learned to read auto manuals or written instructions, would get a low score on an achievement test because he was required to read. In fact, his reading skill and not his actual skill in mechanics was being tested.

- Standardized tests are inflexible in terms of content because they are not designed for the goals of a particular learning program. Rather they are designed to be standard in their content, and therefore may not be able to test the specific skills for which an experimental program was designed.
- Standardized tests were not designed to be sensitive to individual changes in performance over a short period of time. In fact they have been designed to be stable over short periods of time. Questions that might measure changes have been systematically weeded out of a standardized test.
- Success on standardized tests is viewed as very important by many teachers, students and parents. Consequently, the use of these tests often influences how teachers teach and how curriculum is designed.

2. Costs:

Achievement tests are cheap. Standardized tests which must be bought cost only a few cents apiece. Costs for scoring and for analyzing standardized tests are also low because procedures have been carefully developed and often are available on a computer. Frequently, the cost of the test includes the expense of scoring and analysis of tests results. Finally, tests are administered cheaply and a teacher or a parent can administer them with little training. Unfortuantely, because of their low costs many groups are using tests even though they may not be appropriate for their particular research goals.

4. Suggestions for using achievements tests:

Because the nature of the test itself determines the information that will be collected, the test is key. Many tests are available and it would be advisable to locate those tests that most clearly reflect the goals of the program. The regular school system testing program should be evaluated in terms of program and research goals. Before selecting a test, read and complete the test as if you were a student taking it. The actual content of a test may differ from your impression of what the test measures from the description of the test. Consider if the questions are appropriate not only to the learning goals but also to the students being tested.

- Achievement test information is probably the most effective tool for convincing outside groups such as boards of education that your program is worthy. Test scores are often considered "more objective" than other types of information. The difficulty that this presents for program implementers is that most achievement tests are designed not to be influenced on the short term by programs.
- Frequently achievement tests are perceived by students as frightening and/or mysterious because of their importance in determining what happens to students during their schooling. We think it is crucial that tests not be used to determine a student's future. All students who take a test should have the results explained to them very carefully, including the deliniation of the limits of the tests.

III. B. QUESTIONNAIRES

Questionnaires ask people to write answers to written questions. Answers can often be written in the respondent's own words. More often, however, the answers are included as one of a number of choices to be checked by the respondent. Questionnaire responses are used to record opinions, perceptions, and attitudes as well as to collect simple objective information such as "How many students are enrolled in Wilson High School?" Questionnaire scales have been developed by psychologists to measure different personality attributes.

1. Uses:

- Questionnaires are used to collect specific information that can be written down easily.
- They can be designed so that numbers can easily be assigned to the information collected. Thus, questionnaires can facilitate easy computation of information.
- Questionnaires can provide initial information from people which can then be used as the basis for discussion or an interview.

2. Limits:

- Since there is no built in check when a person is filling in a questionnaire, it is more easy for a person to respond with what he thinks is wanted rather than how he really feels or thinks.
- Written words are frequently interpreted differently by different people. Since there is no way to check if the person answering the questions means the same thing as the person who designed and is interpreting the answered questions, gross misinterpretation can occur. Studies have been done on the results of questionnaire information by asking the people who filled in the questionnaires what their answers meant. It was found that

what they thought their answers meant were significantly different from what the person who made the questionnaire interpreted their answers to mean.

- Because numbers can be easily given to questionnaire information, it is often thought that questionnaires are more objective than that collected by other means. Unfortunately, the act of simply assigning numbers to information does not indicate how objective the information is.
- The information they provide is limited to written responses which often is inadequate to deal with the complexity of educational and social processes.

3. Costs:

Collecting information by questionnaire is inexpensive compared to other methods. If the questionnaire is standardized, coding and scoring schemes are usually available and also inexpensive to use. Developing coding schemes and analysis of non-standardized questionnaires can be more costly.

4. Suggestions for using questionnaires:

It is essential that the instructions, the questions, and the choice of answers are written clearly and simply. The way to insure this is to sample test the questionnaire before using it formally. Have several people who will not be given the questionnaire; but who are similar to the intended respondents, complete the questions. When they have finished, ask if there were any difficulties in understanding the questions. Then you should go over each question with the trial taker to see if his understanding of the

questions are consistent with the meaning intended. After this trial run, revisions are usually easily made.

The system for collecting and coding the information should be developed simultaneously with the questionnaires. This insures that the questions will provide the information sought and that the answers can be easily treated in analysis.

