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FOLLOW-UP STUDIES AS AN INQUIRY MODE IN EDUCATION

A Dissertation Presented

By

WILLIAM E. "BUMPER" WHITE

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF EDUCATION

May 1985

Education

FOLLOW-UP STUDIES AS AN INQUIRY MODE IN EDUCATION

A Dissertation Presented

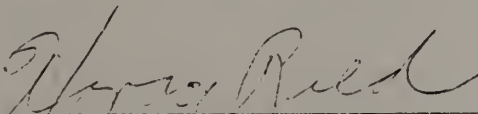
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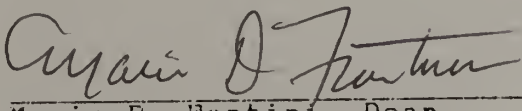
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1985

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ABSTRACT

Follow-up Studies as an Inquiry Mode in Education

(May 1985)

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This dissertation addresses the problem of the lack of applied qualitative follow-up research methodology within the field of education. It also is concerned with the related problem of how to obtain data on the difficulties of conducting follow-up studies within a field like education. A primary focus of interest is the documentation of the conducting of follow-up studies, particularly of their theoretical points of view and methodology regarding their appropriateness and feasibility in education. In order to better understand the component procedures and accompanying issues about what is involved in conducting follow-up research, two modes of inquiry are employed.

First, a comprehensive examination of the professional literature concerning qualitative follow-up study research methodology within the field of education is reviewed.

Secondly, an innovative and practical mode of inquiry was designed and implemented. This unique mode of inquiry consists of conducting an illustrative qualitative, follow-up study, "Environmental Education in the 1980's", a follow-up study to an earlier NSF inservice project.

This nine-month follow-up study involves ten teachers from five schools in a rural district in northwest Massachusetts. The participants are divided up into two groups- one consisting of participants from the original project and one comparison group. Over the course of this illustrative, follow-up study, data are collected from these participants through pre-, and post-interview survey questionnaires, and a qualitative, stably-focused, singular interview. The data from both of these modes of inquiry are analyzed and compared within a framework of six research questions which guided the dissertation study.

Conclusions drawn from these data indicate that the utilization of applied qualitative follow-up study methodology is appropriate in the field of education and that it also has significant implications for schooling over time. The study concludes with recommendations for further research concerning qualitative follow-up methodology in other academic fields as well as more research in education.

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C H A P T E R 1
NATURE OF THE STUDY

Introduction

This dissertation will examine a significant problem in elementary education today: the lack of applied qualitative case study follow-up research methodology within the field of education. For many years now there has been criticism both from within and outside of the field of education concerning the lack of follow-up study research. The primary focus of interest here is the documentation of the conducting of follow-up studies, particularly their theoretical points of view, philosophy, methodology, and psychology.

It became apparent through completion of a comprehensive literature review on applied qualitative follow-up research methodology that there was a lack of comprehensive information concerning follow-up research within the field of elementary education. Therefore a contribution to the literature could be made by focusing on and documenting this research process. In addition, there would be even broader implications for future research design for studies within education.

The utilization of this type of qualitative follow-up research methodology through its documentation would be useful.

This study proposes the examination of this problem through a documentation of the processes involved in doing an actual illustrative example of a qualitative follow-up case study. An informal inservice training project on helping elementary classroom teachers develop a general content knowledge and methodological base in environmental education was appropriate for use here as the illustrative follow-up study, "Environmental Education in the 1980's". The National Science Foundation, through the University of Massachusetts, sponsored this inservice project in the late 1970's. The broad goal of this inservice project was to help improve classroom teacher competencies in environmental (science) education (see chapter three for a more detailed description of the project).

This technique is a novel, intriguing, and practical way of teasing out answers to the larger problem. How can one determine what information can be gathered about any long-term effect that a prior inservice project had on teaching a specific curriculum area over time using a qualitative follow-up

stably-focused, singular interview case study? This type of interview guide is a qualitative interview instrument that starts out with a specific set of research questions with the researcher staying close to the original form of these questions throughout the entire interview process (Eiseman, 1984). Secondly, but most importantly, can this illustrative case study research process be documented in order to determine fully the potentials and problems of follow-up efforts?

Because of the study-within-a-study complexity, a new format had to be developed for this dissertation. The larger study is concerned with documenting the processes involved in a qualitative follow-up research study in order to determine its effectiveness and to make recommendations for future studies.

In addition to presenting the background and statement of this problem this first chapter will discuss both the purpose and significance of the study. The methodology utilized in this dissertation will also be introduced, along with the areas and topics which were the subject of the comprehensive literature review and why they were important to be conducted. The chapter will conclude with a brief discussion of the limitations of the methodology and the delimitations of

the study. Included at the end of the chapter is a section outlining the remaining chapters of the dissertation.

Background of the Problem

For many years there has been persistent criticism concerning research within the field of Education (Patton, 1980). These criticisms have not only come from outside the field, but from within it as well (Hoffman, 1982). These concerns have challenged the different types of post-project methodology and the lack of follow-up examinations of research and inservice projects (Bogdan and Biklin, 1982). Educators rarely replicate studies as much as those in other academic disciplines (Wolf, 1982). Often both popular and academic research concerning education methodology, and curriculum, have been blindly accepted or forced on schools as quick cures and panaceas (Silberman, 1972). An example of this was a study which was the basis of the book Pygmalion In The Classroom (Rosenthal and Jacobsen, 1968), about teachers' expectations of their students. Although very widely read by both educators and parents, this study was never comprehensively replicated or

followed-up (Wolf, 1982). Such a lack of post-project studies has often led not only to a faddish perspective of innovation in education but has also done more to compound its cyclical nature as well. Could there be a significant impact on our educational field and school systems if more rigorous post-project studies employing qualitative follow-up methodology were encouraged, documented, and widely disseminated? Educators need to know more about the role that they can play and what they can tell us about the implications of the significant data--not only about the qualitative research methodology and applications, but, most importantly how curriculum innovations hold up over time in the classroom as verified by comprehensive follow-up studies.

A comprehensive review of the literature on this topic reveals very few studies on the application of this type of qualitative follow-up study methodology, especially those employing a case study approach. Thus, there is clearly a lack of references relating to follow-up study methodology. This is not to say that methodology for longitudinal studies, as opposed to follow-up studies, does not exist but that the two are not synonymous.

A longitudinal study is defined in the Dictionary of Education as,

a study that follows a case or group of cases over a period of time: includes genetic study, follow-up studies, growth studies, and experimental growth studies; its purpose may be to gather normative data on growth, to plot trends (as of attitudes), or to observe the effects of special factors (as in an experiment). (Good, 1973 p.565)

Follow-up studies as a subset to that larger set of research methodology can be defined as,

1. a study made in order to achieve one or more of the following purposes: a) to determine the effectiveness of the guidance process, b) to obtain a realistic picture of what lies ahead for present students, c) to help former students reappraise their educational and vocational plans, d) to appraise the school's program, e) to obtain ideas for improving the program, and f) to obtain information that the school requires to adapt its adult education program to meet more efficiently the needs of its former students and the community: 2) evaluation of progress of persons in jobs or training to which they have been assigned, on the basis of certain measuring instruments and procedures. (Good, 1973 p.565)

Although there have been calls from within the educational community for more follow-up research, the response has been minimal. If they are so important, why then are they not being done? This researcher suggests several possible reasons for the lack of qualitative follow-up research. In conducting a comprehensive qualitative follow-up study, there often exists a set of difficult, if not improbable condi-

tions, with which to deal. Due to our increasingly mobile population, follow-up studies must be content with a smaller participant sample. Related to this is the lack of continuity of the original project staff and perhaps even the type of methodology used. It is exceedingly difficult to do a follow-up study if the original project directors and research staff are no longer at the same institution or have shifted their professional focus. Accurate recall or memory of the original participants may present a difficult condition within a follow-up study. Finally, there are also a number of constraints and pressures existing outside of the research setting that affect both participants and researchers. It should be noted here that a common denominator in these difficult conditions existing in follow-up research is the passage of time.

As an example, over the years the National Science Foundation has sponsored many inservice projects. Although some conditions that hamper qualitative follow-up studies have already been mentioned, two related ones are inherent within typical NSF projects:

- 1) a design which does not anticipate follow-up research for evaluation of effect, and
- 2) lack of money for any long-term evaluation (Konicek, 1984).

Curricular addition and innovation are often implemented through projects such as those sponsored by the NSF. Often they do not always succeed over the long run even if, at the projects onset, there was significant inservice training, ample funding, and support (Wade, 1984). The failure and success of the curricular implementation and subsequent integration in teaching relate to factors that can be studied and evaluated through qualitative follow-up research methodology.

Are qualitative follow-up studies feasible in the field of education; can they be done effectively? What types of pertinent data can they provide. What are major factors and conditions that effect the nature of follow-up research (e.g. funding, time, etc.)? What could be the importance and implications of comprehensive follow-up studies on our educational system today? To what extent is the need for it to be done? Is qualitative research an appropriate and constructive methodology for use in follow-up studies? What are recommendations for how to utilize qualitative follow-up methodology in case studies on educational research projects? What are possible implications of follow-up studies on the design of future projects?

What kinds of designs, if any, are there for this style of qualitative methodology? It is queries such as these that will be considered and discussed in the course of the dissertation.

The author proposes that this study of a study be carried out to: 1. document qualitative follow-up methodology processes to determine the appropriateness of this mode of research; and 2) use qualitative research methods and applications to conduct an illustrative follow-up stably-focused singular interview case study on the National Science Foundation funded project "Pre-College Teacher Development in Science Programs for Environmental Biology and Societal Effects" done at the University of Massachusetts (Amherst) in 1977 and 1978. This study will be the illustrative vehicle for looking at the "raison d'etre" of follow-up case study research within a post-project study context in the field of Education. It could have studied any of a number of inservice projects. The illustrative field study "Environmental Education in the 1980's", will attempt to examine the 1977-78 training project, one like those so often sponsored by the National Science Foundation, to see if it made a difference over the long run in effectively reinforcing

the appropriate changes for the teachers over time. Studying the teachers, it will focus on what long-term effect the inservice project experience has had while competing with different factors, pressures and constraints, present in the "real" world of today?

Statement of the Problem

This doctoral study will examine the lack of applied qualitative follow-up research methodology within the field of education through an in depth exploration of the difficulties inherent in conducting them. The most significant role of the illustrative follow-up study within this dissertation is to find out whether the new ideas and innovations, once adapted and implemented through the inservice training, have been successfully employed by those same teachers over time. A most important factor, as alluded to earlier, may be that of time. It is the passage of time that creates a multitude of "improbable" conditions and pitfalls inherent in follow-up studies of effectiveness on teacher behavior and productivity. Teachers may change jobs or move away; memories may fade; project directors may lose interest in the project; teachers might be reluctant to report on apparent weaknesses and

failures; semantic meanings change; teachers could be reluctant to give time to past projects and teacher-made curriculum materials might be lost or forgotten. These factors could combine to create, at best, a difficult condition for researchers.

Therefore, it is important to determine if these or other factors which provide necessary data preclude the appropriateness and effectiveness of qualitative follow-up research. Due to the passage of time, one might infer that the value of certain data sources could be affected by: 1) availability of subjects; 2) availability of relevant related materials, 3) validity of data received by interview or questionnaire; and 4) continuity of personnel. All of these weaknesses could effect the value of the data, their subsequent analysis, and the value of the conclusions themselves.

Purpose of the Study

This study proposes to make a contribution to the literature by conducting an in depth investigation concerning the appropriateness of the application of follow-up studies within the field of education. It proposes the examination of this problem through a documentation of the processes involved in conducting

an actual illustrative field study example. The primary focus of interest here is the documentation of conducting a follow-up study, particularly its theoretical point of view, and methodology. This documentation was undertaken to better understand the component procedures and accompanying issues involved in conducting follow-up research (e.g. determining the appropriateness of this mode of research, examining if it is an effective method to look at a specific teaching behavior over time, and identifying the potentials and difficulties of follow-up efforts). Thus, the aims of this study are two-fold:

To determine what information can be gathered about any long-term effect that a prior inservice experience had on the teaching behavior of specific curriculum area over a six year period by using a qualitative follow-up case study approach.

Secondly, but most importantly, the researcher will document this illustrative follow-up research process in order to determine fully the potentials and problems of follow up efforts.

Research Questions that Guide the Purpose of the Study:

The following six questions guide the purpose of this study:

1. What are some of the long-term or residual effects that the prior inservice experience

had on the teaching behavior of environmental education curriculum area over a six year period as indicated by the follow-up study?

2. What are the participants' perceptions of their experience and role in the course of a follow-up study?
3. What are the appropriate and important component procedures for conducting a qualitative follow-up case study?
4. What are the major factors, limiting conditions, and types of problems that arise in the course of conducting and documenting a follow-up study that affect the nature of this kind of research? What do these data provide about conducting follow-up studies in the field of education?
5. What are some advantages of conducting qualitative follow-up research studies in the field of education?
6. What are the recommendations and possible implications of follow-up studies on the design of future inservice projects and post-project studies in education?

Significance of the Study

This two-fold study documenting a personal record of procedures and processes in a qualitative follow-up research case study holds much significance for those educators interested or involved in curriculum addition, innovation, or implementation. For project directors or researchers it is the examination of a qualitative methodology that can help them evaluate changes over time about teaching behavior. A great

many schools provide funding for inservice programs to improve or enhance both the curriculum and classroom instruction. There are several types of inservice programs ranging from the singular presentation to year-long courses. It is important for educators to examine the residual effects of these inservice programs so that school districts can assess whether money spent on inservice is attaining their goals (Wade, 1984). Comprehensive follow-up studies may be able to answer questions about the constraints and pressures that affect teachers' long-term commitment to curricular and instructional changes.

This study may make a contribution by helping researchers to see the importance of including subsequent follow-up study design in the initial development of their projects. In addition, researchers may be able to learn more about the various conditions and pitfalls inherent in this mode of qualitative research, and why follow-up studies are so difficult to carry out.

Methodology

This section will briefly outline the topics covered in the literature review that initially set the

context and framework, for the qualitative follow-up study field research rationale and methodology.

The purpose of this dissertation study was to document and analyze the processes inherent in qualitative follow-up methodology, to determine whether it is an effective method to examine teachers' teaching behavior over time; and also to be able to make recommendations regarding its utilization in future studies. The methodological concepts and rationale that are presented here are intended as an initial structure that will be more fully developed in chapter 3.

There were two major modes of inquiry employed in the course of this dissertation, the unique mode of conducting an illustrative follow-up study; and the more traditional library research. This review of the literature conducted to provide a rationale and background perspective for the study, was made in three specific areas. First, research and a comprehensive literature review was completed concerning the philosophy, methodology and other attributes of successful inservice and staff development projects. This review looked at inservice projects similar to the one used as the basis for the illustrative follow-up study, to

attain the appropriate background knowledge necessary to develop insightful questions in terms of the qualitative interview methodology. Secondly, research and a review of the literature was conducted in the area of qualitative evaluation research and methodology. Although qualitative research and methodology are more widely utilized in other social science fields they have not often been used in educational research in the past; currently in many academic circles their use is controversial. This review was done to document the relevance, appropriateness and the methodological integrity of their application in this study. And third, research and a literature review was done in the area of follow-up study contexts to investigate why within the field of education so few follow-up, or post project, studies are ever done. Even though there was not much authoritative literature on this specific inquiry, this was an important area to review because it provided a background context. These three areas will be more fully discussed in more detail in chapter 2.

In documenting the ongoing processes of the illustrative study, it was important that there be a proper correlation between the researcher's assump-

tions, and research questions, and methodology. One of techniques that was used to document these processes was an annotated field diary. Qualitative methodology is appropriate and effective for examining changes over time in the natural setting, especially in a case study context (Patton, 1980), (Bogdan and Biklin, 1982). The effectiveness of this methodology has been described by Engel thusly:

Documentation... offers a better possibility for obtaining useful evaluation data since it can be correlated with the goals and the contents of the program (1973 p.1)

In addition, this approach is made up of qualitative methods which are utilized to examine, in a research context, and then to verify what has been found out through what Patton calls:

... a reflective process between induction and deduction, experience and reflection on experience, and greater and lesser degrees of naturalistic inquiry. (1980 p.47)

The principle data collection approach for the illustrated study utilized a stably-focused singular interview guide instrument. A stably-focused, singular survey interview guide is one that starts out with a set of research questions and the researcher stays close to their original form throughout the interviewing process (Eiseman, 1984). This interview looked

at teaching behavior, the societal framework in which that interaction occurs, understanding based on the teacher's personal reality, and the relationship between that reality and his/her teaching behavior.

To gather the evidence to complete the aims of this illustrative study, data from the following sources were also collected. These provided data to determine the nature and extent of changes concerning the application of environmental education made by the teachers with regards to current pressures/constraints on them. They are:

1. A brief personal background information survey was sent to all the study's participants prior to the initial interview concerning the participant's background in teaching, and environmental education; and basic demographic facts.
2. A comprehensive interview tool was developed and pretested by the researcher, and given to elementary classroom teachers from the original NSF inservice project who were located and who agreed to participate in this study.
3. This same comprehensive interview tool was given to elementary classroom teachers from the same school district who agreed to participate in this study as a comparison group.
4. Some on site classroom visitations, and/or examination of teacher prepared environmental education curricular materials that illustrated the long-term effects of inservice on their teaching or curriculum were made.

The following additional sources also provided information for the study:

1. A brief questionnaire/survey concerning the participant's own perceptions and reactions to participating in a follow-up study.
2. The project's final evaluation report, Pre-College Teacher Development in Science Program For Environmental Biology and Societal Effects. (Lockwood & Konicek, 1978)
3. Conversations with the project's co-director.

The data were categorized and analyzed around the six research questions to produce a focus and structure for this study. Recommendations and implications from this study are made through this analysis and discussion of the interview guide, surveys, and other data collected during this study.

Limitations of the Methodology.

This researcher developed the proposal for the study, coordinated the study, as well as conducted all of the interviews and any concluding validating activities. The researcher is also the collector of the data and the evaluator of that data. Therefore, there is a possibility of researcher bias which is not controlled in the evaluation design. However, many of these same limitations are present in all qualitative research of this general type. Also, the lapse in time

chance for teacher participation and so that the interviews will be practical in travel time, costs, etc. As a result, a local rather than a regional or national sample will be obtained.

3. Because the population from which the data will be obtained for the illustrative study is limited to those classroom elementary school teachers who chose to participate, the population does not represent elementary classroom teachers as a whole. Conclusions from the study must be limited to that specific group.

4. The illustrative study focuses on the participating teachers' perceived long-term utilization of the inservice project concepts, ideas, methodology, and factors (e.g. constraints, pressures) influencing this use. No effort will be attempted to evaluate the intrinsic value of the original inservice project's concepts, ideas, or methodology, with regards to teaching or curricular content, on the students taught by the teachers who participate in this follow-up retrospective study. The design of this follow-up case study is a working example of an actual study, but not the primary focus of this dissertation, nor a preliminary study. Therefore, this researcher will make

from the original inservice project until this study (six years) may have affected the memories and/or recall ability of the study's participants. Association with the teachers being questioned and interviewed could influence the interviewee responses.

Delimitations of the Study

1. Although the primary focus of this dissertation study examines and documents processes inherent in qualitative follow-up case study research methodology, this researcher also has maintained a sincere interest in the secondary focus of this study because of his strong political, moral, and educational convictions concerning the importance of environmental education in schools and society today.

2. The focus of this illustrative follow-up field study examining the perceived long-term effects of the Pre-College Teacher Development in Science Programs for Environmental Biology and Societal Effects inservice project will be limited to the region originally covered by this project- a nine-town, six-school district located in rural northwestern Massachusetts. This is so that previous personal contacts from the original study will increase the

the effort to go through the steps and procedures to better understand this specific type of qualitative research methodology, but will not provide a detailed data analysis for the case study. This researcher accepts the fact that rich data might be available but it is not the purpose to extract them in depth.

Chapter Outlines

Chapter I: Nature of the Study, provided an introduction to the study by presenting a significant problem in elementary education today: the lack of applied qualitative follow-up research methodology. It proposed the examination of this problem through a documentation of the processes involved in doing an actual illustrative follow-up study example. In addition, the background and rationale for this study were developed and a research plan was presented.

Chapter II: Review of the Literature, will initially review several areas of literature germane to the study and then synthesize these different areas of research into a framework which provides a rationale for the study.

Chapter III: Research Methodology, will describe the procedures used to satisfy the aims of the study.

Methods for selecting the population to be studied, data collecting procedures, and the questionnaire/interview instrumentation will also be discussed.

Chapter IV: Project Description and Partial Analysis of Data, will present some of the results of the illustrative follow-up study, and report and interpret the data pertaining to documenting the processes inherent in follow-up case study methodology as outlined in four of the research questions.

Chapter V: Summary, Conclusions, Discussions, will present conclusions, discuss the implications and significance of the findings with regards to the final two research questions, and include recommendations for further study.

C H A P T E R I I
REVIEW OF THE LITERATURE

Introduction

This chapter is divided into three sections. Part one concerns the philosophy, methodology, and other attributes of successful inservice and staff development projects. This review looks at inservice projects similar to the one used as the basis for the illustrative qualitative follow-up study "Environmental Education in the 1980's", to attain the appropriate background knowledge necessary to develop an insightful perspective. Part two, reviews the literature in the area of qualitative evaluation research methodology. Qualitative research methodology is widely employed in other social science fields but has been used less in educational research. The present review was done to substantiate the relevance, appropriateness and methodological integrity of its application in this follow-up case study. In part three, research in the area of follow-up studies examines why, within the field of education, so few post-project follow-up studies are conducted. This was an important area to review, as, although there was not a lot of author-

itative literature on this very specific inquiry, it provided background and the impetus for this illustrative example of a follow-up case study.

Part 1: The Nature of Inservice and Staff Development Projects

Introduction

In the course of the illustrative follow-up study examining the original NSF project after six years, one must acknowledge the role of the original inservice training component as an important variable. Even though this study does not set out to evaluate any one single component of the original project, (e.g., curriculum content, participant selection) it is important that the topic of "inservice training" be looked at from a broader context. Therefore, in the first part of this chapter the area focused upon will be inservice education programming, the philosophy, methodology and other attributes of successful inservice, and staff development projects. This review looked at inservice projects similar to the one used as the basis for the illustrative follow-up case study. This was undertaken to attain appropriate contextual information helpful in developing relevant insights with regards to the inservice projects.

The study "An Investigation of Teachers' Persistence in Implementing NSF Supported Science Curricula", sought to "... report the degree of persistence teachers exhibit in utilizing selected elementary NSF supported science curricula over a five year period" (Wilson, 1980 p.257). Another study by Childress (1977) examined evaluation strategies and methods utilized in environmental education programs and projects. A few previous studies of this kind had been done earlier (Schlessinger, et. al. 1973), (Bracht, 1973) and (Weiss, 1978), but they only looked at the usage rates over a period of a single year or by geographical region. The findings concerning the adoption rates did agree however, with these earlier studies: "Persistence in elementary curricula is fairly stable....Adopters can be expected to use a curriculum during about 40% of a four and one half year period" (Wilson, 1980 p. 246). However, Willson's study held much broader implications concerning the importance of inservice programming:

Elementary school teachers use NSF supported curricula longer, frequently in supplementary form, after an organized university credit learning [inservice] workshop experience than without the experience....It is considered desirable for elementary teachers to continue to persist in utilizing curriculum materials,

the promulgation of teacher familiarization and in depth study by means of inservice workshops is an important part of a curriculum implementation program. Whether the NSF or private developers carry out the program is irrelevant. Workshops and [summer] institutes may help in the maintenance of an elementary [science] curriculum once adopted. (1980 p.259)

It is apparent that there are some similarities in these two studies. But beyond that, what is inservice? What does a review of the literature reveal about it, and its effectiveness? And what are some of its characteristics and guidelines?

Historical Context and Definition

Although there is some disagreement in the literature, inservice education for teachers is most widely regarded as the generic or umbrella term having to do with professional improvement, i.e. all types of teacher training including staff development. Some authors and researchers make a distinction between the two terms while others use them interchangeably. Later in this chapter a distinction will be made between the terms of their respective definitions.

Originally, teachers were more highly educated than the general population, and the annual or occasional teacher days for inservice conventions sufficed to keep them updated about developments in

their field. The school curriculum in those days changed very little from one year to the next. In many states, once teacher had demonstrated their competence and received their teaching certificate, it was valid without the necessity for further training or recertification.

However in the late 1960's and 1970's, as the educational system became more complex, administrators and school boards began to require continued professional training for new or renewed certification. Teachers' salary schedules encouraged continuous professional growth through salary increments based on additional approved courses and workshops, many of which were hosted by the particular school system itself. Currently, there are three major reasons for the increased emphasis on inservice programs: 1) the declining school enrollment, creating both a surplus of teachers and resultant decline in teacher turnover; 2) public dissatisfaction and criticism with the achievement and progress of students; and 3) citizen pressures on the schools to include more activities that help staff members and teachers to deal with students in such a way as to alleviate or ease social ills (Dillon, 1977).