Your first questionnaires may often be too long and ask for unnecessary information. Sometimes it is good to ask for information that doesn't directly relate to the project because it is cheaper to collect information at one time, rather than to keep going back. Be careful that such extraneous information does not detract from the collection of information that you desire. Generally the shorter the questionnaire, the more informative the response.

III. C. INTERVIEWS

Interviewing techniques are refinements of a common way of collecting information, one person asking questions of another. Interview questions vary from closed to open-ended. A closed question is one which requires a straight forward, informational response, for example, "How many teachers are on the staff of this school?" While an open ended question usually requires a lengthier response often about perceptions or opinions, and shapes the next question in the interview, for example, "How is this school different from other schools you have gone to?" "Tell me more about (one of the difference mentioned) ."

1. Uses:

- Interviews can collect through oral communication a wide variety of information.
- Interviews are particularly useful to gather in-depth information on personal opinions, knowledge or perceptions.
- While interviews are more costly to administer than questionnaires, they have several advantages over them:
    i. An interview is usually taken more seriously by the respondent, because he is talking to another person rather than filling out a form on paper.
    ii. Because the person answering questions can also ask questions to clarify meanings, misunderstandings about meanings are less likely to occur, or are able to be cleared up.
    iii. Because the interviewer is directly on the scene he is more likely to pick up additional, useful information from the respondent not covered by the questions.

2. Limits:

- The location of the interview affect[s] the information you are able to collect. An interview conducted in a high school corridor between classes will differ from one conducted in private.
- The interviewer himself will affect the information. Differences in sex, age, and status are important. A high school girl interviewed by a male principal will answer some questions differently than if she were interviewed by another girl student. In addition, personality differences have a subtle but distinct effect. Some of the effects of the interviewer such as tone of the interview, and how much to follow up an answer with another question can be minimized with careful training.
- Because interviewing is costly and time consuming, only a small sample of people are usually interviewed. Thus, the selection of those interviewed can be a limitation on how representative the information is.
- Information collected in response to open questions is often difficult to code and analyze.
- Putting interview information into written form is usually a problem. Transcribing tape recordings of interview is laborious and costly.

Several of these limits can be eased or eliminated through pre-planning. (See "Suggestions for using interviews" below.)

3. Costs:

Interviewing is more expensive than either testing or questionnaires. The greater costs are because:

- The interviewing process itself is time consuming.

- Interviewers require careful training.
- Collecting and analyzing information is usually more complex.

4. Suggestions for using interviews:

- Selection of people to be interviewed.

Because of the cost of interviewing, a researcher will usually interview only a select number of people from the group he is studying. It is essential that his selection is representative of the larger group, in order for generalizations to be made about the larger group's under study. The best method of selecting the sample for interview is by random. Two ways this can be done are (1) drawing names out of a hat, or (2) assigning each person in the large group a number. The first people whose numbers are listed in a random number table (available at the back of most textbooks on statistics) are then chosen.

Sometimes a researcher will want to insure that certain subgroups (e.g., boys and girls, or young and old students) are fairly represented in the group to be interviewed. To accomplish this the total group should be divided into the sub-groups and the determined number from each subgroup should then be drawn randomly. The total group to be interviewed will then have the sex or age representation guaranteed that was desired. Technically this is called stratified random sampling.

- Matching interviewer with interviewee.

Finding interviewers who are similar to the people being interviewed in terms of sex, ethnic background and age will facilitate the interview and provide more information than not matching. Consider using parents to interview parents and students to interview students. If the interview

training program is sufficient, matching will probably make for lack of experience. Moreover, using inexperienced interviewers whom you train is usually cheaper than hiring professional interviewers.

- Training.

Training of interviewers is especially important owing to the large potential effect of the interviewer on the responses of the interviewee. The training session should include the following issues:

Questions to be asked. The interviewer must understand both the general purposes of the questions and the specific wording, so he can handle queries from the interviewee.

Mechanics of the interview. Consistency in interview setting is necessary. The interviewer should be responsible for finding the room and arranging chairs and tables and using a tape-recorder if required. The plan for scheduling the interviews and the scheme for taking notes should be understood.

The tone of the interview. The amount of formality versus the allowance for the interviewer's personal style should be clear. The amount and type of follow-up questions to responses given should also be clear.

After the training discussions on the questions, the mechanics, and the tone of interviews, each interviewer should complete a trial interview using the actual interview questions with a person who shares the characteristics of the people to be interviewed. This trial interview should be recorded, and then listened to by the interviewer and trainer and possibly by the group of interviewers. The recorded

interview should first be listened to without interruption and then played again to be interrupted by the trainer, interviewer or other interviewers to ask questions, make points, and to note difficulties and inconsistencies with the agreed upon format. This trial interview is the most crucial step in the training process.

Taking notes. Probably the most frequent method for recording the answers of an interview is to tape record the session. This is particularly important if the tone of the interview is important to the information collected, such as responses to indepth personal questions. The difficulty with tape recording is that someone has to listen to the tape to get the information. That is a time consuming process. A method that loses some of reliability and verifiability in terms of insuring that the information analyzed is the same as that given by the respondent in the interview is taking notes during the interview. One system that has worked well for us is to take notes of key points and phrases used by the respondent. The note taking process is explained clearly to the respondent before the interview begins. Immediately following the interview the interviewer spends a time equal to the time of the interview in writing up a detailed description of the respondent's answers. We frequently use five by eight cards writing one response per card. This permits easy handling of the responses later when the responses are analyzed. If the tone of the interview is judged to be particularly important, both note-taking and tape recording are suggested. In this way tapes could act as a cross check for the notes and would also be available for further analysis.

Development of the questions. While the interviewer can correct misunderstanding rising from the questions during the interview, the construction of the questions themselves should receive careful attention. The best questions are brief and clear.

- Effect of interviewing on the program.

Since interviewing is often a fairly intense experience, its effects on the program should be considered in developing plans. Depending on the purpose of the interviewing and on how it is carried out, its effects can be either positive or negative. For example, when the staff of a program was interviewed in a secretive manner by a representative of the agency funding the program, the anxiety within the program was very high and dysfunctional program goals. In another program, after careful explanation of the purposes of the interviews, students were interviewed to get their impressions of the program and what needed to be improved. The fact that students were asked for their opinions about their program, made them feel important and more involved in the program. While the effects of an interview, or of any information collection process can not, and perhaps should not be eliminated, the best atmosphere will be created if the researchers explain openly their purposes to the program participants and involve the participants as much as possible in the development of the research procedures. The methods used for selecting respondents should be very clear to all program participants.

III. D. OBSERVATION

Observation of social events has been used a great deal by anthropologists as a research technique. Its application in educational settings is quite recent. Despite its drawbacks as a means of collecting information about educational programs, it has proved to be a very productive approach in gathering information to help develop new programs. Its weaknesses stem from both inherent difficulties in the approach itself and its relative lack of application in schools.

1. Uses:

- Observation can provide detailed information on such issues as classroom climate, teacher-student interaction, informal social groupings, and other social and educational processes.
- Since the school itself is the actual focus of observation, information on how people actually behave as opposed to how they report they behave can be recorded. Such information comes directly from the actual events of the school rather than an artificial circumstance created for the purpose of collecting information such as an interview.

2. Limits:

- The observer has a great deal of control over the information collected in that his report is an interpretation of what he sees. For this reason many researchers criticize observation as a subjective rather than an objective method. Faulting observation for not being objective raises the question of is there any methodology which does not warp the phenomena under study, and what is "objective" information. Probably a better way to evaluate a methodology is to ask if it collects the kind of information you need and what the limits on such information are because of the way

it was collected. Each methodology has its purpose and its limitations. Because the person collecting the information does exercise a good deal of control over the information which he reports, much consideration has gone into the amount of structure that should be involved in the observation process. Some observation schemes require the observor only to check a list of possible behaviors such as, listening, asking questions, and giving answers of what a specified student is doing every two minutes. Other approaches are much more flexible and open ended, requiring that the observor develop hypotheses based on his prior experience with the situation, and then test out the hypotheses with further observation. The open-ended approach has proved more valuable in the development of new programs. Open-ended observation is usually called "participant observation".

- Observational information is generally very complex and difficult to analyze statistically.
- The success of observation programs depends on the training of the observor, his or her ability to gain the cooperation and trust of the people under study and the analysis of the information. Thus, observation is more complex in its reliability or verifiability than other techniques of collecting information.

3. Costs:

Observation is expensive. Its costs include the extensive amount of time required to carry out effective observation, and the time to analyze complex information. In spite of the costs, school programs which have used observation found it an effective mean of collecting useful information.

4. Suggestions for using observation:

- Due to the complexity and high costs of the observation process, it is important for the program participants to understand the reasons and values for using this method. The direct involvement of the participants in the development of the plans for observation will help towards this end.
- The selection of the observors is key, which is a difficult process. Graduate students, particularly in anthropology, represent one likely source, parents and community people are other possibilities. Training local people is advantageous in that they are more likely to be around longer and to have a definite long-term commitment in the program.