In the 1980's inservice education has become a basic component in the continuing preparation of educators and much has been written about it. At the ERIC Clearinghouse data base the entries on inservice teacher education have increased from 938 documents in 1975 to 11,127 in 1982 (Wade, 1983). The number of people involved in leading and/or participating in inservice education is overwhelming. One study (Joyce, 1969) estimated that there was about one inservice instructor for every eight teachers in the United States. However, there is very little information about the cost of inservice programs. According to one study, the federal government spent about \$340 million during the 1980 fiscal year on projects connected with personnel development and inservice training (Feistritzer and McMillion, 1979). Another study, calculates public school spending on inservice education at three to six percent of all the public school budgets or about two billion dollars yearly in the United States (Moore and Hyde, 1978)! One study (Beiber, 1978) revealed that in some school systems the financial burden is becoming so great that the major part of the inservice is being passed directly to the users, with the teachers or administrators paying for

courses classified as inservice. Unfortunately, regardless of who is paying, inservice does not always live up to its expectations as it is being continually weakened by: 1) a lack of a planned or systematic approach; 2) less than adequate funding; 3) a tendency to be dominated by school administrators; 4) an irrelevance to perceived professional needs; and a lack of direction (Orlich, 1984). Adding to these problems there are three other sources of confusion: 1) differing ideological conceptions regarding teaching and the teacher's role; 2) conflicting notions regarding what inservice education should accomplish; and 3) the absence of a tested system for implementing professional growth activities within the work day environment (Rubin, 1978).

Inservice programs have three basic objectives: 1) increasing the knowledge base of the teachers; 2) increasing the quality or quantity of skills possessed by the teacher; and 3) changing teacher attitudes through meaningful experiences. The format types of programming in terms of meeting these objectives are: 1) informational inservice programs; 2) demonstration "show me how" programs to increase skills but do not contain any theory and/or acquired competence; 3) attitudinal

change or "awareness session" programs; and 4) variations or combinations of any of these (Hall, 1983).

At the beginning of this first part of the chapter mention was made regarding the distinctions between staff development and inservice. The literature does provide definitions of the two terms which may help to clarify distinctions between them.

Inservice education denotes programs that are based on identified needs, planned and designed for a specific group of individuals in the school district, have a specific set of learning objectives or activities, and are designed to extend, add, or improve job-oriented skills or knowledge. (Orlich, 1984 p.34)

Inservice education is defined as one or a series of planned instructional programs made available to a specified group(s) of professional staff members for purposes of promoting participant growth and increased job competence. (Rogus, 1980 p.9)

Staff development is defined as all activities carried out by the district or school to promote staff growth and renewal. These activities have personal, role, and institutional dimensions. (Bishop, 1976 p.9)

Staff development is really an affirmation of learning...and like learning is a life-long process, which contributes to the well being of the individual, local school district, and society, through planned programs for all employees. (Włodarczyk, 1980 p.2)

It is apparent by looking at these definitions that although there is not a great amount of difference between the two, inservice education is the more general linked directly to enriching teachers/staff professional competence through a variety of content program activities and diverse curricular methodology; staff development, on the other hand, is more readily able to be tied in to the school district's teacher evaluation process through its focus on the specific individual teacher--his/her future improvement and growth. Inservice education is not just something that is done to teachers; it can be something that teachers do to and for themselves. Staff development, according to Byrne, tends to look at teachers/staff members as:

... an under utilized talent pool of vast potential to assist the school system along the planned path of instructional program revision and renewal...professionals who can upgrade the [school] system through intelligent leadership in vertical program articulation, in seeking and discovering answers to the continuing problems that have perplexed the educational bureaucracies, and precluded them from achieving lasting, long-range success. (1983 p.3)

Staff development activities can be informal or formal. Informal activities are the daily functions which have developmental effects upon the staff e.g., implementation of personnel policies, teacher eval-

uation programs, staff curricular planning, and other day to day staff interactions. In some ways these informal activities constitute the most important dimension of staff development programming--shaping the perspective brought by staff members to formal program efforts. The formal activities are planned program efforts that are personalized to the growth needs of individual staff members. These include conferences, classroom observations, curriculum committee work, consulting with other staff and inservice participation (Rogus, 1983). Currently, teachers are requesting and getting more say in their professional development, creating new opportunities for new inservice programs and specifically staff development through the recently established teacher centers and inservice credit programs.

In summation, teacher inservice/staff development education in its simplest context, should work toward several ends: 1) the increasing of knowledge in general and pertinent subject-matter information in particular; 2) the obtaining of new techniques for teaching; and 3) a forming of attitude and purpose (Rubin, 1978). These three ends are not contradictory or foreign to any school system's existing philosophy. An inservice

education experience for a teacher should make unfamiliar methods and materials familiar, and also help to define what is important and what is not; as well as reinforcing the notion of commitment to one's students.

Research/Study- Some General Implications

There has been considerable research regarding inservice education/staff development in the last decade. However, it is difficult to distill all of the research/study literature and subsequent implications down into simplistic effective characteristics and guidelines helpful to school systems, their administrators and staffs. There are many different reasons for this. Many publications just contain evaluation reports rather than the original research. The majority of the write-ups are by administrators or teachers from a specific school writing about their own program; these are almost always successful programs since no one likes to publish failures. The measurement techniques are often subjective opinions or based on unscientific evaluations made up by the participants. The section on results is often filled with vague and ambiguous language, and control groups are rarely if ever used because everyone likes to become involved in an exciting and new inservice program.

Fortunately, there are among the many dubious reports concerning inservice programs, several important studies. In this section a chronological look will be taken at some of the more important research and studies (Mazzarella, 1980)

In a study by Brimm and Tollett (1973) inservice education was found to be crucial to the education of the teacher, although at the time few research efforts had been made to determine the types of inservice which would be "most beneficial to them and their daily classroom duties" (1973 p.521). A study which examined what made teacher inservice effective (Lawrence, 1974) looked at 97 studies or evaluation reports of inservice education and generalized about successful programs. In looking at the management of inservice education, Lawrence found that the programs that have individualized activities are more likely to accomplish their goals than are programs that have common activities for all the teachers. Inservice programs that emphasize trials, demonstrations, and feedback are more effective than those in which the participants just absorb ideas for a future time. Lawrence also found that school based programs conducted by local supervisors or administrators appear more effective than those run by

outsiders. In addition, programs at the school site are capable of doing more than conveying information-- they are capable of changing attitudes and beliefs as well. Lastly, this study showed that inservice programs in which teachers participated as helpers and planners have better success in meeting their objectives than did programs conducted by college or other outside personnel without teacher assistance.

Research by Rapport (1974) suggests that adults (teachers) prefer to learn in nonformal learning situations where social interaction can take place among the learners. The implication from this is the need to plan teacher inservice programs that occur in the normal work setting, i.e. the school.

One of the biggest studies was a four year, two phase study by the Rand Corporation (1971-75) which gave some insights into the characteristics of effective staff development. In a report on this Rand Study (Berman and McLaughlin, 1978) it was noted that when inservice training was "concrete, ongoing, and teacher specific" (1978 p.58) as well as being hands on allowing teachers to try out new techniques and ask for the kind of help they needed, when they needed it, it was most successful. The best inservice programs were

those that addressed the specific needs of each individual teacher. Inservice programs that had local resource personnel who could be "on call" were more effective than consultants whose advice was seen as too "general, untimely, and irrevelevant" (1978 p.58). The participation of the principal in inservice program was seen as being important so that they would have the knowledge to help their teachers with program goals and show them that their efforts and time were being supported. Also, singular "one shot" inservice training was usually not helpful to teachers. Another interesting finding was that giving extra pay for participating in inservice had either insignificant or negative effects. It appears that teachers participate in inservice programs because they believe they will help them to become better teachers and not because of any immediate financial rewards. In a later report on this same Rand study (McLaughlin and Marsh, 1978) it was noted that staff support activities were very important in helping teachers to continue with programs. These support activities were defined as "regular project meetings, teacher participation in decision making, and classroom assistance by resource personnel" (1978, p.74). These activities were necessary "to affect

teachers' attitudes and inspire commitment to the program...without such support activities the effects of training faded and no long lasting changes in teachers occurred."

A study by Joyce et. al. (1976) examining the components of inservice programs liked by both teachers and administrators, investigated teacher and administrator preferences for inservice teacher education. The researchers found among all the interviewees a desire for teachers to have more say in the content of inservice programming, and the need to relate the programming to local and on the job needs; as well as when they feel they need and want it. One finding contrasted with the earlier Lawrence study. A majority of these respondents preferred outside personnel as opposed to local ones. Joyce and his colleagues hypothesized that "teachers did not want to have their evaluators as their trainers" (1976 p.135). Thus, it would appear that before teachers can feel comfortable with local administrative personnel as trainers, the responsibilities of evaluation and training will have to be more distinctly delineated.

Recent studies concerning adult learning during this last decade have important implications on

effective inservice for teachers. McKinnan's research (1976) has shown that a greater proportion of adults than formerly thought may be operating at the concrete operational stage rather than formal operations stage of intellectual development. This suggests that, "direct and concrete experiences where the learner applies what is being learned are an essential ingredient for inservice education... abstract, word oriented talk sessions are not adequate to change behaviors" (Wood and Thompson, 1980 p.376). Other studies (Keeton, 1976), (Wood and Neill, 1977) also support the importance of this experiential learning in inservice education.

Another study by Johnston and Yeakey (1977) tested the hypothesis whether administrators differed meaningfully from teachers in preferred content, methods, and planning strategies of teacher staff development programs. In terms of preferences for content there was indeed significant disagreement; administrators were interested in topics most closely related to their own role and teachers were interested in those relevant to theirs. There was also disagreement as to who should plan and conduct inservice programming, with administrators wanting to plan them

themselves, and teachers wanting committee or themselves to do it. The researchers concluded that joint planning would be the best method to use.

More recently, a two year study project by Joyce and Showers (1980) was undertaken to analyze more than 200 earlier research studies on the ability of teachers to acquire teaching skills and strategies through inservice education. Their initial finding from all the research was quite uplifting- teachers are very good learners. Most teachers can gain new skills which refine their competence, as well as develop new teaching strategies. They also found that to be able to better their skills and learn new strategies in teaching, teachers need certain conditions. Unfortunately, most of these conditions are not present in existing inservice programs even when teachers were a part of the planning process. Lastly, the wealth of research does hold information helpful in designing inservice programs for classroom personnel. Joyce and Showers found five major components of training in the studies that they reviewed:

- 1) Presentation of theory or description of skill or strategy;
- 2) Modeling or demonstration of skills or models of teaching;

- 3) Practice in simulated and classroom settings;
- 4) Structured and open-ended feedback (provision of information about performance);
- 5) Coaching for application (hands-on, in-classroom assistance with the transfer of skills and strategies to the classroom).

Of the 200 studies reviewed, it is interesting to note that not one of the programs reviewed used all five of these components recommended as necessary for an effective inservice education experience.

Guidelines for Effective Inservice Education

There are many implications for effective inservice education from the research. In general, if the inservice occurs outside the school system with no connection made between the innovation and the teacher's own classroom--then the connection between the two would be ambiguous and without residual impact. It is important that the people leading inservice programs have a good understanding of the host school district and its needs. They must have an understanding that changes made through inservice programs cannot be considered without first constructing a means for that innovation to be connected into the new site and integrating/inter-

connecting to all of the other factors in that new site. To take this one step further, an inservice facilitator would be well advised to consider the writing of an impact statement before beginning to work with the designated participating teachers.

Specifically, from a distillation of this review of the literature, eight guidelines for effective inservice education can be developed.

Inservice education should:

- 1) be designed so that the program is integrated into and supported by the school system- especially by the individual building administrator.
- 2) entail a systematic, long-range program with appropriate follow-up; the content and methodology of which has been jointly designed by both staff and administration resulting in a collaborative learning effort.
- 3) be easily accessible for all the teachers at the school, during the normal working hours with all the necessary resources being provided; and it should be centered on intrinsic professional rewards.
- 4) be based on timeliness- prior assessed specific "on the job" needs of the teachers, and be responsive to their changing needs.
- 5) model good "teaching", utilizing local resource personnel for peer recognition and practical peer teaching application as well as outside consultants who can be continuously available for support and follow-up.

- 6) have learning activities that are experiential and individual teacher specific with concrete, hands-on practical experiences that are ongoing with regular meetings during the year.
- 7) emphasize instructional alternatives and strategies not just single methods, particular theories and ambiguous intellectualizing.
- 8) should be evaluated periodically with teachers being asked to compare its goals with their actual results, in addition to determining its compatibility with the underlying philosophy and approach of the host school system.

Part 2- Qualitative Research Methodology

Introduction

This second section presents a literature review that sets the context and framework for the qualitative field research rationale and methodology employed in post-project follow-up studies. The rationale and concepts that are presented here are intended to provide a background structure from the available literature that will be fully developed and explained in chapter three.

It was important to both the primary and secondary foci of the study that there be a proper correlation between the researcher's assumptions, research questions, and methodology. For this reason, the utilization of what is widely referred to as "qualitative evaluation research and "qualitative methodology" was employed throughout the follow-up study. This qualitative methodology is both appropriate and effective for examining changes over time in the natural setting (Patton, 1980), (Bogdan and Biklin, 1982), (Dobbert, 1982). This approach includes various qualitative instruments and procedures such as interviews. For example, interviewing teacher participants with a stably-focused singular interview guide

instrument examines the meaning of their behavior, the frameworks in which the discussed behavior occurs, an understanding grounded on the personal reality, and the relationship between that reality and the participants' behavior. The benefit of an interview guide instrument is that it lets the interviewer effectively use the limited time available in an interview session. It allows the interviewing of the different participants to be more systematic and comprehensive by setting limits on the issues to be discussed in the interviews (Patton, 1980).

Background

Qualitative research methodology is based on various philosophical, methodological, and epistemological traditions and conventions. Qualitative methods evolved from the ethnographic and field study traditions in anthropology (Pelto and Pelto, 1978) and sociology (Bruyn, 1966). The holistic-inductive model of naturalistic inquiry is based on perspectives developed and employed in phenomenology (Bussis et al., 1973; Carini, 1975), symbolic interactionism and naturalistic behaviorism (Denzin, 1978), ethnomethodology (Garfinkel, 1967), and ecological psychology (Barker, 1968).

Qualitative methodology's purpose has been defined by Rife (1983) as research "... to describe and understand a particular situation, event, group of people, or human interaction in depth". It is an inductive process which commences with a specific event (e.g. a project), and moves to a general conclusion. It "values an analysis of both inner and outer perspectives of human behavior...where meaning is derived from a variety of sources and perspectives." It is "naturalistic" as there is no effort made to change the situation at the time of the research. The role of the researcher is "primarily to represent people in their own words and perspectives, and to generate detailed descriptions of what people say and do" (Rife, 1983 class handouts).

In addition, this approach is made up of methods which examine, in a research context, and then verify what has been found out through a "reflective process between induction and deduction, experience and reflection on experience, and greater and lesser degrees of naturalistic inquiry" (Patton, 1980 p.47). Five general characteristics of qualitative research are: 1) It has the natural setting as the direct source of data and the researcher as the main instrument; 2)

It is descriptive; 3) It is concerned more with process rather than product or outcomes; 4) Researchers tend to analyze their data inductively; and 5) Meaning is of essential concern to the qualitative approach (Bogdan and Biklin, 1982).

The types of data relevant to qualitative research are things such as the participant's own written words, photographs, physical traces, official documents and statistics, a field diary, and notes. Field notes are usually either written in short hand or transcribed from tape recordings. They are narrative descriptions of people, places, events taking place, and other interactions. Data collection of qualitative research may include: 1) Direct observation, by either a participant or nonparticipant in the study; 2) The analysis of documents; 3) The taking of photographs; and 4) Interviewing, either formally or informally.

Design of a Case Study

A case study is a detailed, comprehensive examination of one setting, a single subject, a particular event, or of a single set of documents. This research methodology of field-based direct observation of human activity and interaction in a naturalistic fashion can also be labeled "ethnographic

research", a term previously associated only with anthropology (Dobbert, 1982). Sociologists have also made extensive use of this direct observation of human behavior and interaction through nonparticipant observation. Within the field of education, both participant and nonparticipant observation have been employed in the study of classroom curricular programs, activities, and interactions. Many educators, have used direct observation of classroom situations to analyze attitude formation, peer group relations, student teacher training, and variations in teacher control techniques (Bellack, 1966), (Biddle and Adams, 1967), (Flanders, 1960), (Henry, 1963), (Smith and Geoffrey, 1968), (Vaughan and Faber, 1952), (Rist, 1975).

Metaphorically, the design of a case study can best be thought of as a funnel with the start of the study being the wide end. At this point the researcher looks for places and people that might be a subject or source of data, finds a suitable one, and evaluates its feasibility. As the funnel narrows so does the methodology of the study, narrowing down to whom to interview and upon what to focus in depth. The data collection and qualitative research activities, and themes of the

study, narrow from a broad exploratory beginning to a more directed data collection and analysis (Bogdan and Biklin, 1982).

There are several different types of case studies that are a part of qualitative research: historical organizational, developmental, and observational. All of them rely on interview methodology as the dominant strategy for data collection. There are four distinct interview methodologies: 1) informal conversational; 2) interview guide approach; 3) standardized open-ended; and 4) closed quantitative (Gordon, 1975). In all of these, interviewing is employed to gather descriptive data in the subject's own words so that the researcher can develop insights on how the participants view and interpret a given situation.

Regardless of which methodology is utilized, qualitative interviews have several distinct advantages: 1) They can probe at great depth; 2) They clarify and help ensure mutual understanding; 3) They make it possible to elicit data from participants with limited educational backgrounds, 4) They enable the researcher to maintain a good rapport; 5) They are flexible and adaptive increasing the gathering of additional information other than the original

questions; and 6) They ensure a greater response rate than questionnaires (95% vs. 45%) (Gordon, 1975), (Patton, 1980).

There are, as with any research methodology, a few disadvantages. Qualitative interviewing not only requires much time and personal devotion on the part of the researcher, but also requires that he or she have some level of skill and training. In addition, there is an unwieldy amount of data in the form of hundreds of pages of verbatim transcriptions. Interviewing is also open to some biases, both on the part of the respondent and the interviewer. Lastly, the sample size must often be limited because of both time and money restrictions .

In recording the data from the interview sessions there are three basic methods: 1) note-taking during the course of the interview; 2) writing notes about the interview directly afterwards; and 3) using a tape recorder and transcribing the interview. These methods are often used in conjunction with one another.

Data Analysis

To analyze and interpret the qualitative data from follow-up study research, it is important to have a sense of strategy, direction and purpose. The word

strategy is used here deliberately to imply that there are several levels of decision-making involved in designing and conducting a qualitative follow-up study.

Patton writes:

The evaluator moves back and forth between general methods strategies and specific evaluation questions to establish the relevance and meaningfulness of particular operational procedures to the program under study. The strategy of a research approach must be translated into concrete data-gathering technique instruments and operations. (1980 p.40)

There are three separate but integrative components particularly applicable to qualitative follow-up research methodology strategy: the holistic view, the inductive approach, and naturalistic inquiry.

The holistic view seeks to comprehend phenomena and situations as a whole. It is an approach where one tries to understand the gestalt, the totality, and the unifying nature of the particular site or situation. This is in direct contrast to other experimental research designs where one manipulates and measures the relationships among just a few precisely chosen, and specifically defined, variables. The holistic approach collects data on many aspects of the study to compose a more complete picture of the various dynamics of a specific program or situation (Patton, 1980).

The inductive approach is a qualitative research strategy that tries to discern patterns without placing any predetermined expectations on the research environment. Thus, qualitative research designs commence with direct open-ended observations and evolve towards general patterns or categories of analysis while under study. This is in direct contrast with the hypothesis-deductive experimental approach where the main variables and statement of the hypothesis are stated even before the data collection commences.

The [inductive] strategy in qualitative designs is to allow the important dimensions to emerge from analysis of the case under study without presupposing in advance what those important dimensions will be. (Patton, 1980 p.41)

Naturalistic inquiry is an important element and component of qualitative methodological design. With this design there is no attempt by the researcher to manipulate or change the research setting: "The point of using qualitative methods is to understand naturally occurring phenomena in their naturally occurring states" (Patton, 1980 p.41). Naturalistic inquiry has also been defined as "the investigation of phenomena within and in relation to their naturally occurring context" (Willems and Raush, 1969 p.3). The research setting is perceived as a naturally occurring program

or event that has no artificially preset course established by and for the researcher. This is also in direct contrast to experimental research where there are attempts made to control certain conditions of the study through manipulation or the artificial control of specific external influences.

As with strategy, data analysis, interpretation, and evaluation are not just simplistic and technical processes. With qualitative research there are no hard, fast, formal, or universal rules to follow in the analyzing, interpreting, and evaluating of data. Analysis is the procedure of sorting out the data, and organizing them into patterns, categories, and basic descriptive bits and pieces. Interpretation is the process that affixes meaning and significance to the analysis- explaining the patterns and examining relationships which may or may not be apparent. Evaluation is the making of judgements about and the giving of value to what has already been analyzed and interpreted. Thus, qualitative evaluation research is the systematic collection, analysis, and subsequent interpretation of data about the activities and outcomes of actual programs which allow the researcher to make

decisions about what the program has done and affected (Patton, 1980).

There are two methodological concepts and issues related to data analysis that are commonly referred to in the literature: the importance and development of theory, and making generalizations from the data.

The issue of theory and its relative importance to qualitative methodology appears frequently in the literature. For example, Denzin has written:

Research methods are of little use until they are seen in the light of theoretical perspectives. Substantive speciality is of little use or interest until it is firmly embedded within a theoretical framework grounded upon sound research strategies... What is needed is a common theoretical framework that can be consistently applied to all phases of the sociological act. (1978 p.4)

It has also been argued that it is difficult to conduct research without linkage to some systematic theory that connotes specific attributes, types of observation styles, and other principles (Pelto and Pelto, 1978). In some cases the literature has also dealt with the linkage between specific qualitative methods such as participant observation and theory (Bruyn, 1963), or the relationship between field methods and the researcher's adoption of either consensus theory or conflict theory in social science as a means of understanding the environment (Douglas, 1976).

Related to this is the issue of to what degree it is the researcher's responsibility to develop generalizations from the qualitative data. It is important to note, as Patton has, that:

Generalizations are closely related to theory, the difference being that theory specifies the relationship among a set of variables while generalizations concern the extent to which whatever relationships are uncovered in a particular situation can be expected to hold true for every situation. (1980 p.279)

This concern has its basis in what the real role of social science is or should be. Social science researchers are involved in making empirical generalizations; rarely interested in one specific situation for its intrinsic value. Their role is one of studying particular populations in order to generalize, and their sampling techniques usually emphasize the importance of attention to external validity (Campbell and Stanley, 1966).

Some researchers feel that social phenomena are much too variable and too attached to a single context to allow for generalizations. It is more important to interpret data in context than to narrow the context to arrive at some generalization. The goal of the researcher in analyzing and evaluating the data,

according to Cronbach, is to provide information that will:

...help people use their heads instead of constructing generalizations and building theory... generalizations decay [over time]. At one time a conclusion describes the existing situation well, at a later time it accounts for rather little variance, and ultimately is valid only as history. (1975 p.122)

Thus, the literature supports the concept that data analysis and the subsequent evaluation findings are most productive with regard to the specific environment from which the data were obtained, and for the personnel who will use this information. The goal of qualitative research evaluation is not just abstract generalizations, but to furnish information that is useful, permits constructive action, and is relevant to those in positions to meet the needs of programs and people. Patton states:

This means that evaluators using qualitative methods provide perspective rather than truth, empirical assessment of local decision makers' theories of action rather than generation and verification of universal theories, and context bound information rather than generalizations. Evaluators can give up the burden of producing unassailable certainties and concentrate on the more immediate task of providing useful information to decision makers and information users. (1980 p.282).

Part 3- Applied Follow-up Study Methodology

Introduction

Although follow-up studies are common in the social and hard sciences they are infrequently employed within the field of education. A computer search (BRS/ERIC) of the literature published during the last decade shows only about two hundred entries per year of post-project follow-up studies within the field of education. The primary focus of this literature search however, was not on the number of follow-up studies done within education, but on the nature and components of the methodology and design involved with the application of follow-up studies. It focused on the following three areas: 1) the extent to which it has been occurring in education; 2) the problems inherent in its methodology; and 3) specific recommendations on how to employ this methodology. This thorough search of the literature and its various indices yielded little information pertaining to these specific foci.

Historical Perspective

The following reference materials were examined in the literature review process: The Educational Index; Resources in Education; The Current Index to Journals in Education; Social Sciences Citation Index;

Comprehensive Dissertation Index; Encyclopedia of Educational Research 5th Edition; and The Second Handbook of Research on Teaching. All of these reference books were searched as far back as the last two decades while the Comprehensive Dissertation Index which searched all the way back to 1861.

Other than one reference in the Social Studies Citation Index, it was the Comprehensive Dissertation Index which gave the largest number of references- six. Of these six dissertations (listed below), none of them specifically explore the topic of follow-up research methodology in terms of the aforementioned three criteria. These six dissertations, marginally appropriate as a reference, were: Development and Evaluation of a Model for Conducting a Follow-up Study of Technician Program Graduates, Ganitha, Kampanrana 1984; The Follow-up Study or Survey as an Evaluative Tool in Counselor Education, O'Dell, Frank 1971; The Development, Application, and Evaluation of a Model Plan for conducting Follow-up Studies of Former Students in Community Colleges, Huinker, Arthur 1970; Improving the Follow-up Study Process in Schools, Derodeff, Boris 1965; Some Designs for the Collection of and Methods for the Analysis of Enumerative Data

Characteristics of Attributes, with Special Application to a Follow-up of Education Graduates, Mayo, Samuel 1956; and, Development and Application of Certain Follow-up Techniques in a Small High School Situation, Buell Cramer 1939.