The following suggestions apply to the use of observation check list approaches:

- The description of what is being observed needs to be described precisely to insure that more than one person would score the same event the same way.
- One to two trials should be run to insure that observors understand the instructions consistently. During the trial one event such as a class should be observed by all of the observors. Discussion should follow the observation so that problems can be identified and corrected.

The following suggestions apply to the use of participant observation check list approaches:

- The selection of the participant observor is particularly important, since he or she has a strong influence on the collection of the information. The participant-observor's role and work should be

thoroughly discussed with program participants and the observor before beginning the observation.

- The observor and participants should be aware of the importance and difficulty of the observor's role and perspective that combines the perspective of the program participant with that of an objective outside perspective. This is achieved in part by the observor starting his work with as few as possible preconceptions about what the important issues are to focus on. After a brief period he should begin to formulate issues which could be discussed with the program participants or with a representative group of participants with whom he is working closely. After discussion of these issues the observor should be asked to lead several feedback workshops on his observations. Effective participant-observation combines careful observation over a significant period of time with constant efforts to clarify or verify his interpretations with the interpretations of the participants.

IV. ANALYSIS

Once the information is collected, the analysis of the information will determine the quality of the conclusions. Much of the best analysis of new school programs has been done by program participants who have had no formalized training in research. The following suggestions might help:

1. Plan your approach to the analysis. It is often necessary to deviate from your plans due to new considerations and unforseen problems in the data that weren't anticipated. If there is ambiguity or a change in plans during the process, it is important to be able to explain the process by which the conclusions were reached at the conclusion of the analysis.
2. Check to insure that the analysis will yield the information that is wanted.
3. If it makes sense to number the data consider how you are going to use the numbers. In many cases percentages or people responding in one way compared to percentages responding in another is adequate. If the information needs a more sophisticated statistical approach, try to find a person well trained in statistics who is interested in the purposes of the program and who is willing to train a program participant to perform statistical analysis in the future. Any work with a consultant should result with the program participants having greater capability to handle what the consultant was hired to do.
4. When a conclusion is reached about the information carefully recheck the information to see how the conclusion is supported or challenged by the data. Be wary of the limitations of the information and the techniques

gathering that information when you are developing your conclusions.

5. Carefully consider alternative explanations for any pattern that seems to be present in the data. For example, an increase in reading scores explained best by something that happened in the program or by how the students were selected for the program.

6. While simple explanations of data are often the best, remember that the program is a complex set of interrelated activities and personalities. Explanations that isolate one piece of the program are generally weaker than those supported by the context of the whole program.

V. PRESENTATION

The choice of how to present research conclusions should be based on your audience as well as the purpose for presentation. Usually, research conclusions are presented in a weighty written report. Frequently written reports are required only for program continuation and funding. The format preferred by that agency should be explored. But such reports are not particularly useful for other purposes and other methods of presentation should be considered. The following forms of presentation have been used and might be considered:

1. Articles and brochures. If the purpose of the presentation is to inform others about the program, articles might be written based on part or on the total results of the research. Imaginative use of graphics, illustrations, and/or pictures will aid the effectiveness of the article.

2. Other media. If the purpose of the research is to aid others in the development of new school programs, different visual methods of presentation should be considered such as film, videotape, and slide-tapes. In this case, more emphasis on the process and the descriptions and solutions of the issues and problems would probably be useful.

3. Workshops. If the purpose of the research is to aid the development of the program in terms of decision-making or staff problems and issues in their daily work, the research results should be presented in workshop sessions. It is not sufficient to simply present the findings in written form to program participants. Workshops allow time for consideration, discussions and attempts to figure out the actual implications of the results on the daily life of the program.

VI. PUTTING IT ALL TOGETHER

The following questions are designed to help program planners and participants to think through the research process before it is begun. They also serve to summarize some of the major points of this guide.

1. Why is research wanted?

    1a. Who is it for? What purposes will it serve?

2. What information is desired?

3. Is the information that is desired consistent with the reasons for the evaluation itself?

4. What are the most efficient methods for securing the information desired?

5. How will the information be coded and analyzed?

6. Will the methods for collecting, coding and analyzing the information contribute to the purpose for the evaluation?

7. How will the information be presented, and to whom? Are there more effective ways to present the information other than writing a report? What purposes and audiences do other means of presentation serve?