Some Methodological Components of Follow-up Studies

As outlined in the introduction to this section, there was little specific information in the literature concerning the three particular foci concerning follow-up study design methodology. However, there have been some studies done of specific programs in education over time. For example, and relevant to this discussion, are the government-sponsored studies conducted on the federally-funded, preschool program, Project Head Start (Cicirelli, Cooper, and Granger, 1969), (Williams and Evans, 1972, (Zigler, 1978), (Datta, 1975, 1980); and its companion elementary school program, Project Follow Through (Sorenson, 1971), (Rhine, 1971, 1973), (Anderson, 1977), (Haney, 1977), (Kennedy, 1977), (Stebbins, St.Pierre, Proper, Anderson and Cerva, 1977). While each is not singularly well known, as a group they are useful for providing insights for discussion purposes here as they

contain many of the components of a generic follow-up study.

As is frequently the case in qualitative methodology, it is impractical to use classical experimental designs in these types of studies. Research has shown that putting into effect such designs has the following restrictions: 1) Day to day program operations must remain unchanged, thus constricting reasonable attempts to improve them, 2) The results are helpful for making decisions only after a program has gone full cycle and not during both its planning and implementation; and 3) Strict control must be kept over many variables, thus creating program conditions that are often artificial and therefore not generalizable to real-world situations (Stufflebeam, Foley, Gephart, Guba, Hammond, Merriman, and Provus, 1971). An appropriate and effective design for a program such as Project Follow Through must be able to find connections between the project's treatment and outcome changes (Ramp and Rhine, 1981).

An alternative approach to detecting causation in dynamic projects such as Follow Through is to use a quasi-experimental research design. Such a design and accompanying methodology were used in the Abt Report

which was part of the larger national follow-up evaluation of Project Follow Through (Stebbins, St. Pierre, Proper, Anderson and Cera, 1977). Although one of the earlier studies of Project Follow Through, a brief examination of the design of that study is particularly useful in providing insights for background context purposes as it contains many of the components of a generic follow-up study. This brief discussion will not be concerned with any of the data analysis of the report.

The basic design of that study included students from both Project Follow Through and non-Follow Through classrooms and has often been referred to as a comparison group design. There were nine major models included in the nation-wide study where data were collected. Data were obtained from K-entering children in 1970, (labeled Cohort 2), and from K-entering children in 1971, (labeled Cohort 3). This design approach allowed the researchers to compare the results of tests administered in two successive years. In some cases data were also collected from first grade classrooms in schools that had no kindergartens. Data were collected from each group of children at the beginning and at the end of each school year until they finished

the third grade. The Cohort 2 study included thirteen model sponsors, 52 communities where children had been enrolled with a total population sample of 4,205 children from Follow Through classrooms and 2,901 in comparison classrooms. The Cohort 3 study was only slightly larger.

As is typical in this type of study, the use of comparison groups presents several problems. In the different communities, for example, the students in the comparison groups were often more advantaged in terms of socio-economic status than those in the Follow Through groups. Also, the comparison groups consisted of children who were mainly those left after the most disadvantaged had been picked for placement in the Follow Through classrooms.

This data from the study were used to compare the performance of children in Follow Through and comparison classrooms in local communities; and to compare the performance of children in a particular Follow Through community with the performance of all non-Follow Through comparison children in that cohort group. There were a number of other problems characteristic of this type of study for the researchers,

(e.g. movement of students, withdrawal of support)
(Becker, Engelmann, Carnine and Rhine, 1981).

Concurrent with this focus on the children, the national evaluation also focused on the evaluation of Follow Through Project teachers. A design was constructed for training "parent educators" to evaluate Follow Through teachers by administering questionnaires, observation, and various other instruments in the classrooms (e.g. Purdue Teacher Opinionnaire, Teacher Practices Observation Record, and taxonomies of different behaviors). This design had the potential for centering the attention of both teachers and parents on important components of the Follow Through Project and for fostering cooperation. Unfortunately, as in many of these kinds of qualitative studies, the design was not able to realize its potential. This was not due so much to the weakness of the design or the reliability of the evaluatory instruments, but more because of human and social factors within the community. The teachers participating in the study objected to the concept of being evaluated by non-professionals (Greenwood, Ware, Gordon and Rhine, 1981).

Some Elements of Follow-up Study Methodology

Within this post-project study context there are two basic methods: replication and follow-up studies. To assess social change, measures obtained in prior research are sometimes readministered to a new group of subjects similar to the original. If the study is replicated so that the original conditions prevail, differences in responses can be assumed to reflect social change. Alternately, instead of replicating the research with a new sample of subjects the same age, the original participants are retested in a follow-up design to see if their responses have changed over time. These changes can reflect either developmental or social changes. However, in either kind of study, replication or follow-up differences can be assumed to reflect change only if the data obtained in each time period are comparable, and this is not always the case. One source of error is that the samples are not equal, another is that the measures are not really the same (Hoffman, 1982).

The value of a follow-up study depends greatly on the success with which data are obtained from all of the original participants. Such success is governed both by persistence and the recognition of the im-

portance of getting all or as many of the original participants as possible in the subsequent sample. As in all research it is important to get responses from the entire target sample to avoid sample bias. Those who are eager to be interviewed differ from those who are willing, though not eager, and both are different from those who are reluctant to participate (Rebecca, 1977). Differences such as these can affect the results of the study and therefore the data determined by a self-selected sample can be misleading. Hoffman states:

The researcher has to be persistent to get the busy people, the geographically mobile, the very private people, the people who are ashamed, and so forth. If you lose these, you don't just lose numbers, you change the nature of your sample and hence your results. So the trained researcher goes after every potential subject. She (or he) decides who will be in the study, not the subjects... It is not always true that the need to get all the subjects is greater in the follow-up, or reinterview study. However, whether or not the need to get all the subjects is greater in the follow-up study, it is usually more difficult to do so. First you have to locate them; then you have to obtain data from a sample of subjects who may be spread throughout the world. (1982 p.55)

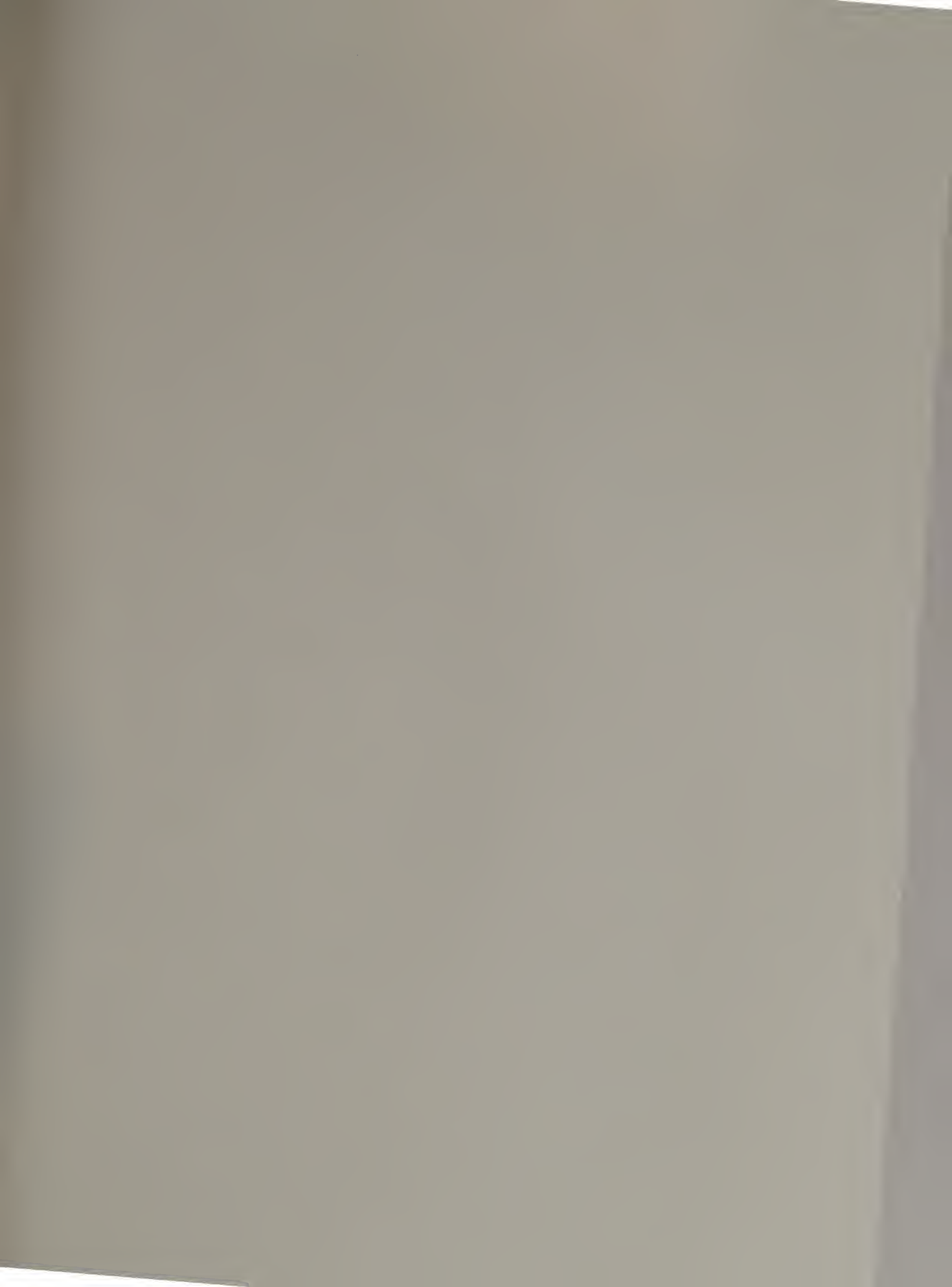
In the process of obtaining a representative participant sample, the researcher must make his/her considerations from the following ethical standpoints:

- 1) Getting current addresses through third parties must be discreet;
- 2) It is always important to identify both

one's identity and purpose in all communications; 3) Once the person has been found it is not only unethical to pressure him/her to participate, but invalid as well, as the validity of the data requires an open and sincere response (Hoffman, 1982).

There are three main difficulties in working with projective measures in follow-up and replication research methodology. The first involves setting up a comparable situation and mood set from the groups of participants being interviewed. Secondly, there is the question of whether to have the two sets of compared data coded by the same coder or teams of coders. And finally, whether or not to use exactly the same questions and cues with both groups.

Many of these difficulties are not just specific to follow-up qualitative research methodology, but are apparent in all projective research as well. For example, any particular question with regards to the interview is affected by the situation that exists when the response is made. The physical surroundings, behavior of the interviewer, and the mental and physical state of the participant replying may all affect the answer. When coding all the open-ended responses, a new variable is introduced- the coder's



situation and mood. The same coder may code differently on different days, while two different coders may code the same response differently. Lastly, it is important that the questions being asked to each participant group, both the follow-up and comparison sample, are comparable; as Hoffman warns:

The opportunity to achieve such comparability, however, is rare. In a follow-up study where the same subjects are retested after a period of time, I do not think that it is possible. (1982 p.59).

This review of the literature has revealed many of the inherent difficulties in designing, developing, and carrying out qualitative follow-up studies. This raises two interesting points. Is the fact that these studies are inherently difficult the sole reason for them not being done with more frequency in education? The second point is, that given the lack of published information- would they be more likely to be carried out if there were more published information with regards to this type of methodology; i.e., more simplified, clearly applied illustrative examples, etc.? These two important and interesting points will be further developed and discussed in chapter five.

Chapter Summary

This chapter was divided into three parts. In the first part, a comprehensive literature review discussed

the philosophy, methodology, and other attributes of successful inservice and staff development projects. This review examined inservice projects similar to the one used as the basis for the illustrative follow-up study, "Environmental Education in the 1980's", and provided a framework of background knowledge. Through this discussion the researcher developed eight guidelines for effective inservice education. The formulation of these guidelines was to provide background information for developing pertinent and insightful questions with regard to data collection instrumentation for the illustrative follow-up study.

Secondly, a review of the literature discussed the area of qualitative research methodology. Although qualitative research and methodology is more widely employed in the other social science fields and has not been used much in educational research in the past, its present potential use is perceived by some scholars as controversial. This review documented the appropriateness and the methodological integrity of its application in qualitative follow-up studies. Central to this second section of the chapter was a discussion on the strategy and elements involved with qualitative data analysis such as: 1) evaluation and interpretation

utilizing a holistic perspective; 2) the inductive approach; and 3) natural-istic inquiry. Relevant to this was the discussion of two methodological concepts and issues related to qualitative data analysis commonly referred to in the literature: the importance and development of theory, and making generalizations from the data.

In the third and final part of this chapter, a literature review was discussed in the context of four specific follow-up studies to investigate why, within the field of education, so few post-project follow-up studies are done. The focus was on the specific nature and components of follow-up research methodology and design: 1) The extent to which it has been and is occurring in education; 2) The problems inherent in its methodology; 3) The different kinds of designs; and 4) The very few specific references on how to employ this methodology. This was an important area to review as though there was not much authoritative literature on this very specific inquiry, it did provide a background and rationale for the illustrative example of a qualitative follow-up study. A brief examination of an existing follow-up study with regards to its generic form and content was also made. A study on the

federally-funded Follow Through Project was used to present and briefly examine the methodological components of a follow-up study.

The last section of this third part concluded with a look at the elements of follow-up study methodology (e.g., the differences between follow-up and other post-project studies, the ethics and importance of obtaining a representative population sample, and the issues of consistency in analyzing the data).

The next chapter will describe the procedures used to satisfy the aims of the dissertation study. Methods for selecting the population to be studied, data collecting procedures, and questionnaire/interview instrumentation will be discussed.

C H A P T E R I I I
R E S E A R C H M E T H O D O L O G Y

I n t r o d u c t i o n

This chapter on the methodology utilized in the dissertation will cover several topic areas. It begins with a section on the rationale for the study, discussing its background and perspective, and outlining its several foci as well as the modes of inquiry. The next section looks at the process of selecting an appropriate inservice program example for the illustrative follow-up study. This discussion includes both a synopsis of the actual components of the inservice project and a discussion of why it was appropriate for the illustrative study. The third section discusses the research population used for the study. Aspects concerning the sampling and recruiting of participants are explored in some detail. The final section of the chapter concerns the processes and instrumentation used with the data collection for this dissertation study. Some of the topics looked at are: basic methodology, the interview guide instrument, and an introduction to the data analysis that will be more fully discussed in

chapter four. The chapter concludes with a brief summary.

Background and Perspective

The intent of this dissertation study is to conduct an in-depth investigation concerning the appropriateness of the application of follow-up studies within the field of education. The modes of inquiry employed in the study were: the traditional library review of the literature, and the more unique mode of actually conducting a follow-up study. This study proposes the examination of this problem through a documentation of the processes involved generated by conducting an actual, illustrative qualitative follow-up case study. The primary focus is the documentation of conducting a follow-up study, particularly its theoretical point of view, and methodology. This documentation was undertaken to: 1) determine the participant's perceptions of their experience and role in the course of a follow-up study; 2) better understand what the appropriate and important component procedures are in conducting a qualitative follow-up study; 3) determine what the major factors, limiting conditions, and types of problems are that

arise in the course of conducting and documenting a follow-up study; 4) find some advantages of conducting qualitative follow-up research studies in the field of education; and 5) make recommendations regarding its utilization in future studies.

The Selection of the Illustrative Follow-up Study:
"Environmental Education in the 1980's."

After the primary focus for this dissertation had been developed, it was then necessary for this researcher to locate an appropriate inservice project on which an illustrative qualitative follow-up study could be conducted. Environmental education had long been a topic of interest to this researcher. In addition to having done volunteer work in environmental education with elementary school students, the researcher wrote two comprehensive exam papers during the 1983-84 academic year. The first paper was a review of the literature concerning the historical perspective of the environmental education movement in the United States from the 1700's through the 1970's. The second paper dealt with environmental education in elementary school populations. The two detailed case studies examined community-based environmental education center

- school programs; and school-based environmental education center - classroom programs.

In the course of conducting the research for these papers, a 1977-78 inservice project for teachers interested in integrating environmental education into their classrooms and curriculums was discovered by this researcher. This inservice project, "Pre-College Teacher Development in Science Program for Environmental Biology and Societal Effects" (Lockwood and Konicek) was funded by the National Science Foundation (#77-14705) and was held at the University of Massachusetts (Amherst) from August 1977 through September 1978. This informal, inservice training program was designed to help elementary classroom teachers develop a general content knowledge and methodological base by improving classroom teacher competencies in environmental education.

This inservice project was appropriate for the illustrative study documenting qualitative follow-up methodology because of: its medium size, its accessible participant population, its geographical area, an informal teacher-adaptable curriculum, current, continued links with the sponsoring university, and interest to the researcher. After the researcher and

faculty advisors agreed that this project was suitable, a working draft proposal was written. Important sections relevant to the primary focus of this dissertation have either been excerpted in their entirety from the proposal or integrated directly within the context of the larger primary study on qualitative follow-up methodology. The complete working proposal is also available for review (see selected bibliography).

A unique aspect of this illustrative follow-up study "Environmental Education in the 1980's", is that it provides an external examination of an environmental education inservice project. Research by Childress has shown that this is the exception, rather than the rule with regards to evaluating these types of programs:

More [environmental education] programs and projects are evaluated internally by program and project personnel than externally by non-program personnel. (1977 p.116)

For the purposes here, the focus of the illustrative qualitative follow-up study was whether the new ideas and innovations implemented or adapted by the teachers involved in the inservice project were still continued by them over a period of six years. Of additional interest was identifying the pressures or constraints that either helped or hindered these

teachers in continuing. The purpose of the illustrated follow-up study was thus two-fold:

1. To determine the importance and significance of the long-term residual impact and effectiveness of a NSF inservice training project on the teacher's teaching of environmental education when compared to a similar comparison group of teachers, randomly selected from outside the original group.
2. To identify those constraints and pressures that the teachers perceived either facilitated or hindered their ability to continue to develop, incorporate, implement, or integrate, environmental education in their teaching and classroom curriculums. (Dissertation proposal Appendix, 1984 p.A-5)

Because of the complexity of doing a study within a study, this dissertation is somewhat unique. It is important to keep in mind that the primary study is concerned with the documentation of the processes involved in doing a qualitative follow-up research study in order to determine their effectiveness and to make recommendations for future studies within the field of education. The design of the secondary, illustrative, follow-up case study is a working example of an actual study, but not the primary focus of the dissertation.

A Description of the Original NSF Inservice Project

The original project, Pre-College Teacher Development in Science Program for Environmental Biology and Societal Effects, was funded by the National Science Foundation. The broad goal of this inservice project was to "improve teacher competencies in environmental [science] education", to have them develop knowledge in the environmental subject area and learn general adaptive behaviors which would enable them to introduce such content into their classrooms and schools.

Teachers enrolled in the project came from a nine-town, six-school district located in rural northwestern Massachusetts where most of the classes and field trips were conducted by a five member team from the University of Massachusetts at Amherst. The teachers were "provided with knowledge in the subject content and learned behaviors which enabled them to introduce such content into their classrooms and schools". Project objectives were as follows:

1. To provide learning opportunities which concentrate on and utilize as an environmental biology laboratory the community in which teachers and students live.
2. To stimulate interaction among University scientists and elementary teachers in a

multidisciplinary approach.

3. To coordinate local school and community resources with University resources and direct them toward a community program.
4. To develop teacher competence in environmental biology content and methods for involving students in this content.
5. To sustain school district administrative and resource commitment to the project so that subsequent support will be available to teachers upon project termination.
6. To provide University credit as a motivational device for teacher improvement.
7. To provide opportunities for teachers to develop materials in environmental biology specific to their curriculum and relevant to educational programming in their schools.
8. To perform formative evaluation so that teacher needs are identified early in the project.
9. To introduce group communication among teachers in which experiences are shared and problem-solving is undertaken.
10. To assess project achievements, including potential for implementation by teachers in the schools, and the need for follow-up support.

Five staff members were directly involved and delivered the original project during 1977-1978. With few exceptions, all staff members attended and actively participated in the twenty planning sessions, all classes, all post-class debriefing sessions, and preparation of the final report. This high level of

commitment and participation complemented the rich diversity of professional background and experience, and was of primary importance in the successful delivery of the project.

The recruitment for the original project was essentially organized through the Teacher-Community SEED Center and the Office of the Superintendent in the six-school district, with follow-up by the project team. All principals at the five grade schools and one secondary school were personally contacted. To ensure full enrollment, other channels of communication were utilized including distribution of the project description to teachers through school mail and publication of two news releases. There were twelve participants in the project from the elementary schools. Of these, most had between five to ten years teaching experience; the remainder was evenly split among those with less than five or more than ten years. The majority of all these teachers had non-science college degrees with just a few having degrees in Science (eg. physics, geology, biology, etc.).

The original project had two sequential phases. The first phase was the Academic Year Session which consisted of fourteen classes at the University of

Massachusetts at the Amherst campus. These classes were an assortment of lectures, discussions, and workshops held during the Fall and Spring semesters. The second phase was the Summer Session which concentrated on the development of field activities for and by the participating teachers. At the participating teachers' request, the summer workshop schedule was an intensive experience; it consisted of twelve, four-hour meetings. Every participating school site was utilized. Each morning, specifically prescribed activities were completed. These ranged from subject area concept lessons to taking local field trips. Usually after lunch, pairs of teachers returned to their own school sites and spent the afternoon meetings developing a lesson/activity which further explored the morning's concepts, but which was appropriate for their particular site and grade level. The project formally concluded in August of 1978.

This innovative project, "Environmental Biology and Societal Effects", attempted to impart the knowledge and skills essential to the integration of environmental education into the classroom curriculum. The participants studied ecological principles, applications in their community and school surround-

ings, concepts such as developmental theory, and relevant curriculum development. The classroom and field conditions were structured to provide for role relationships, among both teachers and the team, that would effect involvement, interaction, and interdependence. The intended outcomes of the teaching/learning experience included some degree of internalization on the part of the teachers enrolled, and the practice of behaviors which were modeled and emphasized, beyond the time frame of the project--and into the future; thus, attitudes and values, as well as the potential for change in the classroom and the school were also explored.

This environmental education inservice project from 1977-78, is appropriate for a follow-up study. At the time, all of the teachers that participated in the original study felt that it was important and necessary to develop the knowledge base and curricular and instructional methodology to meet, and continue to meet, the needs of their students and the future society over the long run. However, many teachers who did not participate in that study back then, also felt and continue to feel a similar degree of importance in developing the necessary knowledge base and methodology

to meet the needs of their students. For this reason, a similar group of teachers from the same school district were selected to comprise a comparison group. The illustrative follow-up study looks at both of these groups of teachers in the context of the 1980's, finding out how they are currently incorporating environmental education into their classrooms. Their reasons for continuing or not continuing to do so, due to various constraints and pressures, may hold valuable information and recommendations for those who design inservice projects and for those school administrators who must sustain them.

Research Population

Sampling

It is of paramount importance in any research study, but most of all in an illustrative follow-up study, to have a representative sample (Hoffman, 1982). The major purpose for having a representative sample is to allow the researcher to make statements about the population of interest without actually obtaining data on all the people in that population (Pedulla and Airasian, 1980). Sampling has the following advantages over a complete count of the population: 1) it is less

costly; 2) it reduces manpower requirements; 3) information can be gathered more quickly; and 4) more comprehensive data can be collected (Slonim, 1978). A good statistical percentage of participants for a follow-up study is approximately forty to fifty percent of the original group of teachers (Rife, 1984).

A sample population was selected and recruited from the original study by written invitation from the researcher to participate in this follow-up study. There were twelve elementary school teachers who completed the entire original inservice project consisting of coursework during the school year and an additional summer workshop component. Of these teachers, five had either moved away from the area or had left teaching and the other two were unable to participate because of time constraints. The remaining five teachers all agreed to participate in the follow-up study. In addition, an equal number of elementary classroom teachers from the same schools in the district who did not participate in the earlier inservice program were selected to participate in this study as a comparison group. The next section provides a more detailed look at the actual selection process for the study.

Recruiting Activities

One of the greatest difficulties inherent in doing a follow-up study is being able to contact and connect with a representative sample from the original group of participants after a break of several years. In conducting the illustrative follow-up study one of the greatest challenges facing this researcher was making initial contact with as many as possible of the teachers from the original 1977 inservice project.

A strategy was developed in May of 1984 that would enable the researcher to contact as many original participants as possible using a low-key approach stressing the legitimacy of the project and the importance of their participation. The hope was that they would participate for personal, altruistic, or professional humanitarian-ecological reasons, not just out of a feeling of obligation or because they were bored. A sincere effort was made to keep all communications cordial and participants were continually aware that their participation was voluntary. The mailing list was generated from a listing of participants from the original project's final evaluation report.

An introductory form letter was developed and sent out to all the original participants from the elemen-

tary schools in the nine town, six school, rural northwestern Massachusetts school district on June 13, 1984. This letter (Appendix A-1) contained a summary statement regarding their participation in the original 1977-78 NSF inservice project. It then described the rationale for this dissertation study as being a part of the researcher's doctoral work. The letter continued with a statement of the purpose for this study including the methodological approach to be used. Their participation was stressed as being crucial for the follow-up study to be comprehensive and significant. A descriptive breakdown of the tentative schedule was also provided for the remainder of the Summer and upcoming Fall school year. This initial letter concluded with a paragraph describing the researcher's previous background in education as an elementary school classroom teacher and a principal. The researcher's home and office addresses and phone numbers were included in order that teachers could address questions or concerns to the researcher. Each mailing included a pre-addressed post card for the teachers to return which would indicate their participation status and relevant background information (e.g. current and past grade/subject assignments;

why/why not they would participate in the study; and any comments/questions).

A second letter was mailed out to all those teachers who had not returned their postcards on July 11, 1984. This follow-up letter (Appendix A-2) started with a similar introduction as in the first one. However, this letter differed in the text of the second paragraph in two important ways: 1) by mentioning that interested teachers who wanted to participate could, regardless of whether or not they actually had been integrating environmental education within their classroom since 1978, and 2) by defining more specifically the commitment of time and travel required for this study. The teacher's participation consisted of a singular, hour-long interview scheduled at their convenience at a site that they selected. This second, follow-up letter concluded with an appeal for them to participate or, in any event, to return the enclosed postcard regarding their participation status.

The scheduled mailings for the study with regards to the early identified participants began during the late part of the Summer. On the 30th of July, a follow-up informational letter (Appendix A-3) was sent to those teachers who had returned their postcards

noting a willingness to participate, to confirm their role in the study. This letter thanked each teacher personally for volunteering to be a part of the study, confirmed their participation, and outlined the upcoming mailings and activities.

The next letter sent out three weeks later in August, summarized information about the original 1977-78 NSF inservice project. Included with this information were some background materials regarding the upcoming interview later in the Fall. This thirteen-page letter (Appendix A-4) gave a description of the original inservice project including its goals, its philosophical and methodological frameworks, as well as a short synopsis on each of the twelve classroom-workshop meetings. The major reason for the same summary information being sent out to each of the participants was to give each of them a common base or thread of refreshed knowledge and information from which to start the interviews. This was designed to decrease the amount of importance that personal discrepancies in recall ability might have held, thus lessening the focus on what the participants remembered and what they could retrieve versus the changes in their teaching/curriculum occurring since that original

project. The background materials that were included also helped to ensure a productive interview session by letting the participants know the schedule, topics, and focus of the session as well as decreasing any anxiety that the participant may have had of fear of the unknown. Included in this packet of information was a brief outline of this researchers' Fall schedule along with a pre-addressed postcard to mail back detailing specific dates and times they were available for the interview session.

Upon receiving the postcard detailing the date and times that the participant was available, a confirmation letter was sent out by return mail setting up an interview meeting. This letter (Appendix A-5) included a reminder for the participant to review the background materials that had been previously sent. In addition, enclosed with the confirmation letter was a very brief personal background survey/questionnaire (Appendix B-1) for the participant to fill out prior to the interview session.

During the month of October, a letter (Appendix A-6) was sent to the Superintendent of Schools of the same rural school district asking him for permission to select five or six elementary school teachers to

participate as a comparison group in a follow-up study. A pool of teachers was selected by the building principals to participate in a study concerning an "undisclosed curriculum area". From this pool selected teachers another group was selected out and telephoned to invite them to "participate in a follow-up case study to an earlier 1977-78 NSF project". Because this was a comparison group, no mention was made of the environmental educational nature of that original study. The importance of their participation was emphasized and the tentative schedule for setting up an interview was also discussed. The conversation concluded with a description of this researcher's background in education as both an elementary school classroom teacher and a principal; the researcher's address and phone numbers were offered so that they could call about any questions or concerns in the future.

Each of the five teachers who agreed to participate in the comparison group received a letter (Appendix A-7) during November or December that included a pre-addressed post card for them to return stating a convenient time and place to be interviewed and any further comments/questions. At the time of the

interview they were given the same brief background questionnaire/survey (Appendix B-1) that the other group had received earlier and were asked to mail it back when it was completed. The reason that this comparison group did not fill it out prior to their interview was because it may have given them clues to the nature of the curriculum area about which they were going to be interviewed.

In January the final mailing (Appendix A-8) was sent out to all of the participants in the two sample groups. This mailing included: 1) A letter thanking the teachers for their helpful participation in the study and letting them know how the study progressed; and 2) A participant reaction survey (Appendix B-2) for them to complete and return using this descriptive definition of a follow-up study:

Follow-up Study- 1. a) a study made in order to appraise a program; b) a study conducted to obtain ideas for improving a program; c) to add to the effectiveness of a program by doing further study. (Good, 1973 p.565)

This brief questionnaire was a very important data collection instrument of the study. It asked each of the participants validating questions concerning their own participation in the illustrative follow-up study; (e.g., had they ever participated in one before? their

perceptions of their role? their feelings concerning participation? ways that they benefitted from the experience? and any other further comments). This final activity concluded the participation for all the teachers in the illustrative follow-up study.

Recruiting Limitations

Every effort was made to include a large number of teachers from the original in-service project in the sample. However, those teachers who were no longer currently in the teaching profession, or those who had left the area school system and were teaching elsewhere in the state or country were not included in this follow-up case study. There were two major reasons for this: 1) because aspects of this follow-up study deal with current constraints and pressures with regards to the teaching of environmental education, teachers no longer teaching were inappropriate to the objectives of the study. And, 2) because the study was dealing with a sample of teachers from a specific socio-economic and geographical area, teachers who had moved away and were teaching in a different locale with a different population of students and a different set of circumstances were no longer relevant to the purposes of this study. Thus, the final sample size was five teachers

from the original inservice project and five teachers for the comparison group.

As will be more fully documented and analyzed in chapter four, not all the participants responded quickly to the mailings and follow-up phone calls as described above. Some of the potential participants needed a much more personal approach and persistent encouragement. These efforts included personally tailored letters both to their schools as well as to their homes. In addition to these supplemental personalized letters, follow-up phone calls were also made to many of the potential participants. These calls were made to both their schools and homes not only to further encourage them to be a part of the study, but to also answer questions, provide additional information, and give the recruiting process a more personal touch. For these reasons the originally proposed interview schedule was not always met.

In this follow-up study, most of the attempts to get the participants in either group to return the interview confirming postcards or questionnaires consisted of stressing the importance of their participation, the legitimacy of the project, the amount of time they would be committed to, and of

reassuring them of their anonymity. For the most part, those receiving follow-up calls or letters indicated that they had either forgotten about, misplaced, or wanted some clarification about the item that was to be mailed. Misplaced items such as appointment postcards or background questionnaires were replaced with new ones. When participants were confused by questions, the researcher explained them. Those who felt they did not have the time to fill out materials completely were allowed to be more brief. Because of these types of difficulties, deadlines were often extended.

Participants seemed to appreciate being an important part of a serious study. No participant ever complained of any pressure or expressed annoyance; in fact, this researcher was often complemented on his "perseverance and tenacity" in getting teachers to participate. Other researchers who have conducted follow-up studies have found that most participants who are lost in follow-up studies are probably lost not because they are against participating but because of a lack of effort on the part of the researcher. For example: 1) an insufficient effort was made to locate the participants; 2) the researcher did not take the time to make sure that the materials arrived; 3) little

effort was made to remind them about returning forms; 4) there was too little time available for questions about the study; 6) subjects did not have enough motivation for participation; or 5) little was done to ease their cooperation by flexible procedures (Hoffman, 1982).

Data Collection and Analysis

The Interview Guide

The stably-focused singular interview instrumentation guide for the session was designed and developed in conjunction with the co-director of the original environmental education inservice project. Additional help was provided by the University of Massachusetts School of Education--Research, Evaluation and Statistical Services.

The interview guide is a series of questions that is explored in the course of an interview. It is developed to make sure that much the same information is received from all the participants by covering the same material each time. Another advantage of an interview guide is that it is efficient in using the limited time by being focused. Patton describes it as such:

The interview guide provides topics or subject areas within which the interviewer is free to explore, probe, and ask questions that will elucidate and illuminate that particular subject. Thus, the interviewer remains free to build a conversation within a particular subject area to word questions spontaneously, and to establish a conversational style- but with the focus on a particular subject that has been predetermined. (1980 p.200)

The initial step in designing the comprehensive qualitative interview tool was a through reading of the original project's evaluation report Pre-College Teacher Development in Science Program for Environmental Biology and Societal Effects. From the reading and study of this report a list of some eighty general and specific interview questions pertaining to different aspects of the original project were generated. These questions were then grouped in ten broad categories and narrowed down to fifty-six. The list of questions was then expanded to reflect additional project practice profiles, and other topics to increase its content validity. In its final draft form there were ten broad categories and sixty-eight open ended questions. For application in the illustrative follow-up study the interview guide consisted of just nine categories and thirty-five stably-focused questions (Appendices B-3, B-4) because of the time limitations of the singular session format. As is

characteristic with this particular qualitative interview tool, it was continuously pre-tested, updated, and refined in the field as a result of its increased utilization and input from participants.

The Interview Sessions for both Sample Groups

A majority of the data collecting sessions occurred during the months of October, November, and December. These sessions took place in one of three different local settings: 1) the participant's own home, 2) the participant's classroom/school, or 3) another place that was convenient for the participant. These illustrative follow-up interview sessions focused on: 1) how and what the teachers were originally teaching or implementing with regards to integrating environmental education at the time of the original NSF inservice project; 2) what they were/are currently doing in this subject area; 3) how and why they/this has changed during the last six year; 4) whether the new ideas and concepts once implemented or adapted by the teachers involved in the inservice projected were still being continued by them over a period of six years. In addition, what were the pressures or constraints that either helped or hindered these teachers in continuing? These open interview questions

were all within the context of teaching in the 1980's as opposed to the 1970's when the original inservice project was held.

Methodology

The methodologies employed in this dissertation study were dualistic, reflecting the different tasks of the primary and secondary studies. For the illustrative example of a post project, follow-up study, the specific qualitative methodology utilized was a modified, interview guide approach (Gordon, 1975). This qualitative, stably-focused singular interview guide instrument gave the researcher considerable flexibility to pursue a range of topics and offer the participant an opportunity to shape the content of the interview (Bogdan and Biklin, 1982). Second, there was also the ongoing concurrent documentation of the processes and procedures involved with conducting the illustrative follow-up study through an anecdotal field report.

The actual data collection methodology for this dissertation study was two-fold. The technique used in the illustrative qualitative follow-up study was formal interviewing and the compilation of information in conjunction with the stably-focused interview guide.

This approach, through open-ended questions (see subsequent section on interview guide), was focused around nine particular topic categories and guided by thirty-five open ended questions (Metton and Kendell, 1946). These data largely consisted of the narrative descriptions from teachers about the events taking place within their classrooms, their curricula, and any other pertinent interactions. In preparation for this follow-up study, this researcher had already had some training and skill development in this technique, as well as having developed a knowlege background through a recent review of the literature concerning qualitative interviewing methodology.

Concurrent to that data collection process there was also the ongoing documentation of the different activities and procedures involved with conducting the illustrative follow-up study through the keeping of anecdotal field records. Field notes contain the description of what has been observed. They consist of everything that the researcher believes to be worth noting (Patton, 1980). These field notes were made both during and after the participant interviews as well as after other important follow-up study procedures.

Procedures

In the actual recording of the data, several procedures were used in conjunction with one another. Each interview was tape recorded and subsequently transcribed. Also, during the interview itself, the researcher was taking fieldnotes concerning the body language and other non-verbal communications, as well as spontaneously developing appropriate questions building upon the responses of the participant.

To gather the evidence to complete the aims of this qualitative follow-up study, the following data were collected and analyzed:

1. A brief personal background information survey was completed by all the study's participants concerning their background in teaching and environmental education; and basic demographic information. (Appendix B-1)
2. A comprehensive thirty-five item interview guide was developed and pretested by the researcher and was given to the elementary classroom teachers from the original NSF inservice project who were located and who agreed to participate in this study. (Appendix B-3)
3. This same comprehensive interview tool (alternate wording) was given to the group of selected elementary classroom teachers from the same schools who agreed to participate in this study as a comparison group. (Appendix B-3)
4. Some on-site classroom visitations, and examination of teacher-prepared environmental education curricular materials illustrated the

long-term effects of inservice on their teaching or curriculum.

The following additional sources also provided information for the study:

1. A brief questionnaire/survey concerning the participant's own reactions and perceptions about participating in a follow-up study. (Appendix B-2)
2. The project final evaluation report, Pre-College Teacher Development in Science Program for Environmental Biology and Societal Effects (Lockwood & Konicek, 1978).
3. Conversations with the project codirector.

Data Analysis

The actual analysis of the qualitative data from the two studies was not balanced or equally applied as will become clear in chapter four. An effort was made to go through all the steps and procedures of conducting a qualitative follow-up study to understand this specific kind of research methodology better. However, the analysis of the data from the illustrative follow-up case study on environmental education in the 1980's, was not exhaustive, but rather cursory, as it is only the secondary focus of the study. The analysis will be limited, just comprehensive enough, to tease out issues and document component procedures inherent in follow-up studies. This researcher accepts the fact

that though rich data are available, they will not be extracted given the major focus of this study.

The bulk of the analysis entailed a thorough examination and discussion of the experiential data collected and documented with regards to the processes, procedures, conditions, and limitations inherent in conducting qualitative follow-up case study research. This analysis in chapter four will attempt to address four of the research questions presented in chapter one that guide the purpose of this study:

1. What are some of the long-term or residual effects that the prior inservice experience had on the teaching behavior of environmental education curriculum area over a six year period as indicated by the illustrative follow-up study?
2. What are the participants' perceptions of their experience and role in the course of a follow-up study?
3. What are the appropriate and important component procedures for conducting a qualitative follow-up case study?
4. What are the major factors, limiting conditions, and types of problems that arise in the course of conducting and documenting a follow-up study that affect the nature of this kind of research? What do these data provide about conducting follow-up studies in the field of education?

The remaining two research questions will be dealt with in chapter five. They are:

5. What are some advantages of conducting

qualitative follow-up research studies in the field of education?

6. What are the recommendations and possible implications of follow-up studies on the design of future inservice projects and post-project studies in education?

Chapter Summary

This chapter on methodology covered several topic areas. The chapter began with a section on the rationale of the study, discussing its background perspective, modes of inquiry, and dualistic nature. The following section looked at the process for selecting an appropriate inservice project for the illustrative follow-up study example. This discussion gave both a brief synopsis of the actual components of the inservice project and reasons why it was appropriate for the illustrative study. The third section discussed the make-up of the research population used in the study. The sampling and recruiting activities were also described. The chapter concluded with a section on processes and instrumentation involved with the data collection for this dissertation study. Some of the topics discussed were basic methodology, the interview guide instrument, and an introduction to the

data analysis that will be more fully discussed in chapter four.

The next chapter will address the research questions which guided the purpose of this study. It will present and discuss some findings of the illustrative follow-up study as well as the introduction and interpretation of the data pertaining to documenting the processes inherent in qualitative follow-up study methodology.

C H A P T E R I V
PROJECT DESCRIPTION AND PARTIAL ANALYSIS OF DATA

Introduction

This chapter presents and analyzes the data obtained in the course of this dissertation. It examines the processes, accompanying issues, and problems in conducting qualitative follow-up studies within the field of education. This examination employed two major modes of inquiry: 1) the literature search and analysis discussed in chapter two; and 2) the unique mode of conducting an illustrative follow-up case study, the methodology of which was described in chapter three. Data from both the illustrative field study on "Environmental Education in the 1980's" and the larger study documenting the processes and problems inherent in qualitative follow-up case studies will be discussed in this chapter.

As presented earlier, this researcher performed all the processes and procedures necessary to understand this specific type of qualitative follow-up research, but will only provide a limited data analysis of it as it is not the primary focus of the dissertation.

In this chapter, four of the six research questions initially developed and presented in chapter one (pp. 12-13), provide the structure and framework. Data have been organized according to these four questions. Questions five and six will be discussed in chapter five as they relate more to implications and the drawing of conclusions than to the analysis of data. It is the intent of this researcher to describe and inductively analyze these research questions in light of the data and actual outcome of the two studies. Thus, the first section of this chapter will give an overview of the illustrative follow-up field study, "Environmental Education in the 1980's" from its inception in May of 1984 to its conclusion in January of 1985. The aims and structure of the study will be presented along with the teachers' participation and commitment, providing context for the discussion of the research questions in the subsequent section.

Description of the Illustrative Follow-up Study

The aims of the study

Many of the environmental issues, concerns, and crises of today are much less visible, more subtle, and even in some cases more deadly than ten years ago. At

the same time many of these same issues, concerns, and crises are more local now in that they directly affect the smaller communities (the contamination of their food by locally sprayed pesticides, the quality of their drinking water, etc.). However, although environmental education is now as important as ever, there are presently few resources and support programs for the interested classroom teacher. There are more pressures and constraints (sociological, ecological, economical, political, educational) on the teacher in the context of the pragmatic period of the 1980's than during the 1970's.

Given these conditions, a fundamental question is whether new ideas and innovations, developed and implemented by teachers through inservice projects are sustained by those same teachers in their classrooms over a period of time. Related to this is looking at the teachers' experiences in terms of those who implemented the same curricular additions both with and without the benefit of the inservice training. A most significant focus and a central aspect of the illustrative study is examining the long-term residual effectiveness, reinforcement, and validity of an inservice program on their teaching. How did the

inservice project interact and impact these teachers in the "real" world of their teaching in the classroom over a period of five years?

A great majority of schools today have funds for inservice programs to improve both curricula and classroom instruction. There are a number of different types of inservice programs ranging from the "hit and run" one-shot workshops to year-long courses with a summer session components. It is important to examine the long-term "staying power" or residual effects of inservice programs so that school districts can assess whether funds spent on inservice are accomplishing their curricular goals over the long run (Wade, 1984). For example, is it adequate that only a few teachers become excited about adding a new subject area or instructional methodology and attempt to implement some changes over a short, or a long period of time? What are the constraints and pressures that affect the long-term commitment to curricular and instructional changes?

This illustrative follow-up study examines how an inservice project interacted and impacted upon participating teachers in their teaching over a period of five years, as contrasted to a comparison group of

teachers who did not go through the inservice training project. The study also provides important data concerning the research questions of the larger dissertation study.

The "Pre-College Teacher Development in Science Programs for Environmental Biology and Societal Effects" inservice project of 1977-78, was an appropriate choice for this retrospective follow-up field study examination. This follow-up study examines both the original participant group and the comparison groups in the context of teaching in the 1980's. It seeks to determine which teachers are still incorporating environmental education into their classrooms and who is not, as well as to look at their reasons for continuing or not continuing to do so, due to various constraints and pressures. Studying the teachers focuses on what long-term effect the inservice project experience has had on them in spite of competing pressures and constraints currently present in their teaching. This illustrative follow-up study may hold valuable information, offer recommendations, or influence those who design these types of inservice projects in the future and for school administrators who must sustain them.

The structure of the study

Once an appropriate inservice project had been selected as the subject for this qualitative illustrative follow-up study the next step was to assemble the two groups of the participants. The selection and recruitment processes for both the original participant group and comparison group have already been discussed in chapter three. After the participants had read and returned their "Participant Consent Forms" they were asked to complete an initial background survey. This survey provided the researcher with data concerning demographics, classroom teaching experience, and information concerning the integration of environmental education in their curriculum.

The structure of the interview itself was kept constant in terms of procedure and format although the location for each interview was varied. Of the ten interview sessions conducting during the autumn of 1984, all but three were held in the teachers' own classroom; two were held at the teacher's home; and one was in a neutral location (a local school). Each session began on time and in the same way with brief introductions and "small talk". The researcher provided some refreshments to help contribute to a more

warm and relaxed feeling on the part of the participant. This also shifted the focus a bit and allowed the researcher to set up the necessary materials and equipment (notebooks, tape recorder, (when permissible) etc.) without causing any further undue anxiety. After a few background statements stressing the confidentiality of the content, answering any last minute questions, and letting the participant know that he or she could take a break at any time, the interview began.

Every teacher was asked each of the thirty-five open-ended questions from the nine categories of the open-ended qualitative instrument guide in a similar manner, however the time for each "hour" session varied. The length of time it took for each interview to be conducted was between forty minutes and an hour and forty-five minutes. The interviews with the teachers who participated in the original 1977-78 NSF inservice project tended to be longer, more focused, and more detailed than that of the comparison group of teachers. Verbatim transcriptions of the interviews varied in length from ten to eighteen typed single-spaced pages. However, variables such as the rate of the individual's speech and ability to stay on the

subject within the boundaries of the questions may have accounted for the length or brevity of the interview and its subsequent transcription. A discussion concerning the findings of the interviews will occur in the section pertaining to the analysis of the research questions. At the conclusion of the interview each teacher was given an opportunity to give feedback on the process. Very few teachers from either of the two groups took advantage of this opportunity.

The last structural component of the study was the participant reaction survey. This survey was sent out to all the participants after completion of the interview. It gave an operational definition of a follow-up study and asked a series of questions regarding the participants' perceptions, reactions, and comments to having participated in a qualitative follow-up study. A more complete discussion concerning the findings of this survey will occur in the section pertaining to the analysis of the research questions.

The Participating Teachers and Their Commitment to the Study

A profile of the participating elementary teachers in the follow-up study reveals interesting data about the two groups of the sample. The teachers in both

groups had homerooms and taught in grades kindergarten through sixth, with the majority teaching in the upper grades. The group of teachers that participated in the original NSF inservice project ranged in classroom teaching experience from eight to twenty-one years, with the average being about thirteen years. The comparison sample similarly ranged from seven to twenty years, with the average being about twelve years of classroom experience. The average number of years of classroom teaching experience for the sample as a whole was quite similar--twelve and a half years. Not all of the teachers had started out their teaching careers as elementary classroom teachers. One had a background in special education, another in art, another in Title I, another at the secondary level, and one as a part-time curriculum consultant in science. Both sample groups' teaching responsibilities reflected a grade distribution of third through sixth, since the 1977-78 inservice project. Their current grade level assignments for the 1984-85 school year were also evenly distributed between grades three through six, with the exception of one teacher who taught kindergarten in the mornings and the older grades social studies and science in the afternoons. Except

for this one teacher, all the participants were responsible for teaching all the subjects to their students but Art, Music, and Physical Education.

In terms of background demographic information, ninety percent of the participants ranked themselves as coming from the middle class. The distribution of the geographical areas where they grew up was identical for both groups. Almost all of the participants grew up in either a suburban or urban location. This reflects a movement from the more suburban-urban environment where eighty percent of the teachers grew up to the more rural one where they now teach. Their current residences were also very similar in location; that is, seventy percent of them currently live in the rural areas adjoining their rural schools.

There were various ways in which the participants demonstrated their commitment to the study. Throughout the study the participants demonstrated different degrees of congruity between their stated commitment and their behaviors. Certainly the most obvious way was by responding to all the initial correspondance and participating in the study. In some ways the participants' commitment and enthusiasm was evident by the promptness or lack thereof in returning requested

information such as the participant surveys. This was also true in the way in which the teachers scheduled the interview appointment. All the teachers had been given the same information about the length of time that would be necessary for the interview--approximately an hour. The participants who were most actively interested and committed to the study tended to schedule it at a time where they were less hurried or limited. For example, as one participant said, "...after school would be best for me as it would give us a longer period of time and a better opportunity to discuss what I've done in the way of environmental education since the [inservice] project." Participants who were more passive and less committed to the study tended to schedule the interview between two previously structured limits allowing for less contact time; said one, "...my only free time is in the morning when my class is having music."

A more demonstrative indicator was the supportive interest expressed by a participant either orally during the interview itself or written on one of the surveys. For example, one commented: "I enjoyed meeting with you... your method of interviewing was pleasant. You seem interested in a person's response."

Let me know how you make out; I would be interested in reading your paper". The participants who had been the most active in teaching environmental education over the intervening five years, tended to demonstrate a greater degree of commitment and congruity between their stated beliefs and behaviors than did the teachers who were less active.

Results of the Research Questions Which Guided the Purpose of this Study

The second section has been organized according to four of the study's six research questions. Following each research question is the presentation of the pertinent data, its analysis, and relevant discussion. This researcher will also discuss how the data obtained from each research question relate to the primary thesis of this study in relation to the two modes of inquiry employed--the analysis of the literature review and the illustrative follow-up field study.

Research Question: 1.

What are some of the long-term or residual effects that the prior inservice experience had on the teaching behavior of environmental education curriculum area over a six year period as indicated by the follow-up study?

Analysis of this question, as mentioned at the onset of this chapter, will be limited as it is only the secondary focus of the dissertation. Specifically, this brief inductive analysis will only concern those residual effects of the inservice project that helped to enable the teachers from the original inservice projects to continue the teaching and integration of environmental education in face of the constraints and difficulties of teaching in the 1980's.

In discussing this question it is first important to identify some of the major constraints and difficulties in teaching environmental education in the 1980's as perceived by the teachers through a logical analysis of their surveys and interviews. This was done with data from question ten of the initial survey as well as questions from section six of the interview guide. The pertinent data pertaining to each question and its sub-category were isolated from the text of the transcription by computer and then reassembled in a logical framework. A matrix of this data was formed detailing each participant's response to each of the questions as well as giving a summary total.

The single most prevalent factor or constraint regarding teaching environmental education in the

1980's given by the participants was lack of time. All but one teacher mentioned time as a constraint at least once. There was less time for environmental education instruction during the school day currently as opposed to six years ago, even though they saw it as important or more important now. The teachers all felt that they had more teaching demands now than ever before. The following fifth grade teacher's response is typical of the others both in tone and rationale:

Things have been added on so much during the past few years to our curriculum...the more that is added to the curriculum the more that has to leave it. I mean where are the things going to be that were there before you put it in; something has to be pushed out. Now, with the addition of computers each week for all the students, you have computers for a half-hour; library half-hour; creative writing half-hour; along with the daily subjects--reading; math; spelling; handwriting; and you have students that are in programs [special ed., title I] out of the room, too. Not only is there less time to teach everything, there is less time when we are all together as a class.

Another factor related to the constraints of time was the effect upon the teacher's teaching and curriculum of the back to basics movement or other administrative top-down curricular controls. There were various forms of these that effected a great many of the teachers such as: departmentalized curricula (even down to the second grade), administratively designated core curricula, environmental education's

low curricular priority, and the lack of self-contained classrooms. One teacher made the following comment about the relationship between the two:

But the time problem is directly related to the back to basics problem which over the last three to four years has been a real push in our district...to spend more time in certain aspects of the reading and language arts, and math. That's your core right there and whatever time left after you've done that you fit in your music, and your art, and your phys. ed; then ah, you're left with the time that goes to social studies and science ... I think that probably the biggest one [constraint], and again the time and back to basics I see as being directly related to one another, because your science and social studies are left picking up all the leftovers time wise; and then they have to be shared. You only have so much time in the day and you can't keep giving more time to everything because you don't have that time to give.

The third constraint most frequently cited by the participants was the lack of money available for instructional materials and equipment for environmental education. This constraint was often seen within the larger context of being a teacher in a rural and poor school system where; one teacher reported: "Finances are always [a constraint]; this is a very poor district." Another teacher commented, "I know that the school committee just doesn't want to buy books having to do with science, I know that as a fact. They feel that things change so much that there is no use in buying the books."

There were other factors and constraints mentioned by participants regarding the teaching of environmental education. To name just a few: lack of classroom space, inter-school politics, parental concerns, and individual class size and student composition. In summary, aforementioned factors and constraints had a similar common denominator effect for all the teachers; that is, they reported a feeling of frustration. Each of them had made both a personal and professional commitment (by attending the original inservice workshop) to include environmental education within their curricula; and, for whatever their specific reasons, all of the participants had feelings of frustrations in trying to attain that goal in the 1980's. One of the teachers had this to say about her interest level and ability to include environmental education within the curriculum in light of all the constraints:

Well the interest has always been there [since the inservice project]. It is when the time has been a problem, its been more one of frustration than anything... Its just a matter of getting it [environmental education] in as much as I would like to get it in. And unfortunately it deals with the matter of prioritizing, when it seems like this has to be done and this has to be done. Ah, sometimes environmental education ends up a little lower on the list than I would like it to be.

In the context of this background, one can now look at how the original inservice project prepared the teachers and at its long-term or residual effect on their teaching behavior. Although the inservice project was designed seven years ago and could not, and did not, attempt to predict what constraints or factors the teachers would face in the future, the intent was to provide these teachers with applicable and adaptable strategies and content which would always be useful, practical, effective, and successful.

One of the questions from the interview guide specifically asked how effective and successful was the practical application of what the teachers had learned in helping them to attain their environmental education goals over the last six years. The data from teachers demonstrated several things. All but one of the teachers felt that the inservice project had been effective and successful in terms of having a long-term effect on their teaching of environmental education; they reported that the project had given them confidence. Their responses concerning the long-term effectiveness ranged from "generally effective" to "really effective". Comments made by the teachers included: "I think alot of the effectiveness was

because I felt alot more comfortable with doing it...I didn't hesitate"; and, "Well, I think I found so many of the types of things...really effective." The following response from a sixth grade teacher is representative of some of the others:

Well, I would say on the whole it was generally, pretty effective. It gave me more confidence in that what I was teaching was definitely backed up by people in the field... Some classes you can really use alot of the material [from the original inservice project] and really get in to a good program... Because of the problem with not enough time I ended up, even though I had some content and good methodology and stuff for some of these programs, I wasn't able to use it much.

It is pertinent here to look briefly at what these teachers found to be the most useful and practical aspects of the project on their teaching and curriculum development during the last six years. Not surprisingly, for any inservice project, all the teachers found the environmental education content subject matter to be most useful, especially the development and sharing of curricular materials. One of the teachers commented, "The content was useful for me and my own background, and then I could kind of distill it somewhat for the kids... And you know sharing it with colleagues". Another teacher responded similarly:

It was developing units and sharing in the way that we developed the lessons in different areas and sharing them so everyone had a copy. I guess

the curriculum of materials that we each shared, which I still use, was most valuable.

In addition, almost all were in agreement that teaching methodology, strategies, and modeling were equally important. One teacher gave the following statement about what she had found to be the most practical and useful:

A lot of the methods they taught us ... really set things up in my own mind. The modeling of the way to do things was successful and alot more--teaching style. A lot of what they did I would take in ... and modeled some of my teaching after; I used some of the techniques that they did.

Increased knowledge and confidence of environmental education subject matter, and the development of effective instructional methodology were not the only positive residual effects from the inservice project. Another was the development of appropriate values and attitudes; this was an original long-term goal of the project.

A number of the teachers mentioned the values component of the inservice project as the third most useful and practical aspect in its long-term effect over the last six years. One of the classroom teachers put it this way, "The work with values has made me think more about it and then trying to influence the

children or to have them think of their values."

Another of the teachers gave a similar response:

Values and attitudes [of environmental education], I think alot of the values clarification work we did. I wouldn't have known how to go about that without it [the project]. I learned what I learned about teaching values clarification from them and the way in which they presented it... I have used it a lot.

The individual teachers' classroom implementation styles and strategies, even in light of all of the aforementioned constraints and difficulties, reflected the original intent and goals of the project over the long run. As in many inservice projects the teachers were eager to start utilizing their new knowledge and expertise in their own classrooms. One teacher commented, "It is better for me to apply things quickly, almost as soon as I learn it, to reinforce my own memory and content, and learn from my mistakes." However, one novel aspect of this project was its design whereby teachers were encouraged and supported in implementing their knowledge within the classroom on an immediate and ongoing basis. This helped lay the foundation for effective and continuous long-term utilization. One teacher offered an explanation of her long-term success with her environmental education curriculum in light of all the recent constraints:

I think it's developed all along because even when we were taking the course some of our assignments were to go back and use what we had done in the [inservice] class... we were asked to go back and do a similar type of the same activity with our own classrooms. And granted that just was sort of a testing the waters type of thing, but it helped get it started and we built on that... I felt I built on that over the years.

Another key component of the inservice project was to encourage the teachers to see environmental education not as an isolated curricular subject, but as a topic that could be integrated with all aspects of the curriculum. This also had a lasting residual effect upon their teaching behaviors in the classroom; said one teacher, "I integrate it in everything I do [in class], I do it in reading, I do it in writing, I throw it in everywhere; every day I do something." These teachers continue to see environmental education as a process. One teacher said, "I think that it is definitely a growing process and you add all the time. Some things work for you and some things don't of course. I really think that it is a continuous process." Another of the classroom teachers expressed it this way:

I've tried to integrate it [environmental education] as much as I can. We have included it in our social studies, even in our history...it really does come in to play. Like when you talk about the industrial revolution and even just the clearing of the land; I've tried to include it in

that. And recently even in our reading. I also do have independent units like pollution, that type of thing, that we focus on and then other aspects.

In examining some of the long-term effects of the inservice project which helped enable participants to continue the teaching of environmental education in face of the constraints and difficulties of teaching in the 1980's, the follow-up study indicated several things. There were three major constraints that effected the participants' teaching of environmental education: 1) lack of time; 2) the emphasis on "basics"; and 3) lack of finances. However, within this context of constraints the inservice program continues to have a lasting residual effect upon these teachers' teaching behaviors in the classroom; three factors account for this: 1) subject content; 2) instructional methodology used in the project; and 3) attitude and values developed during the project. As one of the teachers commented:

I hope that future [inservice] grants may be constructed so as to benefit rural participants. It did make a difference in my teaching and my life. If only a small percentage [of teachers] really benefitted from the original grant, the ripple effect of our reaching some students would [still] be worth it.

Research Question: 2.

What are the participants' perceptions of their experience and role in the course of a follow-up study?

The data for this question came from both the interview guide and post-interview participant reaction survey. As with the first question, the data pertaining to each of the questions and their sub-categories were isolated from the text of the transcription by computer and then reassembled in an analytical framework. A matrix of these data were formed detailing each participant's response to each of the questions as well as giving a summary total.

None of the participants in this study had ever before participated in a follow-up study of any kind even though some had been involved in teaching and education for over twenty years! It would appear that although classroom teachers are asked to try out new materials and strategies by both commercial concerns and administrators little is done in the way of follow-up study.

The data show three major reasons for teachers participating in this follow-up study: 1) altruism--"I wanted to show my appreciation for the time and effort

showed me... during the original course", and a desire to "help with the student's dissertation"; 2) having been requested to participate--"I was asked by my principal"; or 3) as in the many of the cases, having a genuine interest--"To tell how much of what I learned in the original inservice project was incorporated in my class [currently]," and "I was interested to find out how others were using the original course's material."

The participants' perception of their role in the follow-up study differed markedly between the comparison sample group of teachers and those that were part of the original project six years ago. The comparison group saw themselves as just "one of many test subjects." For example one teacher said, "My role is just one more number in a list of statistics." In contrast, the participants from the original project saw their role as important, "...invaluable because I was a participant in the original project," and "...a source of information on the use of the original course's material in the elementary school." When a constraint concerning actively participating in the follow-up study was cited by a participant, it had to do with the time factor; that is, either conflicts with

scheduling or not having the prerequisite amount of time necessary.

There was, however, little or no difference in the data between the two groups regarding their feelings of anxiety or being relaxed before, during, or after the interview session experience. Within each of the groups only a few expressed that they had felt anxious at the onset or during the interviews, and no one said they felt anxious at the conclusion of the interview.

The experience of answering the interview questions and the conditions limiting the experience were perceived similarly by both of the two groups. Although not all the participants cited limiting conditions, most of those that did said it was because of time. Remarks included: "...lack of time to think about the questions before hand," and "Not being able at the time to think of everything I would have liked to have said." Some of the other limiting conditions cited were having to give oral responses instead of written ones and insufficient background knowledge. All the participants in the follow-up study thought that the interview guide questions were appropriate with more than half of them agreeing strongly. There was similar agreement among the two groups of par-

ticipants regarding the proficiency of their own answers during the interview. The only exceptions were some participants from the original project group who felt their answers were slightly less than proficient. A characteristic comment was, "I felt at the time of the interview that I could have given more thoughtful answers to some of the questions if I had known the questions beforehand."

Some of the most interesting data from the participants' perceptions of their experience in the course of the follow-up study come from their comments about what they had learned or about ways that they benefited from participating and attaching personal meaning to the experience.

For any follow-up study to be comprehensive it needs to involve a large participant sample. One effective way of attracting potential participants is having intrinsic rewards built into the study for the cooperating participants. The analysis of the data from this follow-up study showed that the participants did in fact reap intrinsic benefits from their participation regardless of whether they were from the comparison or original group of teachers. These intrinsic benefits, cited by the participants, were in

three areas. First was the area of professional reflection about the topic of environmental education. Comments included: "It caused me to reflect on my involvement in environmental education over the past six years," "It stimulated my thinking on environmental education," and "It made me think about changes in environmental education at our school over the last seven years."

Second, and related to the first, was the broadening effects gained from participation, effects that lessen the isolation of being a classroom teacher. Some representative comments were: "That other teachers are teaching environmental education under similar constraints," "[The program was] helpful to bolster my commitment to [environmental education]," and "I am happy to know that [other] people are still interested in protecting our environment [through teaching]."

Thirdly, are those miscellaneous benefits that the participants derived through their personalized experience. Some comments included: "I [benefited] from being able to observe some research techniques," and "I learned that not all interviewers are threatening."

The data revealed that each of the teachers felt pleased in varying degrees, to have participated in this follow-up study. They perceived their experience in the follow-up study as being "helpful" "positive" "quite valuable" and "a source of information which may benefit someone in the future." Many expressed a desire to keep in touch with the researcher and find out any results of the follow-up study. Comments included: "Glad to have done it. I am awaiting any conclusions you reach.", and, "I would like to see the results of the follow-up study."

In conclusion, there are many different reasons teachers participate in follow-up studies, and there are probably as many perceptions of their roles and experiences as well. This research question explored some of these elements. The analysis of the data demonstrated that participants offered three basic reasons for being a part of a follow-up study: personal interest, altruism, or being randomly selected. The data also indicate that participants perceive their roles differently depending on whether they were part of a original project group or a comparison group. Time is a constraint throughout follow-up studies with regards to both scheduling and availability. One of

the most interesting factors concerning participation in follow-up studies is the importance of the participant benefiting directly or indirectly from their participation either through intrinsic rewards or through the attachment of personal meaning. Finally, all the participants perceived their participation as being helpful and positive and were glad that they had been given the opportunity to participate. In the words of one of the classroom teachers from the original inservice project:

I am glad that I participated in this study. I enjoyed working with you, think your persistence is amazing, that your method of interviewing was pleasant, and that you seemed interested in a person's response. In life we must grow and to say no, would have stunted that part of me; so this was definitely a worthwhile experience. Let me know what you find out, I would be interested in reading about it.

Research Question: 3.

3. What are the appropriate and important component procedures for conducting a qualitative follow-up case study?

One of the major reasons for doing the illustrative follow-up case study within the larger dissertation study was to give this researcher a practical "hands-on" example of this type of method-

ology in the field of education. The rationale for this unique mode of inquiry is, quite simply, that one can learn more about the important internal component procedures of follow-up studies by actually doing one than, for example, through library research (Reed, 1985). As was shown earlier (in chapter two), there is a real paucity of pertinent data in the current literature concerning the utilization of follow-up studies in education. A simplistic metaphor illustrating this rationale would be that if someone wanted to know what went into their favorite sandwich they would get more insights and data about the ingredients and process if they were to make one themselves rather than by just eating one somebody else had made. Therefore by conducting this illustrative follow-up study this researcher was provided primary data and first-hand experiences to help answer questions concerning follow-up studies and their component procedures.

There are four categories of appropriate and important component procedures in conducting a successful qualitative follow-up case study: 1) Research, 2) Design, 3) Data Collection and Analysis, and 4) Conclusions and Recommendations. Each of these procedures

is made up of other elements. The discussion here will focus upon each of these components and its role in follow-up study methodology.

Research

As with any study in the field of education it is important that the researcher conduct the appropriate background research before commencing with the follow-up study. Initially it is helpful for the researcher to review the academic literature to become familiar with this technique and to read similar studies. For qualitative follow-up studies it is important that the researcher have a basic understanding of the methodology to be employed in the study.

The most important element of this research component is that which is conducted on the subject of the follow-up study itself. This is important regardless of whether the follow-up study pertains to a specific curriculum implementation program, an administrative directive, a specific teaching behavior, or (as in the illustrative example in this dissertation) an inservice training project. The more familiar the researcher is with the original project, the better able he or she is to design a successful follow-up

study that gathers the specific information sought. A detailed research and analysis of the original program or project should focus on four sources of information: 1) the proposal or definition statement of the original topic of study; 2) any interim reports concerning the relative success or difficulties of the training or implementation aspects; 3) the final evaluation report of the original project; and 4) meetings and discussions with the principle investigator, director, staff, and project participants of the original project. This familiarity with the processes and data from the original object of study enables the researcher to start work on the design of the follow-up study.

Design

Design is a most important component of a successful follow-up study, for if the design is faulty the desired results will be difficult to achieve. A major element of a study's design is that of focus. The focal point of the design must be well-defined and understood by everyone involved. This researcher agrees with the literature (Bogdan and Biklin, 1980) that cites the metaphor of a funnel or triangular net as being an effective model helpful in designing a

follow-up study. The model graphically presents the process of refinement and focus. The start of the study is the wide end of the funnel. At this point the researcher explores sources or subjects of potential data and evaluates their feasibility. As the net or funnel narrows, so does the methodology of the study, narrowing down to whom to interview and upon what to focus. The themes of the study and research activity components narrow from a broad base at the beginning to a more specific data collection and analysis component later on.

Subsequent to determining the focus and overall blueprint of the study, the researcher must develop the component elements of methodology and instrumentation. The selection of an appropriate methodology for the study is crucial to its success. For the illustrative study conducted as a part of this dissertation, the most effective and appropriate methodology was qualitative. Researchers must make their own decision based upon the type of follow-up study to be undertaken (its aims, the research population, the length and depth of the study, the content of the questions, and the type of instrumentation to be used in the data collection).

There are two basic techniques for data collection employed in qualitative follow-up studies: 1) interviews, and 2) questionnaires. Each of these has many variations, which because of length and space limitations, will only be discussed here in the broadest of terms.

Many follow-up studies use questionnaires to collect the data. For the most part, open-ended qualitative questionnaires are inexpensive, logistically feasible, quick to complete, and they facilitate data analysis. There are, however, several drawbacks to using them in a follow-up study. The major one is the low return rate from the study participants. In addition the quality of data--especially in an open-ended questionnaire--can be too brief and incomplete either because of space limitations or laziness on the part of the respondent. Also, by depersonalizing the data collection process, the researcher can develop false impressions and perceptions, missing out on important humanistic background information gained through personal contact with the study participants.

On the other hand, although personal interviews can collect more and diverse open-ended information,

they can cost much in money and travel time, be logistically difficult for the researcher, take too long to complete, and produce an overwhelming amount of data that are difficult to analyze. Yet, personal interviewing does provide an opportunity for the researcher to be more inductive in the data collection process and to employ a personalized approach in the research.

Another element of the design component of conducting follow-up studies is defining the research population. In an ideal situation, each of the people who participated in the original program or project would be a part of the follow-up study. Unfortunately this is rarely possible due to any number of factors such as contacting people who have left the field or geographical area, time constraints, or the expense involved. For the researcher to solve this dilemma, the process of utilizing representative sampling is used. There are various ways of sampling that have to do with demographic distributions and an appropriate number of participants. Another factor in sampling is determining whether or not the study would benefit from the inclusion of a comparison group to be contrasted with the group of participants from the original

program or project. The inclusion of this element really depends on the specific focus of the follow-up study as well as the data collection methods employed.

The last, and most important, element in designing a follow-up study is planning a way of getting the projected research population to participate--the actual recruiting of the study participants. To do this the researcher has to develop a strategy for contacting each of the previously designated participants and plan a way to encourage them to participate. This is of course crucially important, for there can be no follow-up study if there are no participants from whom to get data. The strategy usually relies on a series of mailings often in conjunction with follow-up telephone calls in which participants are contacted, told of their importance to the success of the follow-up study, and asked for their cooperation and participation. Often times it helps to encourage participants if the researcher outlines or details what benefits, either intrinsic or extrinsic, that the participant may expect to receive from participating in the study. These can vary, for example, from a better understanding of a teacher's own content area, to some type of waiver or money from the

study's sponsoring institution. Again, this is a determination that the researcher needs to make when designing the follow-up study.

Data Collection and Analysis

Once the researcher has formulated the overall design, selected the type of methodology, chosen the research population, and developed the instrumentation for the follow-up study, then the data collection component can be implemented. The logistics involved with data collection often present the researcher with the most difficult problems especially in the case where qualitative methodology is employed. Two elements of this component that are often the most trying are: 1) formatting, and 2) scheduling.

Formatting refers to the element within the data collection component that has to do with the structuring and content of the questions developed by the researcher for each of the participants. When questionnaires are used, the researcher must decide on the style of each question (open-ended or closed), the number of questions, and the way in which they will be organized. This is very important, as a questionnaire well thought out in terms of content, but poorly formatted, can discourage the participant from com-

pleting it comprehensively or even returning it at all. The content and structure of an interview session is equally important. It must lend itself to gathering pertinent data in as comprehensive and organized a manner as possible without alienating or exhausting the participant. There should be a good blending of both short and long answer questions as well as ones which may be more controversial or personally difficult to answer. The researcher should structure the time of the interview session formally but also keep it low key and relaxed while being an attentive and sensitive listener.

Scheduling involves setting up the dates that the questionnaires both go out and are due in or, in the case of interviewing, when the researcher and the participant meet. There are many external factors that can disrupt the scheduling and thus, have an impact on the follow-up study as a whole. These include factors such as the availability of a participant, school vacations, and irregularities in the mail to mention just a few. The importance of timing is critical to the success of any follow-up study since unrealistic expectations for the participants on the part of the

researcher can cause many problems. The concept of lead time is particularly important.

The collection and compilation of the data are elements that are usually straight forward in the course of conducting a follow-up study. Questionnaires are most efficiently returned, often with some encouraging or reminding, in pre-addressed and stamped envelopes. After they have been received they must be readied for analysis by being compiled, collated, and read. The raw data from the interviews takes one of two forms, either field notes or audio tapes. The data are then further developed through descriptive anecdotal written commentary or verbatim transcription. These data are then further compiled, read, and set to be analyzed.

Data analysis and interpretation are of critical importance to the researcher conducting a follow-up study. The first step, once the data have all been readied, is to construct an analytical framework with which to organize the data. The data, having been organized in this manner, are better able to be analyzed by the researcher. Qualitative analysis of these data often takes one of two approaches: inductive, or logical. Logical analysis of the data

means that prior to the actual data collection and analysis, structures, patterns, and categories were previously imposed. Inductive analysis means that the patterns and themes emerge out of the data. In the latter, the researcher looks for natural variation in the data during the analysis. This allows for greater flexibility in the analysis, the researcher can not only use categories or themes from the original project, but can also develop new ones that may not have been previously apparent that emerge from the data.

Conclusions and Recommendations

Arriving at conclusions and recommendations, the last component of the follow-up study, is a process that contains many of the same elements of any type of research study. The major difference is that in a follow-up study the researcher is usually dealing with a greater set of expectations on the part of those who commissioned the study, (e.g., school board, state agency). This is because the nature of the study has been to actively follow-up on a specific program, project, or set of behaviors. This frequently means that the conclusions and subsequent recommendations of follow-up studies may carry more weight than other

types of studies. For this reason the researcher needs to be clear and specific on what the purpose of the follow-up study is, what or who it examines, and what it actually finds when making any recommendations.

Research Question: 4.

What are the major factors, limiting conditions, types of problems that arise in the course of conducting and documenting a follow-up study that affect the nature of this kind of research? What do these data provide about conducting follow-up studies in the field of education?

This research question encompasses the major intent of this dissertation as stated in chapter one. Why are so few follow-up studies done in the field of education? What are some of the factors that discourage researchers from conducting follow-up research in education? In answering this fourth research question, as with the others, the data have been collected through two principle modes of inquiry: 1) the traditional library search and analysis; and 2) the unique mode of inquiry, the illustrative follow-up study. In exploring what these data provide about conducting follow-up studies in education this two-fold inquiry mode has a distinct advantage. It allowed the researcher to compare the insights and data from the

literature with those in a field diary from an actual follow-up study.

There were aspects in the literature that were both in agreement and disagreement with that which was born out in the personal experience of conducting the illustrative study. For the sake of continuity in the organizational framework, this fourth question will be divided into the same components as were in the previous section.

Research

In terms of research, there are several factors that discourage researchers from conducting follow-up studies in education. The literature search for the illustrative follow-up study failed to provide this researcher with a comprehensive operational definition of such a study. Part of the problem is that there are a variety of terms which are used somewhat interchangeably (e.g., longitudinal, replicative) which are not the same as a follow-up study as defined in chapters two and three of the dissertation.

Related to this problem is finding definitive literature that goes a step beyond definition to describe how to effectively implement and utilize this type of study. Lastly, the researcher had great

difficulty finding other follow-up studies within education that include and model all the prerequisite and appropriate components. This is especially true with regard to conducting follow-up studies employing qualitative methodology. These limiting conditions are such that they may discourage researchers even before they get going. Thus, in the particular case of the illustrative follow-up study used within this study, part of the researcher's motivation was to make an original and important contribution to the literature that would enable future researchers to start off on a more encouraging note.

Design

Designing a qualitative follow-up study presents many difficulties to the researcher. Often new and more innovative designs have to be developed as it is frequently impractical to use classical designs in these types of studies. This researcher agrees with the findings of Stufflebeam, et. al. (1971) that the use of the more traditional experimental designs are too restrictive for use in follow-up studies. The same is true in developing the necessary complementary instrumentation. There is a lot available but the appropriate choices are more difficult when the design

itself has to be more unique and personalized as is the case for the majority of follow-up studies.

A set of improbable conditions effecting this kind of research is the mobility of the general population. Often because of this mobility in both the home and work place, the researcher must work hard to locate potential participants from out-of-date mailing lists, or deal with a smaller research population from which to sample. In the case of the illustrative study, almost thirty percent of the participants from the original population had either moved away to another geographical location, left the field of teaching, or both. Related to this is the frequent lack of continuity, or local existence of the original project's staff. It is hard for researchers to be comprehensive in their follow-up study if the original project directors and research staff are not still at the same place or have changed their professional focus. Fortunately that was not the case with the illustrative study, as both codirectors were on campus.

The sampling and recruiting of the research population participants also presents a series of difficulties to the follow-up study researcher. Once a person from the original project has finally been

located there is no guarantee that they will want to participate in the study. This researcher found, in the course of conducting this study, that the most frequent reason cited for not participating was lack of time ("too busy"), followed by illness of a family member. In some cases the potential participant gave no reason at all or just did not respond directly. It is this researcher's finding, however, that usually a potential participant will agree to be a part of a follow-up study if approached sensitively, allowed to ask questions, and made to feel an important part of the study. This agrees with the research of Hoffman (1982) who has found that most of the people who end up not participating are lost more because of the researcher's lack of effort than from an unwillingness to participate.

Even after having received a commitment from an individual, the researcher must continuously extend an effort to be sure that the participant remains active. Efforts on the part of this researcher included many, letters and phone calls, to both the work place and home, to remind the participant to return a survey or to reschedule a "forgotten" interview. This researcher agrees with Hoffman (1982), that the value of a

follow-up study depends a great deal on the success with which the data are obtained from the original participants. Such success is governed by researcher persistence and the aim of getting as many participants as possible.

After assembling the sample groups to participate in the follow-up study, the researcher is confronted by yet another set of limiting conditions affecting the quality of the data. The participating teachers' memories may have faded in the length of time between the original project and the follow-up study; or semantic meanings or vocabulary terminology may have changed. The teachers might also feel vulnerable and hesitant to discuss any apparent weaknesses or personal failures. In the follow-up study none of these factors seemed to affect the outcome of the study, however, they are still conditions with which the researcher involved in follow-up studies has to deal.

Data Collection and Analysis

There are several major factors, limiting conditions, and problems that arise in the data collection and analysis components of conducting a follow-up study. Because of the critical importance of the participants having a positive attitude regarding

their role in the study, the researcher must remain accommodating at all times. This is difficult when the researcher is under the pressure of deadlines. Scheduling times for interviews or arranging due dates for surveys are a great constraint of conducting follow-up studies. Time is a valuable commodity for all and its waste or inefficient use is taxing on both researcher and participant. Also, because of all the variables of modern life, anything can happen and the researcher must be prepared for such unexpected interruptions of schedule.

Although the researcher was organized, efficient and deliberate, not all interviews occurred as scheduled or planned. Three factors and examples which contributed to this were: 1) weather--snow and freezing rain which caused school closings, delayed openings, and impassable traveling conditions; 2) human error--teachers misplacing or forgetting to return surveys or keep appointments, scheduling conflicts (one teacher's free period wasn't); and 3) mechanical--fortunately there were no cases of faulty recording tapes or weak batteries in the illustrative study.

One of the most-time consuming activities of a qualitative follow-up study, and therefore a limiting

condition, is the actual data collection process. Other than the surveys, data are usually in the form of written field notes or transcribed tape recordings. In the course of the illustrative study this researcher transcribed over one hundred twenty-five pages representing several weeks of work. This is not only time consuming for the follow-up study researcher, but can also be extremely expensive if the study is of such a large scale that it becomes necessary to hire professional transcribers.

Finally as with any study, but even more evident in the course of a qualitative follow-up study, is the difficulty of analysis of the data. There is so much data in this type of study which must be collected, compiled, read, put into an analytical framework, and then analyzed. This overwhelming amount of qualitative data, coming after so many months of research, is itself a limiting condition. For the researcher it represents, not the end of the follow-up study per se, but the beginning of many more weeks of work.

Conclusions and Recommendations

This final component of the follow-up study, contains several limitations that other research studies have with regards to making conclusions and

recommendations. A constraint in conducting a follow-up study is that the researcher is usually dealing with a greater set of expectations on the part of the group requesting the follow-up study than he or she would if conducting another type of study. This occurs because the nature of the study has been to actively follow-up on a specific project, program, or set of behaviors. This frequently means that the conclusions and subsequent recommendations of follow-up studies may be taken more seriously than other types of studies. Because of this the researcher must be extremely clear and specific on what the aims and goals of the follow-up study were, and equally as clear about any recommendations that are made. Any implications concerning curricular revision, staffing, or further inservice training must have all necessary supporting data and must not be over generalized.

Chapter Summary

This chapter presented and analyzed data collected in the course of this dissertation study. The two major modes of inquiry that were employed by the researcher in the collecting of the data were: 1) the conventional library research and analysis; and 2) the

more unique mode of conducting an actual illustrative qualitative follow-up study.

The chapter examined all the component processes, issues, and problems arising in the course of conducting follow-up studies within the field of education. The chapter was divided into two sections. The first gave a brief overview of the illustrative follow-up study "Environmental Education in the 1980's" from its inception in May of 1984 to its conclusion in January of 1985. In addition, the structural frameworks which were employed to collect and analyze the data in this study were outlined and discussed as to their effectiveness. The second section of the chapter was organized around, and addressed four of the six research questions which guided the purpose of this study. The first of these questions dealt with aspects of the original inservice experience as indicated by the follow-up study. The next three research questions dealt with the participant perceptions, procedures, and limiting conditions in conducting qualitative follow-up research in education as demonstrated through the actual conducting of such a study.

The last two of the research questions that guided the purpose of this study, as well as conclusions,

implications, and recommendations for further study will be presented in chapter five.

C H A P T E R V
SUMMARY, CONCLUSIONS, DISCUSSION

Introduction

This final chapter is divided into three sections. The first section provides a brief summary of the study, its design, and its major focus. The second section of the chapter addresses the last two of the six research questions which are included in this chapter as they relate directly to the study conclusions and implications. Finally, the third section of this chapter includes a discussion of the processes involved in this dissertation, the significance and feasibility of follow-up methodology in the field of education, the broad significance and implications as generated by the study, and makes some recommendations for further research.

Summary of the Study

This study addressed the problem of the lack of applied qualitative, follow-up research methodology within the field of education. It also was concerned with the related problem of how to obtain data on the difficulties of conducting follow-up case studies

within the field of education. A primary focus of interest was the documentation of conducting follow-up studies, particularly of their theoretical points of view and methodology regarding their appropriateness and feasibility in the field of education. In order to better understand the component procedures and accompanying issues about what is involved in conducting follow-up field research, two modes of inquiry were employed.

First, a comprehensive examination and analysis of the professional literature concerning qualitative, follow-up study research methodology within the field of education was completed. Secondly, an innovative and practical mode of inquiry was designed and implemented; that is, the researcher conducted an illustrative, qualitative, follow-up case study on an earlier NSF inservice project.

This qualitative, follow-up case study involved ten teachers from five schools in a rural district in northwest Massachusetts. The participants were divided into two groups--one consisting of participants from the original project and one comparison group. Over the course of this illustrative follow-up field study, data were collected from these participants through

pre-, and post-interview survey questionnaires, and a qualitative, stably-focused, singular interview.

The data from both of these modes of inquiry were analyzed, and compared within a framework of six research questions which guided the purpose of the dissertation study. Research questions one through four were presented in chapter four.

Conclusions and Implications Concerning Research Questions Five and Six

Research Question: 5.

What are some advantages of conducting qualitative follow-up studies in the field of education?

The fourth chapter discussed constraints, discouraging factors, and issues from both the literature and the process of conducting of an illustrative study. These were identified as reasons why so few qualitative, follow-up studies are conducted within the field of education. These contributing factors can be summarized as follows:

1. A lack of definitive literature on the methodology with regard to both definition and model studies.
2. The length of time and expense required to conduct these kinds of studies.

3. The need to develop innovative and unique designs and instrumentation with which to collect all the qualitative data.
4. The efforts and commitment in developing a representative participant sample design, and the recruiting of the necessary teachers.
5. The energy and time involved scheduling the interviews and accommodating each participant individually.
6. The large amount of resulting data collected in qualitative studies that have to be analyzed.

It is important to note, however, that although many of these contributing factors are disadvantages with regard to initially setting up follow-up studies or in conducting them, they are not necessarily disadvantages in a broader practical educational sense. For example, in number three, the developing of innovative and unique designs and instrumentation are processes that ultimately enrich the field of knowledge in education. In addition, with regard to number five, spending time and energy in meeting with participants individually is to the concerned educator's advantage. In this dehumanized society it gives the community and the educational profession an opportunity to have a drawn out humanistic experience and exchange away from the academic setting. This intercourse with teachers in the field lends itself to effective resourcing and

positive professional growth. Lastly, in number six, the amount of resulting data, although representing alot of potential work to the researcher, also provides valuable information which may help in meeting the educational needs of the society.

In light of the aforementioned disadvantages there are, however, distinct advantages for the researcher in conducting qualitative, follow-up studies in the field of education. These were confirmed more through conducting the illustrative follow-up study than through the limited literature which presented very little discussion of any advantages of this particular type of research.

The advantages of conducting qualitative, follow-up research studies in the field of education are in four specific areas: 1) Their comprehensive methodological nature; 2) The variety and applicability of the data they provide; 3) The level of degree and effect of participation; and 4) The uniqueness and site specificity of each study.

Comprehensive Methodological Nature

The length of time that it takes to design and conduct a qualitative, follow-up study in education is generally longer than with quantitative studies. As a

result, follow-up studies are more comprehensive, long-term, and offer a more complete picture of the specific aspect of schooling that they are focusing on than does short-term, quantitative research. Follow-up studies demonstrate an ongoing commitment to educational programs in determining what is working and why. This is a distinct advantage as administrators, teachers, and parents can look upon these studies as being vigilant in the long-term and better meeting the educational needs of the community. Qualitative follow-up studies, because of their comprehensive nature, help evaluate particular aspects of schooling over time and represent a less faddish or "quick fix" approach to education.

Type and Applicability of the Data

Another advantage of conducting qualitative, follow-up studies in education is that they collect and analyze a variety of pertinent, useful data about, a specific prior inservice project, curriculum area, or teaching behavior. These studies provide an indepth examination of specific aspects through both researcher documentation and anecdotal commentary. Although a qualitative, follow-up study may be focused on a specific area, it also provides potentially useful and

important data in various related and overlapping areas.

Qualitative studies also allow the researcher to collect and analyze data difficult to be quantified, such as teachers' teaching behavior over time. An additional advantage of qualitative, follow-up studies is that recommendations or remediations coming from the data collected and analyzed in the course of the study tend to be readily applied because of their direct relevance to the particular aspect being studied.

The Level and Effect of Participation

An additional advantage of qualitative, follow-up studies in education is that they require some degree of participation by people of all levels within the school- both administrators and teachers. This often stimulates thinking about the area being studied and invites self-evaluation. Qualitative, follow-up studies can encourage teamwork, and active, shared decision-making and problem-solving in meeting the educational needs of the students. Studies which seek responses from teachers and that get direct input from them, help teachers to feel more valued, less frustrated and an important part of the curriculum. Another advantage of conducting qualitative, follow-up

studies, is the secondary intrinsic benefits that the participants receive through their participation. This was documented earlier in the analysis of the data from the illustrative follow-up study which showed that several of those participants were made more aware of their own teaching practices or content of their curriculum.

Site Specificity

Qualitative, follow-up studies in education have to be uniquely designed both in structure and data collection instrumentation to be appropriate for a particular study's goal and site location. The qualitative, follow-up study involves long-term aspects of schooling within the context of teachers and their students in the educational setting in which they all interact. This allows the specific focus of study to be looked at from within the appropriate context which is a distinct advantage for the researcher. In addition, because qualitative, follow-up studies occur on the school site over an extended period of time, any recommendations stemming from the data are more readily and practically adapted or implemented in the setting.

In conclusion, although there are discouraging factors and constraints in conducting qualitative,

follow-up studies, there are many advantages as well. The next section of the chapter looks at the recommendations and implications of this study for both the design of inservice projects and their post-project methodology in the field of education as indicated by this study.

Research Question: 6.

What are the recommendations and possible implications of follow-up studies on the design of future inservice projects and post-project studies in education?

The previous question looked at the advantages of conducting qualitative, follow-up research studies within the field of education. It is appropriate and useful to first recapitulate those advantages before going on and addressing this next question concerned with the recommendations and possible implications on the design of inservice projects and their post-project methodology. These advantages of qualitative follow-up studies can be summarized as follows:

1. Follow-up studies are more comprehensive, of longer duration, and give a more total picture of the specific aspect of schooling that they are studying, than short term quantitative research.
2. Follow-up studies demonstrate an ongoing post-project commitment to educational programs in terms of what is working in the

long run- why or why not.

3. These studies allow the researcher to collect and analyze a variety of useful data difficult to be quantified, such as a prior inservice project, curriculum area, or teachers' teaching behavior over time.
4. These studies provide an indepth examination of specific aspects through both on location documentation and anecdotal commentary which provide potentially useful and important data in a variety of related areas.
5. Follow-up studies require some degree of participation by people of all levels within the school which often stimulates their thinking about the given area being studied and invites self-evaluation.
6. These types of studies which seek direct input from the teacher participants, helps them to feel more valued, less frustrated and an important part of the educational team as well as providing them some secondary intrinsic benefits through their participation.
7. A follow-up study involves examining long-term aspects of schooling within the educational setting in which everyone interacts allowing the specific focus of study to be looked at from within the appropriate context.
8. As a result of follow-up studies occurring on the school site over an extended period of time any recommendations indicated from the data analysis are more readily implemented or adapted.

As indicated by this study, this researcher feels that if more qualitative follow-up studies were to be conducted in the field of education to take advantage of all the useful and pertinent data generated by them, then the major implication would be in the design of

future inservice projects and their post-project methodology. A prominent impact and key recommendation from this study is the importance of having a complementary post-project research component incorporated into the initial design of future inservice projects in education; and, where appropriate to employ a qualitative follow-up study methodology.

In chapter two, this researcher developed eight guidelines for effective inservice education which were distilled from the literature review. One of these guidelines discussed the importance of having an effective evaluative study after a certain period of time. This is important so that the goals or purpose of the original inservice project can be evaluated and compared with the actual ongoing progress or results occurring in the school or classroom. It would be most effective in cases where the post-project study component methodology is going to be a qualitative follow-up study. In addition, the original design of the inservice project should reflect that approach from the onset of planning.

When first considering the development of an inservice project the persons involved should anticipate how they are going to evaluate the success

of the project. This initial planning is the optimum time to design a complementary post-project study component. There are several reasons for this. It is during the proposal stage that most inservice projects take their form in terms of content and structure. Oftentimes after a proposal has been initially written and submitted, other components are simply added on, sometimes at the elimination of others. It is important for the educators involved with this process to recognize that a comprehensive, qualitative follow-up study is not an add on or extraneous appendage to the inservice project, but an important post-project component which is integral to the overall design, concept, and success of the inservice program.

Whether direct funding or outside funding are being sought to finance the inservice project, it is important that post-project evaluation of the inservice project be approached as a totally integrated package. Too often, in the past, inservice projects' post-project evaluative components have been eliminated as being an unnecessary expense. In fact, incorporating an effective post-project research component within the design of an inservice project from the onset, is one of the best ways of being both educationally and

fiscally responsible. Without comprehensive evaluative follow-up study, educators are unable to assess whether their curricula and other programs are efficiently and cost-effectively meeting the educational needs of their students and teachers over a period of time. Without this emphasis on effective design of inservice projects with a follow-up study component, administration policies may be wasteful and at the mercy of fad-oriented educational programming.

There are similar recommendations and implications stemming from an increased utilization of qualitative follow-up studies with regard to design for more effective post-project studies themselves in the field of education. As a result of this study, this researcher feels that a major implication for post-project study design is the increased application of qualitative follow-up study methodology. The research in this dissertation study indicates that qualitative methodology is appropriate for effective post-project study in the field of education. It is hoped that as a result of this researcher's work that others within the field of education will be encouraged to employ qualitative follow-up methodology in the design, development, and conducting of their post-project studies.

A related concern of this researcher is why currently more post-project studies have not employed qualitative follow-up methodology. Is the fact that these types of studies are inherently difficult the sole reason for them not being conducted? These questions were not the focus of this dissertation study, but are of interest nonetheless. This dissertation study confirms that qualitative follow-up studies are complex in design, time consuming, contain a large number of components, and, therefore, do have some inherent difficulties. At the same time, these follow-up studies possess several advantages; they are comprehensive, collect a variety of data, and benefit the participant, to name just a few. Thus, in the final analysis, they represent a difficult choice to the individual researcher contemplating a post-project design.

It is the perception of this researcher that the difficulties do not significantly outweigh the advantages of this research methodology. This researcher believes that the real issue, and reason for the lack of qualitative follow-up studies as a post-project evaluative component in education, is not their inherent difficulty but the lack of published information concerning

their design, methodology, and effective analysis. As confirmed by this study, this researcher now believes that more designers of post-project studies would be encouraged to utilize qualitative follow-up methodological approaches if there were more professional literature regarding its methodological design, framework, and content in addition to clearly illustrative examples and models of successful follow-up studies. This dissertation is an attempt on the part of the researcher to make such a contribution and encourage the increased use of qualitative follow-up methodology in post-project studies.

The increased use of follow-up studies would have implications for post-project studies in education. As mentioned in the previous section regarding the design of inservice projects, researchers involved in other types of projects in education need to design a post-project evaluative component as well. Their designs from the onset should also incorporate a structure and format that lends itself to the components inherent in conducting a qualitative follow-up study. In doing this, educational researchers will design and conduct effective qualitative follow-up studies from

which many administrators, teachers, and students will ultimately benefit.

Discussion

This dissertation study represents a contribution to the literature concerning applied qualitative follow-up study methodology in education. One focus of interest was the documentation of the conducting of follow-up studies, their theoretical points of view and methodology, as well as the related problem of how to gather data on the difficulties of conducting follow-up studies within education. The study examined this topic through a research process which was structured by six research questions and employed two modes of inquiry: a traditional literature review and analysis, and the more unique mode of conducting an illustrative follow-up study.

In conclusion, several broad implications may be drawn from different aspects of this study. As this study involved a limited population and number of school settings, and was focused quite narrowly, these generalizations are kept to a minimum.

One aspect of the study looked at the feasibility of increased employment of qualitative follow-up

methodology in educational research. Although this was not available in the paucity of literature on the subject, the unique mode of inquiry, the illustrative follow-up study, demonstrated and confirmed that these types of studies are in fact both feasible and worthwhile. Comprehensive qualitative follow-up studies do answer questions about constraints and pressures that affect a teacher's long-term commitment to curricular and instructional changes. Qualitative studies do require a great amount of time to design and conduct, have an inherent complex component structure, and can be costly; however, because of the amount and quality of data that they generate, they are nonetheless effective and fiscally appropriate. They are especially effective in the field of education when looking over time at a specific inservice project, curricular innovation, or precise teaching behavior.

Currently, the extent of qualitative follow-up studies in education is little and not far-reaching as the dearth of professional literature confirms. The lack of these studies is often because of this absence of informative or illustrative literature rather than because of the complex nature of the methodology itself. This is especially true if follow-up studies

were designed in concert with the original inservice project or curriculum innovation (etc.) as opposed to after the fact. A major recommendation indicated by the research of this study is that educators considering a post-project evaluative component for a specific project or program should design the follow-up study at the onset, during the proposal phase, to ensure its subsequent funding.

Finally, there are important and significant implications of conducting more qualitative follow-up research studies in education for the academic field itself and for schooling in general. This could be the subject for a dissertation in itself (see following section) however, as a result of this study the researcher offers the following observations and hypotheses.

In other fields and academic disciplines follow-up research is more prevalent, and the rule rather than the exception. Educational research is often taken more lightly than the research in other fields and a probable reason is the lack of consistent follow-up study on aspects such as curricular innovation, or teaching behavior. If more follow-up research were conducted, not only would administrators, teachers, and

students benefit from the primary data and findings, but the overall opinion of educational research would also improve after a time. One aspect of good research is that it raises many related questions as it seeks the answer to its primary question. Comprehensive qualitative follow-up studies in education would not only compile a great amount of pertinent data, but would also raise many new questions to which the same or related data could also be relevant. Lastly, if researchers established a tradition of conducting post-project follow-up studies in education with regard to what is effective, then perhaps education would not be as cyclical in its pedagogical approaches and so prone to grasp the quick fix and fad oriented curricula and other teaching solutions that have characterized the field over the last half-century.

There are, however, many underlying structural societal reasons, problems, and issues facing those who want to address and correct this problem of the lack of a long-term qualitative follow-up study tradition in education. In addition to the disadvantages already discussed in research question four, this researcher would like to present some of these underlying structural reasons which may partially address the

dearth of post-project qualitative follow-up studies in education.

Our society has become used to looking for the "quick fix" technological solution to all of its problems. In many cases educators have become too impatient to take the time to plan and conduct follow-up studies, and then analyze the resulting data in formulating long-range educational reform.

An issue related to this has to do with what the reasons are for conducting post-project evaluations, and what educators do with the resulting data. Qualitative follow-up studies in education are really measuring something in addition and very different from what society ordinarily measures. These qualitative follow-up studies are different as they are most interested in measuring behavioral changes over time instead of just memory of knowledge. Perhaps this in itself may be too discouraging or overwhelming for those in educational community. Maybe those in education do not really want to evaluate with regards to behavioral changes over time. For if educators are interested in measuring behavioral change through conducting post-project qualitative follow-up studies, then the processes, strategies, and activities utilized

in inservice projects with teachers will have to change. It will take a different set of processes, strategies and project activities to help teachers develop a higher level of competence behaviorally over the long-term. These kinds of different project interventions will require more time, imagination, effort, and money on the part of educators who may or may not be that willing or committed to such a plan.

Perhaps another underlying reason for this lack of a tradition of qualitative follow-up study research is the problem in delineating between an end of project evaluation, as opposed to a post-project follow-up study. There are several aspects of potential confusion here. One has to do with the researchers concept of time. An end of project evaluation usually occurs directly after the project's concluding activity, often during the last day or final week. However, a long-range post-project follow-up study can be conducted from two to ten years after the project's conclusion or even later! This presents several logistical problems and raises many issues in our bureaucratic society where the application for funding process is so narrowly defined and formally structured.

For example, once funding has been granted for a particular project, it is then often hard to receive additional funds for an intermediate or an end of project evaluation. However, it is even more difficult to get funds for conducting a post-project follow-up study that occurs five or perhaps ten years later. A whole new set of issues is raised by this type of study methodology. Where and how are the funds held in the intervening years? How does the funding agency manage the concept of accountability? What about turnover or changes in the original project staff?

An even broader, but related issue, has to do with how one knows or decides the optimum time over a period of years when it is most effective to conduct a qualitative post-project follow-up study. All of these underlying structures, logistical problems and issues will have to be addressed in the future if a tradition of conducting follow-up study is to be established in the field of education.

This researcher offers several long-range ideas and possible solutions for those in the educational community who wish to reduce the historical and societal impact on follow-up research. These ideas and suggestions deal with some of the aforementioned

disadvantages and their underlying structures. Thus, they would encourage and enable researchers to increase efforts to conduct post-project qualitative follow-up studies and begin to establish a tradition of their wider application in the field of education.

It could be very beneficial for those educators interested in research to set up a national clearing-house or depository of information regarding applied follow-up study research methodology in the field of education. This centrally located and computer bank resource would network with other universities, institutions and foundations in collecting follow-up study literature in the field of education, as well as developing publications to aid researchers who wish to utilize this methodology. These publications could include manuals and source books that would provide educators with pertinent information such as overviews on qualitative follow-up study methodological techniques and models of effective post-project follow-up studies that have been conducted. These types of publications would both inform and encourage those in education to conduct more of this type of research. Currently, as has been discussed in the course of this dissertation, there is nothing of this

kind in the literature and because of this many educators who would like to conduct follow-up studies are too easily discouraged.

It is important to stress here that universities may not be the most effective institutions for helping to lead the way in establishing a tradition of conducting follow-up studies in education. There are several reasons for this: 1) Their often static, bureaucratic, and parochial nature; 2) The need for continuity in research staffing, which is not always possible in a setting with transient graduate student research assistants; and 3) The lack of imagination, effort, and commitment by some university personnel to long-term educational reform as opposed to the more characteristic short-term "quick fixes".

There are other units and subsets in our society outside of the university system that already have a national influence and positive reputation for establishing planned long-range educational innovation and reform. These foundations, institutions, or "think tanks" like the Carnegie Institute, World Bank, National Institute of Education, Ford Foundation, American Educational Research Association, and Educational Testing Service, all have the potential for

helping to establish a tradition of conducting follow-up study research in education. This is due in large part because of their patient attitude in working with long-term educational reform. This direct organization to organization (e.g., foundation to school system) helping relationship lends itself to making long-term educational changes within the society much more than does the usual individual to individual inservice intervention. This direct relationship is conducive to helping establish a tradition of conducting follow-up studies in education because of the positive long-range commitment of these foundations to society.

Recommendations for Further Research

The results of this dissertation study exploring applied qualitative follow-up research studies in the field of education suggest to this researcher the need for further research in several areas. The following section of this chapter outlines some of these areas of study that would make a contribution to the literature:

1. An important area for further research has to do with documenting the extent of the need for more qualitative follow-up research in the

field of education. This study could also compare and contrast other potential methodologies of follow-up research focusing on the types of topics for which they were each specifically most appropriate and applicable.

2. Another related area would be a comparative post-study, in which the stated purpose was the same (e.g., examining a particular inservice project) but the specific follow-up study methodologies differed. It would be valuable to find out what types of different data were able to be collected by utilizing a variety of modes of inquiry and other components. In addition, the effectiveness of these different studies resulting recommendations, implementations, and other remediations could be examined.
3. A cross-academic disciplines study could be conducted of the various qualitative follow-up methodologies employed, (e.g., anthropology, sociology). This study could compare and contrast these different methodologies, their design and instrumentation, as well as the

types of data they were most effective in collecting and analyzing. A study such as this could vastly enrich the field of education.

4. An equally important study for further research would be a ten or twenty year longitudinal study focusing on and documenting the impact that increased qualitative follow-up methodology was having on the field of education. This long-term study would not only look at the impact on the field of education itself, but also at its impact on schooling in terms of innovation, curricular planning, and effective teaching behaviors over time.

Like many other studies of this kind, it seems that as one comes to the end of the specific research project there are more questions that are raised begging further research, than answers that were found in the course of the study. It is the concluding wish of this researcher that the results of such further research will continue to contribute to accumulating knowledge on applied qualitative follow-up research in education.

SELECTED BIBLIOGRAPHY

- Becker, W.C. et. al. "Direct Instruction Model," Making Schools More Effective. New York City, New York: Academic Press, 1981.
- Berman, P. & McLaughlin M.W. Federal Programs Supporting Educational Change, Vol. VIII: Implementing and Sustaining Innovations. Santa Monica, CA: Rand Corporation, 1978.
- Bogdan, R.C. & Biklin, S. Qualitative Research for Education: An Introduction to Theory and Methods. Boston, MA: Allyn & Bacon, 1982.
- Brimm J.L. & Tollet, D.J. "How Do Teachers Feel About Inservice Education." Educational Leadership 31 (March 1974): 521-24.
- Burello, L.C. & Orbaugh, T. "Reducing Discrepancy Between the Known and the Unknown in Inservice Education." Phi Delta Kappan, (February 1982): 385-388.
- Byrne, R. "Inservice Programs- What are the Essentials for Making Them Effective." NASSP Bulletin 67 (March 1983): 1-7.
- Childress, R.B. "Evaluation Strategies and Methodologies Utilized in Public Schools Environmental Education Programs and projects." School Science and Math, 77:2 (Fall 1977): 105-116.
- Childress, R.B. "Public School Environmental Education Curricula: A National Profile." Journal of Environmental Education, 9:3 (Spring 1978): 35-46.
- Dillon, E.A. "Staff Development: Bright Hope or Empty Promise." Educational Leadership 34 (December 1976): 165-170.
- Dobbert, M.L. Ethnographic Research: Theory and Application for Modern Schools and Societies. New York: Praeger Publishing, 1982.
- Edelfelt, R.A., & Johnson, M., Rethinking In-Service Education. Washington, D.C.: N.E.A., 1975.

- Eiseman, J. "Dissertation Proposal Review," School of Education Memorandum, University of Massachusetts, October, 1984.
- Engel, B.S. A Handbook on Evaluation North Dakota Study Group on Evaluation, Grand Forks: University of North Dakota Press, 1975.
- Good, C.V., Ed. Dictionary of Education, 3rd Edition. New York: McGraw-Hill, 1973.
- Gorden, R.L. Interviewing: Strategy, Technique, and Tactics. Homewood, Ill.: The Dorsey Press, 1975.
- Greenwood, G.E. et. al. "Parent Education Model," Making Schools More Effective. New York City, New York: Academic Press, 1981.
- Hall, J. et. al. "A Comprehensive Approach to the Inservice Training of Teachers." NASSP Bulletin 67 (March 1983): 17-19.
- Hoffman, L.W. "Methodological Issues in Follow-up and Replication Studies." Journal of Social Issues, 38:1 (November 1982): 53-64.
- Huberman, A.M., et. al. People, Policies, and Practices: Examining the Chain of School Improvement, Vol. IV- Innovation Up Close: A Field Study in Twelve School Settings. Andover, MA: The Network, 1982.
- Jacobsen, L. Rosenthal, R. Pygmalion in the Classroom. New York, NY: Holt, Rhinehart, & Winston, 1968.
- Johnston, G.S. & Yeakey, C.C. "Administrators' and Teachers' Preferences for Staff Development." Planning and Changing 8 (Winter 1977): 230-238.
- Joyce, B.R., McNair, K.M., et. al. Interviews: Perceptions of Professionals and Policy Makers. Stanford, CA: Stanford Center for Research and Development in Teaching, Stanford University, 1976.
- Joyce, B.R. & Showers, B. "Improving Inservice Training: The Messages of Research." Educational Leadership 37 (February 1980): 379-385.
- Konicek, R. "Informal Conversation," Personal notes,

University of Massachusetts, Fall 1984.

- Konicek, R. & Lockwood, L. Pre-College Teacher Development in Science Program for Environmental Biology and Societal Effects. National Science Foundation #77-14705, 1978.
- Lawrence, G. Patterns of Effective Inservice Education: A State of the Art Summary of Research on Materials and Procedures for Changing Teacher Behaviors in Inservice Education. Tallahassee, FL: Florida State Department of Education, 1974.
- Loucks, S.F., et. al. People, Policies, and Practicies: Examining the Chain of School Improvement, Vol.I- Setting the Stage for a Study of School Improvement. Andover, MA: The Network, 1982.
- Mazzarella, J.A. "Synthesis of Research on Staff Development." Educational Leadership, 38 (November 1980): 182-185.
- Metz, M.H. "What Can be Learned from Educational Ethnography." Urban Education, 17:4 (January 1983): 391-418.
- McLaughlin, M.W. & Marsh, D.D. "Staff Development and School Change." Teachers College Record 80 (September 1978): 69-94.
- Miles, M.B. & Huberman, A.M. Qualitative Data Analysis: A Sourcebook of New Methods. Beverley Hills, CA: Sage Publications, 1984.
- Newman, A.P. "Twenty Lives Revisited- A Summary of a Longitudinal Study." The Reading Teacher, 35:1 (April 1982): 814-818.
- Orlich, D.C. "Inservice Education: A Problem or a Solution?" Science and Children 2: 1984 33-35.
- Patton, M. Qualitative Evaluation Methods. Beverly Hills, CA: SAGE Publications, 1980.
- Pedulla, J.J. & Airasian, P.W. "A Comparison of Strategies in Longitudinal Research." Educational and Psychological Methods, 40:1 (Winter 1980): 807-813.

- Rebecca, M. "Stability and Change in the Lives of Voluntarily Childless Couples." Ed.D. dissertation, University of Michigan, 1977.
- Reed, H. "Dissertation Committee Meeting," Personal notes, University of Massachusetts, Spring 1985.
- Rhine, W.R., Ed., Making Schools More Effective: New Directions from Follow Through. New York City, NY: Academic Press, 1981.
- Rife, F. "Lecture: Interactive Educational Research," Class notes- University of Massachusetts, 1984.
- Rist, R.C. "Ethnographic Techniques and the Study of an Urban School." Urban Education, 10:1 (April 1975): 86-90.
- Rogus, J.F. "Building an Effective Staff Development Program: A Principals Checklist." (March 1983): 8-12.
- Rubin, L. The In-service of Teachers. Boston, MA: Allyn & Bacon, 1978.
- Sarason, S.B. The Culture of the School and Problem of Change. Boston, MA: Allyn & Bacon, 1982.
- Sharma, T. "Inservicing the Teachers". Phi Delta Kappan, (February 1982): 403.
- Silberman, C.E., Ed. The Open Classroom Reader. New York, Vintage Books, 1973.
- Slonim, M.J. Sampling. New York City, New York: Simon and Schuster, 1973.
- Wade, R. "What Makes a Difference in In-service Teacher Education: A Meta Analysis of the Research." Ed.D. dissertation, School of Education, University of Massachusetts, Amherst, MA, 1984.
- Walcott, H. "Criticism for Ethnographic Approach to Research in Schools." Human Organization, 34: 111-127.
- White, W.E. "An Illustrative Follow-up Case Study Example: Environmental Education in the 1980's." Ed.D. dissertation proposal appendix, School of Education, University of Massachusetts, Amherst, MA, 1984.

- White, W.E. "Environmental Education with Elementary School Populations: A Review of the Literature and Subsequent Discussion of Two Generic Program Models." Ed.D. comprehensive examination paper, School of Education, University of Massachusetts, Amherst, MA, 1984.
- Wilson, S. "The Use of Ethnographic Technique in Educational Research." Review of Educational Research, 47: 245-265.
- Wilson, V.L. "An Investigation of Teachers Persistence in Implementing NSF Supported Science Curricula." Journal of Research in Science Teaching 13 (1980): 257-261.
- Wlodarczyk, S. "Foreward." The Journal of Staff Development 1 (October 1983): 2.
- Wood, F.H. & Thompson, S.T. "Guidelines for Better Staff Development." Educational Leadership 37 (February 1980): 374-378.
- Wolf, W. "Introductory Lecture: Educational Research," Class notes- Ed. P603, University of Massachusetts, 1982.

APPENDICES

APPENDIX A



The Commonwealth of Massachusetts

University of Massachusetts

189

Amherst 01003

SCHOOL OF EDUCATION
ROOM 227

June , 1984

Dear

During the 1977-78 school year you participated in a National Science Foundation in-service project at the University of Massachusetts entitled "Environmental Biology and Societal Effects"; the goal of which was to improve "teacher competency in environmental (science) education. I am writing you this letter to request your participation in a follow-up study during the Fall of 1984. This retrospective study examining the original NSF project will be the central part of my doctoral dissertation under the direction and guidance of the original project's faculty Drs. Linda Lockwood and Dick Konicek.

This dissertation will look at individual teachers from the original project and the ways in which they are currently integrating environmental education in their classrooms. These follow-up case studies will focus upon how and what the teachers were originally teaching and integrating in regards to environmental education following the project's conclusion, how their teaching has changed, and why; all within the context, changing frameworks, and constraints of teaching environmental education in the 1980's.

Your participation is extremely important for this follow-up study to be both comprehensive and significant. The tentative schedule for participating teachers is: July- Follow-up informational letter confirming participating teachers mailed; August- Summary letter of information about original project, and background materials for interviews mailed; September/October- a series of two in-depth interviews; November/December- a possible brief validating discussion.

Having been both an elementary school classroom teacher and a principal, I know very well how hectic and busy these last few weeks in June are. I would appreciate it greatly if you would make every possible effort to promptly return the enclosed postcard before the end of your school year regarding your participation. If you have any questions or concerns please contact me here at the University (545-1577) or at home (665-2923). I look forward to hearing from you soon and working with you this Fall.

Sincerely,

W. Bumper White

Postcard for participant reply:

ENVIRONMENTAL EDUCATION IN THE 1980's

NAME: _____
SCHOOL ADDRESS/PHONE: _____

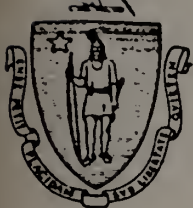
HOME ADDRESS/PHONE: _____

CURRENT GRADE/SUBJECT ASSIGNMENT 1984-85: _____

GRADES/SUBJECTS TAUGHT SINCE 1978 NSF PROJECT: _____

I WOULD LIKE TO PARTICIPATE IN THIS STUDY: YES NO
WHY?/WHY NOT? _____

COMMENTS/QUESTIONS: _____



The Commonwealth of Massachusetts

University of Massachusetts

Amherst 01003

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SCHOOL OF EDUCATION

July , 1984

Dear ,

I hope that you are having a nice Summer. Several weeks ago I sent you an informational letter concerning your participation in a study titled "Environmental Education in the 1980's". This retrospective study is a follow-up to the 1977-78 NSF project "Environmental Biology and Societal Effects" in which you participated. My dissertation will look at individual teachers from the original project and the ways in which they are currently integrating environmental education in their classrooms. These follow-up case study interviews will focus upon how and what the teachers were originally teaching and integrating in regards to environmental education following the project's conclusion, how their teaching has changed, and why; all within the context of the changing frameworks, and constraints of teaching environmental education in the 1980's.

Your participation is extremely important for this follow-up study to be both comprehensive and significant regardless of whether or not you actually have been integrating environmental education within your classroom since 1978. Your participation will consist of two 2 hour interviews scheduled at your convenience at a site that you select. The tentative schedule for participating teachers is: July- Follow-up informational letter confirming participating teachers mailed; August- Summary letter of information about original project, and background materials for interviews mailed; September/October- A series of two in depth interviews; and November/December a possible brief validating discussion (optional).

Having been both an elementary school classroom teacher and a principal, I know how valuable your time is and how busy you are. I hope, however, that you will participate in this important follow-up study which may have so much bearing on the way in which environmental education will be incorporated into our school's curriculum in the future. We need the input of today's teachers to better meet the needs of tomorrow's students. If you have any questions or concerns please contact me at the University (545-1577) or at home (665-2923). I look forward to hearing from you soon and working with you in the Fall.

Sincerely,



The Commonwealth of Massachusetts

University of Massachusetts

Amherst 01003

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SCHOOL OF EDUCATION

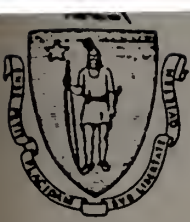
July , 1984

Dear

I hope that you are having a relaxing and wonderful Summer! Several weeks ago I wrote you an informational letter concerning your willingness to participate in my dissertation study entitled "Environmental Education in the 1980's". This retrospective study is a follow-up to the 1977-78 NSF in-service project "Environmental Biology and Societal Effects" in which you participated. Of the eleven teachers to whom I sent my initial informational letter three had moved away, two said that they would be willing to participate, one said maybe, and the rest mostly said that they could not because of time. It was then that I realized I had made a big mistake in my initial letter- I neglected to tell you specifically how much of your time would be taken up. Your participation will consist of only two 2 hour individual interviews scheduled at your convenience at a site that you select!

As I mentioned in my earlier letter, your participation is extremely important for this follow-up study to be both comprehensive and significant. This is true regardless of whether or not you actually have been integrating environmental education within your classroom since the 1978 NSF in-service project. This study will look at how that in-service project "changed" your approach to teaching (environmental education) back then and now; and why- all within the contexts of the changing curricular frameworks, and time/money constraints of classroom teaching in the 1980's...the length of the school day stays the same but it seems like there is always something more that you are being asked to teach.

Having been an elementary school classroom teacher, I know well how valuable your time is and how busy you are. I hope, however, that you will reconsider and afford me the opportunity to talk with you by participating in this important follow-up study which may have so much bearing on the way in which topics such as environmental education are incorporated into our school's curriculum in the future. We need the input of today's teachers to better meet the needs of tomorrow's students. Won't you please help? If you have any further questions or concerns please contact me at the University (545-1577) or at home (665-2923). I look forward to receiving the enclosed postcard and talking with you in the future.



The Commonwealth of Massachusetts

University of Massachusetts

Amherst 01003

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SCHOOL OF EDUCATION

July , 1984

Dear ,

I want to take this opportunity to thank you for expressing an interest in participating in my dissertation study tentatively titled Environmental Education in the 1980's- A Retrospective Case Study Examination of Elementary School Classroom Teachers Continued Commitment to Environmental Education since the late 1970's. Although I have not heard back from all of the teachers to whom I wrote in regards to this study, I did want to let you know that I had received your postcard and really appreciate your willingness to participate. My dissertation committee and I are still discussing the most appropriate number of teachers with which to work during the course of this study. It appears at this point that it will be between three and five classroom teachers- with perhaps one or two alternates.

The participation of these teachers is important for this follow-up study to be both comprehensive and significant regardless of whether or not they actually have been integrating environmental education within their classroom since 1978. Participation will consist of just two, 2 hour interviews scheduled at their convenience at a site that they select. The tentative schedule for the participating teachers is- this follow-up informational letter concerning participating teachers being mailed this last week in July; later in August- the summary letter of information about the original project, and the background materials for interviews mailed; September/October- the series of two in depth interviews; and November/December a possible brief validating discussion (optional).

My dissertation will look at individual teachers from the original project and the ways in which they were/are currently integrating environmental education in their classrooms. These follow-up case study interviews will focus upon how and what the teachers were originally teaching and integrating in regards to environmental education following the project's conclusion, how their teaching has changed, and why; all within the context of the changing frameworks, and constraints of teaching environmental education in the 1980's.

, you should be hearing from me again sometime 194
later in August in regards to more details concerning this
study. In the meanwhile, I hope that you will continue to
have a fun, relaxing, and restful vacation. As always if
you have any questions or concerns please do not hesitate to
call me either at UMass (545-1577) or at my home (665-2923).

Sincerely,

W. Bumper White



The Commonwealth of Massachusetts

University of Massachusetts

Amherst 01003

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SCHOOL OF EDUCATION

August , 1984

Dear ,

Well, it seems hard to believe that Summer is drawing to a close and the beginning of another school year is almost upon us. I want to thank you again for expressing an interest and willingness to be a part of my study "Environmental Education in the 1980's- A Retrospective Case Study Examination of Elementary School Teachers Commitment to Environmental Education. Both the "proposal" and the "review of the literature" chapters have been written; and now the "fun" work begins- the case study research! It appears at this point that there will only be between three and five classroom teachers participating- with perhaps one alternate.

Your thoughtful participation is very important for this follow-up study to be both comprehensive and significant, regardless of whether or not you have been doing much in the way of integrating environmental education within your curriculum since 1978. Please read the enclosed information carefully. It provides you with information both to refresh your memory about the original NSF inservice project's activities and curriculum, as well as giving you a few more background details concerning this follow-up study. When you have read the materials over, please return the enclosed self-addressed postcard (and/or telephone me) to let me know; 1) What day we can get together; 2) What time is best for you; and 3) The easiest location- so we can get started soon.

Because this will be the major focus of my academic work this Fall, I anticipate being quite available and flexible in terms of meeting at your convenience for both of the two and one half hour interviews during the Fall. These "interviews" will for the most part just consist of questions and discussions concerning how and what you were originally teaching and integrating in regards to environmental education before and following the original project's conclusion, how your teaching has since changed, and why; all within the context of the changing frameworks, pressures, and constraints of teaching in the 1980's. The conversations will be tape recorded for the sake of my

convenience, although I will probably still have to take some notes too.

, I look forward to receiving your postcard and hearing from you about a time when we will be getting together. Having been a teacher, I am well aware what a busy time the first couple of weeks of school can be like. In the meantime, as always if you have any questions or concerns please do not hesitate to call me either at UMass (545-1577) or at my home (665-2923).

Sincerely,

W. Bumper White

Background of the Study

A description of the original project.

The original project, Pre-College Teacher Development in Science Program for Environmental Biology and Societal Effects, (Lockwood and Konicek, 1978), was funded by the National Science Foundation (#77-14705) and covered the period from August 1977 through September 1978. The broad goal of this inservice project was to "improve teacher competencies in environmental (science) education". Teachers enrolled in the project came from a nine town, six-school district located in rural northwestern Massachusetts where most of the classes and field trips were conducted by a five member team from the University of Massachusetts at Amherst. The teachers were "provided with knowledge in the subject content and learned behaviors which enabled them to introduce such content into their classrooms and schools". Project objectives were as follows:

1. To provide learning opportunities which concentrate on and utilize as an environmental biology laboratory the community in which teachers and students live.
2. To stimulate interaction among University scientists and elementary teachers in a multidisciplinary approach.
3. To coordinate local school and community resources with University resources and direct them toward a community program.
4. To develop teacher competence in environmental biology content and methods for involving students in this content.

5. To sustain school district administrative and resource commitment to the project so that subsequent support will be available to teachers upon project termination.
6. To provide University credit as a motivational device for teacher improvement.
7. To provide opportunities for teachers to develop materials in environmental biology specific to their curriculum and relevant to educational programming in their schools.
8. To perform formative evaluation so that teacher needs are identified early in the project.
9. To introduce group communication among teachers in which experiences are shared and problem-solving is undertaken.
10. To assess project achievements, including potential for implementation by teachers in the schools, and the need for follow-up support.

Five staff members were directly involved and delivered the original project during 1977-1978. With few exceptions, all five staff members attended and actively participated in the twenty planning sessions, all classes, all post-class debriefing sessions, and preparation of the final report. This high level of commitment and participation complemented the rich diversity of professional background and experience, and was of primary importance in the successful delivery of the project.

There were sixteen initial participants in the project from the elementary schools. Of these, most had between five to ten years teaching experience, the remainder evenly split among those with less than five or more than ten years. The majority of all these teachers had non-science

college degrees with just a few having degrees in Science,¹⁹⁹
eg. physics, geology, biology, etc.

The original project consisted of two sequential phases. The first phase was the Academic Year Session which consisted of fourteen classes at the University at the Amherst campus. These classes were an assortment of lectures, discussions, and workshops held during the Fall and Spring semesters. The second phase was the Summer Session which concentrated on the development of field activities for and by the participating teachers. At the participating teacher's request, the summer workshop schedule was an intensive experience; it consisted of twelve, four hour meetings. Every participating school site was utilized. Each morning, specifically prescribed activities were completed, these ranged from subject area concept lessons to taking local field trips. Usually after lunch, pairs of teachers returned to their own school sites and spent the afternoon meetings developing a lesson/activity which further explored the morning's concepts, but which was appropriate for their particular site and grade level. The project formally concluded in August of 1978.

This innovative project, Environmental Biology and Societal Effects, attempted to impart the knowledge and skills essential to the integration of environmental education into the classroom curriculum. The participants studied ecological principles, applications in their

community and school surroundings, constructs such as developmental theory, and relevant curriculum development. The classroom and field conditions were structured to provide for role relationships, among both teachers and the team, that would effect involvement, interaction, and interdependence. The intended outcomes of the teaching/learning experience include some degree of internalization on the part of the teachers enrolled, and the practice of behaviors which were modeled and emphasized, beyond the time frame of the project- and into the future; thus, attitudes and values, as well as the potential for change in the classroom and the school were also explored.

That earlier 1977-78 project was the impetus for this 1984 study, Environmental Education in the 1980's- A Retrospective Case Study Examination of Elementary School Classroom Teachers Continued Commitment to Environmental Education since the late 1970's. This study consists of several phases. The first phase entails locating, researching and becoming both familiar and knowledgeable with the final completion report document of the original 1977-78 NSF inservice project. The second phase involves formal discussions, correspondence, and informal talks with the Principal, and Co-principal investigators of the original inservice project. The purposes for these communications include getting background information, answering questions from the original data, presenting and outlining ideas/concepts about the study, and discussing aspects

concerned with determining the appropriate criteria, and population for the study. The third phase concerns setting up and communicating with the appropriate population in regards to their participation. The fourth phase is the development and execution of the case study field work; and the fifth is the compiling, analyzing, and writing up the data.

All the teachers in the original project's population felt at that time (1977) that environmental education was important enough to be incorporated (integrated) into the regular classroom curriculum. Further, they had expressed and demonstrated a personal and professional "need" to make "changes" in their existing curriculum and/or teaching to better meet the needs of their students, the future society, in educating them in this "new" subject content area. Currently (1984), environmental education has become as important as ever in terms of the need for comprehensive environmental literacy, awareness, curricular programming by teachers for their students given the context of the planetary, national, and local environmental crises facing society today. This study looks at how some of the teachers (in a representative sample) who were originally oriented/trained in teaching environmental education in their classroom curriculums during the 1977-78 NSF project are currently incorporating/integrating/teaching this subject area in the 1980's in light of any present social, political, economical, educational pressures and/or

constraints. If the teachers were interested and felt ²⁰² environmental education was important back then, and its issues are as important as ever now; and these same teachers are not incorporating it in their curriculums presently-then, why/why not?; etc. Factors will also be identified which the teachers perceived either facilitated or hindered their ability to make changes in either their teaching, curriculum, or both over the years. This study, however, does not preclude examining in light of the aforementioned criteria, some of the implications that this may hold for inservice training (in environmental education) and its subsequent implementation/intergration within the school curriculum.

Descriptive Schedule (Appendix D for forms and representative materials)

A. Academic Year Session

Class Meeting 1 - Topic: Introduction, welcome and principles of ecosystem theory.

Goals of the grant were briefly reviewed by Drs. Lockwood and Konicek. Ms. Kreplick administered Participant Form I. Textbooks were distributed to the participants after which Ms. Howards led a group activity around cider and donuts for getting to know one another. Dr. Lockwood delivered an illustrated lecture: "Basic Principles of Ecosystem Theory" which focused upon ecosystem structure and function, cycles of matter, and energy flow.

Class Meeting 2 - Topic: Biological magnification and use of case studies as a vehicle for teaching both content and process.

Introductory group work was based upon the lecture of the previous meeting. Staff was pre-briefed to serve as group facilitators. Group work included: (a) groups self-selected according to grade level; (b) group consensus on "big ideas" of last lecture and statements of these "big ideas" as teachers; (c) "big ideas" prioritized and written on newsprint; (d) "big ideas" re-stated in terms of objectives appropriate for young learners; (e) group generated ideas on how to teach these objectives; and (f) newsprint display, group reports and class discussion around refreshment break.

Dr. Lockwood presented an illustrated case study: "DDT Residues in an East Coast Estuary, or, Charles Wurster Finds a Novel Way of Constructing a Food Chain."

Class Meeting 3 - Topic: Curriculum and teaching theory.

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Ms. Kreplick reported data concerning Participant Form I. Participant Form IIIa was administered requesting a list of "big ideas" from last meeting's case study. Dr. Konicek led the entire class in a black box activity and discussion of content, process, and attitude objectives. He further developed the activity in a lecture/discussion: "A Model for Curriculum Planning in the Sciences," wherein the class made generalizations concerning the interrelationships between and among teaching goals and the three parts of the model (content, process and vehicle). Dr. Lockwood presented an illustrated case study: "The Aswan Dam," after which Participant Form IIIb requested the students to list "big ideas" of the Aswan Dam case study. This provided immediate feedback on the ability of the teachers to utilize the new model for analyzing the value of a case study. The meeting ended with Participant Form II--An Analysis of Group Activity, group sharing, and discussion of case studies prepared by some of the participants.

Class Meeting 4 - Topic: Implications of Piaget's developmental theory for environmental education.

Dr. Konicek presented an overview of Piaget's theory of cognitive development in a slide-lecture format. Concept formation was stressed in terms of how concept learning varies at different developmental levels. In the follow-up discussion/work session the group focused on the development of curriculum appropriate to level of development consistent with a Piagetian model.

Class Meeting 5 - Topic: Environmental activism.

Wale B. Ganner, Ph.D., Professor, Department of Environmental Sciences,

University of Massachusetts, Amherst, delivered a guest lecture: "How to 205 Build Environmental Activism." Drs. Gunner, Konicek and Lockwood led a round-table discussion concerning specific examples of student-constituency accomplishments in environmental activism. Participants were served supper, after which Dr. Konicek led a values continuum activity: "What Are Your Values Concerning Social Action?" Several theories about values were introduced and an exercise in values clarification was carried out by the class. An instrument based on a 0-10 scale required that the teachers take a position on several controversial issues.

Small groups developed means for using this technique in classrooms. The staff served as facilitators in the group work which focused upon clarification of positions and included: (a) group review of the guest lecturer's position; namely, environmental educators must involve older students in community problems; (b) where do teachers stand with respect to becoming involved in community action?; (c) should you involve younger students in community problems?; (d) if so, how can you involve your students? i.e., the role of the teacher; (e) identification of an environmental problem in your school community; and (f) homework--use of a values continuum approach to find out how your students feel about a school-community environmental problem you have identified.

Class Meeting 6 - Topic: Population education.

After group sharing and reports about values continuum homework activity assignments, Dr. Lockwood presented an illustrated lecture: "Facts and Myths Concerning the Population Problem." After the coffee break, Ms. Kreplick led group work: "Values Clarification in Population Education," and staff members served as facilitators. The activity included: (a) individual completion of the Attitudinal Survey; (b) group

scoring of the survey results; (c) group selected items to discuss (e.g., 206 items representing divergence of opinion within the group); and (d) group comparison and discussion of their data.

Ms. Howards led the group in a lecture/discussion: "Introduction to the Work of Lawrence Kohlberg." As follow-up, the group was assigned to prepare the "Plight of India" activity and to read handout material.

Class Meeting 7 - Topic: The school as a moral community.

John Sawyer, Ed.D., Assistant Professor, Windham College, Putney, Vermont, delivered a guest lecture. Dr. Sawyer described the relationship between the theories of Piaget and Kohlberg. Kohlberg's moral stages of development were presented in detail. A moral dilemma, Laetrile, was presented to the group. Dr. Lockwood delivered an illustrated lecture: "Hardin's Tragedy of the Commons and the Dilemma of Mutual Coercion." Ms. Howards and Dr. Sawyer followed with a class discussion and "Plight of India" activity which focused upon the nature of reasoning behind perceiving and choosing alternatives. The session ended with suggestions on how to develop and use Kohlbergian dilemmas in the classroom.

Class Meeting 8 - Topic: Use of organisms in the classroom.

Using Leonard Amburgey's model; namely, "What does it tell you?" (observation), and "What do you want to know?" (experimentation and inference), the group was given mealworms with which to work. Dr. Konicek emphasized the appropriateness of experimental questions and techniques for various levels of cognitive development. Experiments were carried out and then analyzed in group discussion. Teachers took mealworms with them and used the animals in their own classrooms. A means of analyzing levels of questions was discussed, and Piagetian theory was used to analyze difficulty and the Bloom Taxonomy of Cognitive Domain was introduced as a

means of difficulty assessment and for planning.

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Class Meeting 9 - Topic: Techniques of ecosystem diversity analysis for the classroom.

Three different bottom samples from a pond, stream and swamp were brought to the class. Dr. Konicek led an investigative lesson wherein the samples were studied by small groups of participants and the data were analyzed and compared. Various methods for data collection, recording, analysis and use were explored. Processes of observation and inference were again stressed. Teachers were encouraged to use this lesson with their classes.

Class Meeting 10 - Topic: How to evaluate commercial curricula.

Four commercial curricula were introduced and analyzed with respect to their treatment of biological and environmental topics. These were: *Science Curriculum Improvement Study (SCIS)*; *Elementary Science Study (ESS)*; *Outdoor Biological Instructional Strategies (OBIS)*; and *Science 5/13*, with emphasis upon the *Environmental Series*. Each curriculum was analyzed in terms of its emphasis on: (a) the organism-----ecosystem; (b) use of live material on site; (c) developmental levels; (d) emphasis on inquiry; (e) teacher and pupil involvement; and (f) cost and maintenance difficulties.

Class Meeting 11 - Topic: The "What?," "So what?," and "Now what?" of biological conservation.

Dr. Lockwood presented an illustrated lecture ("What?"): "The Blue Whale; A Case Study of Extermination." This was followed by class discussion ("So what?") led by Dr. Konicek and the staff: A Values Approach to Endangered Species. Participants had coffee around an informal demonstration of teaching materials from such organizations as Audubon, Friends

of Animals, Connecticut Cetacean Society, Project Jonah, Defenders of Wildlife. Finally, groups formed according to grade level, and staff served as facilitators concerning "Now what?" or the generation of classroom approaches to teaching about endangered species. 208

Class Meetings 12 & 13 - Topic: OBIS and how to use OBIS as a model for curriculum enrichment.

Guest lecturer Leonard Amburgey presented two meetings on the OBIS programs. During the first meeting he stressed the simulation aspect of OBIS. The group participated in the "Stickler" and "Adopt an Animal" activities. Discussions about the ecological and educational implications of simulation as an educational tool followed. Processes of science were also stressed.

Meeting two focused on data-gathering and mapping techniques. Again, the participants carried-out several activities and discussed implications for their own teaching and for its relationship to content. Since all schools have complete sets of the OBIS materials, teachers were encouraged to try some more of the materials with their classes.

Class Meeting 14 - Topic: Review of academic year component and planning session for summer session component.

Participants from each school presented a report wherein an outdoor site near their school was identified for the purposes of developing environmental education curriculum. The site was described, reasons for choosing the site were given and suggestions for site development were made. The class additionally discussed results of the "Scale of Measurement of Ecological Attitudes and Knowledge," which had been administered earlier including the four subscales on verbal commitment, actual commitment, affect and knowledge.

The summer session portion of "Environmental Biology and Societal Effects" concentrated on the development of field activities for and by the participating teachers. At their request, the summer workshop schedule was an intensive experience; it consisted of twelve four-hour meetings. Each morning, prescribed activities were carried out. Team-developed materials appear in Appendix D. Every participating school site was utilized. After lunch, pairs of teachers returned to their own school sites and spent the afternoon meetings developing a lesson/activity which further explored the morning's concepts, but which was appropriate for their particular site and grade level.

Teachers wrote their lessons on colored spirit masters, and enough copies of the lesson plans were run off so that every participating teacher had a set. Lessons were immediately critiqued by both staff members and participants so that feedback improved future lesson plans. At the end of the summer session, each participant possessed a complete collection of teaching activities in a three-ring binder. This composite is enclosed in Appendix E. The following is an outline of the summer schedule.

Class Meeting 1 - Location: Hawlemont School, Charlemont

Administration and introduction of field activities were led by project staff focusing upon concepts of the organism. Field work was followed by group sharing of data and evaluation, and directions for writing up lesson/activity. The morning session ended with a working lunch where the participants completed an open minded-close minded survey for individual self-knowledge and class average.

Class Meeting 2 - Location: Hawlemont School, Charlemont

A workshop was held on how to construct field equipment. Participants

returned to their own school sites for the generation of on-site lesson plans dealing with the topic of organisms.

Class Meeting 3 - Location: Sanderson Academy, Ashfield

Lessons on organisms prepared by teachers were distributed and introduction of field activities led by project team focused upon the concept of population. Group session around a working lunch concerned lesson plan critique and sharing.

Class Meeting 4 - Location: School Sites

Participants returned to their school sites for the generation of an on-site lesson plan dealing with the topic of population.

Class Meeting 5 - Location: Colrain School, Colrain

Handouts were distributed and an introduction was given to an activity focusing upon the concepts of communities which was then led by staff. Group sessions for pooling of data and evaluation were followed by group activities (Appendix D). A working lunch focused around lesson plan sharing.

Class Meeting 6 - Location: School Sites

Participants returned to their own school sites for the generation of on-site lesson plans focusing upon the concept of communities.

Class Meeting 7 - Location: Buckland/Shelburne School, Davenport's Pond, Shelburne Falls

Coffee and introduction. Natural history of the site was led by Harry Ahles (Appendix D for Ahles identification of plants at the site). Field activity (a line transect) focusing upon the concept of ecosystem was led by project staff. Transect data were pooled around a working lunch.

Class Meeting 8 - Location: School Sites

Participants returned to their school sites for the generation of on-

site lesson plans relative to ecosystems.

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Class Meetings 9 & 10 - Location: Mohawk Trail Regional High
School, Shelburne Falls

Coffee, donuts, and brief introduction before an all-day field trip to Catamount glacial lake to focus upon concepts of ecosystem and societal effects (Appendix D for activity description).

Class Meeting 11 - Location: University of Massachusetts, Campus
Center, Amherst

Coffee, donuts, handouts and review were followed by lecture and group activity on the goals of environmental education. Evaluation activities were followed by a locally-produced film, "Flooding River," and a brief lecture and recapitulation before luncheon.

Class Meeting 12 - Location: Hitchcock Center, Amherst

Field trip to local environmental education resource center, the Hitchcock Center for the Environment. This center possesses the most complete library of Environmental Education learning materials in the western part of Massachusetts. Curriculum materials which have been developed and used locally by the Hitchcock Center staff were described and displayed.

Innovative Aspects of the Project

From the descriptive schedule, it becomes evident that the project attempted to impart knowledge and skills essential to the integration of environmental education into the curriculum. Participants studied ecological principles, applications in their community and school surroundings, constructs such as developmental theory, and relevant curriculum development. The classroom and field conditions were structured to provide for role relationships, among both teachers and team,



UNIVERSITY OF MASSACHUSETTS
AT AMHERST

School of Education

Furcolo Hall
Amherst, MA 01003

212

October , 1984

Dear ,

Thank you very much for returning your postcard. I am quite excited about this study! After all my library research and writing, it will be really great to get out in the "field" and meet with teachers. The "interview" will last about one hour and be both informal and relaxed. It will consist of both questions and follow-up discussions concerning how and what you were originally teaching and integrating in regards to environmental education before and following the original project's conclusion, how your teaching has since changed, and why; all within the context of the changing frameworks, pressures, and constraints of teaching in the 1980's. The conversations will be tape recorded for the sake of my convenience, and everything that you say will be held in strict confidence.

I hope that you have already taken the opportunity to look over the background information that I sent earlier to refresh your memory about the original project's activities and curriculum. It should make our talk go a bit more smoothly and quickly. Enclosed with this confirmation letter, is a very brief questionnaire for you to fill out prior to our interview. Please have it with you at the time of our meeting so I can collect it and have it available then.

, I look forward to meeting you at on
October at pm. In the meantime, as always if you have
any questions or concerns please do not hesitate to call me
either at UMass (545-1577) or at my home (665-2923).

Sincerely,

W. Bumper White



UNIVERSITY OF MASSACHUSETTS
AT AMHERST

School of Education

Furcolo Hall
Amherst, MA 01003

October , 1984

213

Dear

I hope that you had a restful Summer and that your school year has gotten off to a super start! At the close of the last school year I wrote to you requesting your assistance on a project that Dick Konicek and I are working on with regards to the 1977-78 NSF inservice project in which you participated. This follow-up case study is entitled, "Environmental Education in the 1980's- A Retrospective Case Study Examination of Elementary Teachers Commitment to Environmental Education". In an effort to increase our representative sample and encourage the participation of busy teachers like yourself, my advising committee and I have cut in half the amount of interview time required. Instead of the two interview sessions originally requested, we are now asking for just one lasting a little bit over an hour.

Your participation is crucially important for this follow-up study to be both comprehensive and significant regardless of whether or not you actually have been integrating environmental education within your classroom since 1978. Participation will consist of just one, hour interview scheduled at your convenience at a site that you select. The tentative schedule for the participating teachers is: this follow-up informational letter concerning participating teachers being mailed out in October; later on in October- the summary letter of information about the original project, and the background materials for interviews mailed; October/November- the in depth interview; and November/December a possible brief validating discussion (optional).

My dissertation will look at individual teachers from the original project and the ways in which they were/are currently integrating environmental education in their classrooms. These follow-up case study interviews will focus upon how and what the teachers were originally teaching and integrating in regards to environmental education following the project's conclusion, how their teaching has changed, and why; all within the context of the changing frameworks, and constraints of teaching environmental education in the 1980's.

Your thoughtful participation is very important for this follow-up study to be both comprehensive and significant, regardless of whether or not you have been doing much in the way of integrating environmental education within your curriculum since 1978. Because this will be the major focus of my academic work this Fall, I anticipate being quite available and flexible in terms of meeting at your convenience for the interview during this Fall. These "interviews" will for the most part just consist of informal questions and discussions. The conversations will be tape recorded for the sake of my convenience, although I will probably still have to take some notes too. 214

, please return the enclosed self-addressed postcard (and/or telephone me) to let me know: 1) What day we can get together; 2) What time is best for you; and 3) The easiest location- so we can get started soon. I look forward to receiving your postcard and hearing from you about a time when we will be getting together. Having been a teacher, I am well aware what a busy time the first couple of months of school can be like. In the meantime, as always if you have any questions or concerns please do not hesitate to call me either at UMass (545-1577) or at my home (665-2923).

Sincerely,



UNIVERSITY OF MASSACHUSETTS
AT AMHERST

School of Education

Furcolo Hall
Amherst, MA 01003

215

October 31, 1984

Dr. Bruce Willard
Superintendent of Schools.
Buckland-Shelburne Regional Schools
Star Route
Buckland, MA 01338

Dear Bruce,

I hope that you had a restful Summer and that the school year is off to a good start! At the close of the last school year one of my doctoral students began working on a follow-up study of a 1977-78 NSF inservice project. In an effort to increase the validity of our study we need to interview a comparison group of six elementary teachers. The participation of this comparison group of six randomly selected elementary teachers is important if this follow-up study is to be both comprehensive and significant. Participation for the six teachers will consist of just one, one hour interview scheduled at their convenience at a site that they select. Would it be possible for you to select ten or so elementary teachers who might be interested in taking part in this research project and send us their names so that we could contact them personally?

The study will look at how individual teachers from the original project and the comparison group were/are currently integrating a particular aspect of the curriculum in their classrooms. These follow-up case study interviews will focus upon how and what the two groups of teachers were originally teaching and integrating with regards to this specific subject area over the last six years, how their teaching has changed, and why; all within the context of the changing frameworks, and constraints of teaching in the 1980's.

The tentative schedule for the participating teachers is- an informational letter, mailed out in early November; background materials for interviews mailed shortly thereafter; November/December- the indepth interview; and in December a possible brief validating discussion (optional).

Because this will be the major focus of my graduate student's academic work this Fall, I anticipate his being quite available and flexible to meeting at the teacher's convenience for the interview. This interview for the most

part will consist of informal questions and discussions about this particular aspect of the classroom curriculum. 216
The conversations will be tape recorded for the sake of convenience. Everything the teachers say will be confidential, with the tapes being either destroyed or returned to the participating teachers.

I will be calling you in the near future with more details concerning this study. In the meantime if you have any questions or concerns please do not hesitate to call me here at the University (545-1577).

Sincerely,

R.D. Konicek
Professor



UNIVERSITY OF MASSACHUSETTS
AT AMHERST

School of Education

Furcolo Hall
Amherst, MA 01003

217

November, 1984

Dear ,

I enjoyed talking with you the other day and appreciate your willingness to participate in my dissertation study. This case study looks at individual teachers and the ways in which they have been and are currently integrating a particular subject area in their classrooms. These follow-up case studies will focus upon how teachers were originally teaching and integrating it and how their teaching has changed, and why; all within the context, changing frameworks, and constraints of teaching in the 1980's.

Your participation is extremely important for this follow-up study to be both comprehensive and significant. The tentative schedule for participating teachers is:
November- A series of two in-depth interviews; January/February- A possible brief validating discussion or survey.

Having been both an elementary school classroom teacher and a principal, I know very well how hectic and busy these last few weeks in November are. I would appreciate it greatly if you would make every possible effort to promptly return the enclosed postcard before Thanksgiving regarding your participation. If you have any questions or concerns please contact me here at the University (545-1577) or at home (665-2923). I look forward to hearing from you soon and working with you.

Sincerely,

W. Bumper White



UNIVERSITY OF MASSACHUSETTS
AT AMHERST

School of Education

Furcolo Hall
Amherst, MA 01003

218

January , 1985

Dear ,

I hope that you had a relaxing holiday and that your New Year has gotten off to great start. My dissertation is progressing quite well. It appears that if I can meet all my deadlines I will be able to graduate this Spring!

I need a few more minutes of your time to fill out the enclosed brief survey regarding your participation in the study "Environmental Education in the 1980's". Whereas, it was a follow-up study to an earlier NSF inservice project my committee feels that it is important to gather some data on your perceptions about being a participant in a follow-up study. Effective qualitative follow-up research studies are fairly uncommon in the field of education. In addition to commenting on environmental education in the 1980's, my dissertation could also make a contribution by examining aspects of follow-up studies in education. Perhaps if more was known about follow-up study methodology more effective studies could be conducted and reforms regarding education would become less "fad" and "quick cure" oriented.

This brief survey is being sent out to both the original and comparison sample, who participated in the study, "Environmental Education in the 1980's" last Fall. Please answer each question as completely as you can. This survey will take only a very few minutes! Please mail it in the enclosed self-addressed and stamped envelope as soon as possible. **IT IS VERY IMPORTANT THAT YOU RETURN THIS SURVEY BY FEB. 15TH !!!** You may feel free to contact me at anytime if you have any questions or concerns.

Thank you,

Tel.# 665-2923
P.O. box 113
S. Deerfield, MA 01373

APPENDIX B

ENVIRONMENTAL EDUCATION IN THE 1980'S
BACKGROUND SURVEY

Please complete this personal information survey
prior to the first interview session

Name: _____ School: _____

Grade level(s) taught since 1978: _____

Subject area(s) " " " : _____

Grade level(s) this year 1984-5 : _____

Subject area(s) " " " : _____

1. I have enrolled in formal environmental sciences education coursework within the last five years. _yes _no
2. I have/have not continued with this environmental studies coursework because: _____

3. The extent of my previous formal science educational background is: _minimal _adequate _considerable
4. I introduce environmental concerns or information within the subject(s) I teach where relevant and opportune.
_yes _no
5. I have participated in team teaching on environmental concerns. _never _once _regularly
6. I have participated in extra-curricular environmental activities. _never _once _regularly
7. I have integrated environmental material into my regular course outline/curriculum. _yes _no
8. I use a textbook in connection with environmental lessons. _yes _no
9. I believe that environmental concerns are among the most important national priorities. _yes _possibly _no

10 A factor(s) in my school/class situation which would most likely limit me in effectively teaching environmental education is: _____

11 I use the following criteria when evaluating the excellence of a curriculum (any subject): _____

12 My ability to make changes in my curriculum relates to: e.g. time constraints, student need, administrative input

13 I think that teachers __are, __are not, responsible for teaching values, e.g. honesty-justice, to their students.

14 My classroom time allotment/day for science is: _____

15 My curriculum, including resources for it, is determined by: _____

16 Type of location I live in is:
 __urban __suburban __rural

17 Type of location in which I attended secondary school was
 __urban __suburban __rural

18 The soci-economic status of my family when I attended secondary school was:
 __lower __middle __upper

19 Comments/Questions:

9. I thought that the interview questions were appropriate:
agree disagree
1 2 3 4 5

10 I felt my answers were proficient during the interview:
agree disagree
1 2 3 4 5

11 One thing that I learned or way I benefited from participating in this follow-up study was: _____

12 I perceive my experience in the follow-up study as being: _____

13 My feelings on having participated in this follow-up study are:
glad sad
1 2 3 4 5

14 Personal comments regarding your participation in the follow-up study: _____

"ENVIRONMENTAL EDUCATION IN THE 1980'S" 224
STABLY FOCUSED INTERVIEW GUIDE

Question Categories: (9) Questions: (35)

I. Questions concerning the teacher's participation in both the original and follow-up studies: (2)

1a. [What was the motivation for your participation in the original NSF inservice project at the University in 1977-78]?

1b. Do you feel [did you feel 5 - 6 years ago] that environmental education is a topic to be included within your own classroom curriculum? Why/why not?

2. What was the motivation for your participation in this 1984 follow-up case study [to a NSF inservice project at the University]?

II. Questions concerning the most useful aspects of either [the original project] or self-directed learning by the control group participant with regards to acquired methodology and techniques regarding the teacher's own view (perception) of success on integrating and teaching environmental education in the classroom. (8)

1a. What are [were] your own personal and professional goals concerning the teaching of environmental education concepts 5 - 6 years ago?

1b. Have they changed in the last 5 - 6 years; how?

2. Are [were] your own personal and professional goals concerning the teaching of environmental education concepts [goals of the original inservice project] relevant and [able to be applied] applicable to your teaching situation in 1977-78 with regards to both, methodology e.g. "integration", and content- e.g. "subject matter"?

3. Which is [was] more helpful and useful aspects pertaining to content or methodology?

4. Are [were] these goals successfully met [during the course of the two years of the inservice project] by you personally?

5. Over the last six years, what [from the original project] has been the most useful and practical aspects for you in your teaching/curriculum; the work on, e.g.

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methodology, values and attitudes, curriculum development, environmental subject content, sharing with colleagues, etc.?

6. How effective and successful for you is [was] the practical application, initially and over the last six years, of the teaching methods that you have learned [were presented during the project] in helping you attain your goals of environmental education; e.g. its integration, curriculum development, content, and process?

7. Did you assimilate or adapt these various methods and gain the insight necessary for their application and implementation in the classroom, initially and/or since?

8. What [was] has the overall impact of integrating/teaching environmental education [the original project] been longitudinally upon your students/their community (as a societal "change agent") with regards to of your curriculum and teaching, initially and over the last six years?

III. Questions concerning the teacher's current demonstrated environmental education competency with regards to env. ed.'s changing framework (goals)? (The "romanticism of the 1960-70's vs. the pragmatism of the 1980's)- contexts/constraints. (7)

1. Do [did] you continue to demonstrate more interest and competency in the application and knowledge of environmental education than your colleagues [who were not part of the original project]?

2. Do [did] you believe that other teachers should know more about this subject area?

3a. Were you already integrating the teaching of environmental education in your curriculum and/or classroom?

3b. How were you (if you were) integrating environmental education in your classrooms before 1977-78?

4a. Are you currently integrating environmental education in your curriculum and/or classroom?

4b. How are you currently integrating or working with environmental education in the curriculum and/or classroom? Examples?

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5. If you were interested and active in 1977 and environmental educational needs are more "pressing" now and you are not currently integrating it, why not?

6. How did your integration of environmental education (e.g. methodology, content) in the curriculum and/or classroom change between 1978 and 1984?

7. What is [has] the nature and your current level of personal commitment to integrating environmental education been from 1978-84?

IV. Questions concerning the teacher's environmental education curriculums that they developed [as part of the original project]; and their current utilization. (6)

1. How effective and helpful is [was] the exposure, use, and adaptation, [during the original project] of the different commercially developed materials as a basis for providing some of the environmental education content to you?

2. Do you use a textbook in connection with environmental lessons?

3a How effective and helpful is [was] the use, sharing, and adaptation of any of the teacher made units and lesson plans [that were developed as part of the project's Summer Session]?

3b How, and to what extent have you utilized them over the last six years?

4. What do you currently perceive your curriculum responsibilities as being prescribed by; who controls your curriculum?

5. Have you continued, and to what extent, to participate in any extracurricular environmental activities, e.g. clubs, etc.? Example(s)

6. Have you continued, and to what extent, to introduce and integrate environmental material into "regular" course outlines and subjects that you teach were relevant or opportune? Example(s)

V. Questions concerning the teacher's values with regards to environmental education. (3)

1. What is your "current" complete definition-description of environmental education?

2. Do you [still] feel that you are responsible for teaching values to your students? ^{???}

3. Does your ability to make changes in your curriculum [still] relate to your perception of what is of future practical "value" to the students?

VI. Questions concerning past/current factors and/or constraints effecting the teacher's "teaching" of environmental education. (6)

1. Are there [still] system-wide barriers that exist which prevent you from attaining environmental education goals? (e.g. the extent and quality of teacher/administrator communication and relative lack of teacher influence in policy decisions and school goals)

2. What are [were] some of the factors (or constraints) affecting your teaching and integrating of environmental education in the curriculum and/or classroom? Political, (e.g. conservative times); Financial, (e.g. decline in monies); Social, (e.g. decline in the birthrate); Educational, (e.g. "back to basics" movement; classroom space)?

3. What is the current factor (constraints) in your school situation which most limits the integration of an effective environmental education program?

4. During the last six years, what has been the effect on your teaching- how have your interests "risen and waned" with these pressures and constraints of the times? (The environmental romance of the 1960-70's versus the more pragmatic times of the 1980's).

5. What is it that a teacher needs to overcome these constraints and be able to have an effective environmental education program?

6. Is there a current factor(s) in your school situation which encourages the integration of an effective environmental education program?

VII. Questions concerning the initial, follow-up, and current level of administrative support for the teacher with regards to environmental education. (2)

1. How much school district administrative support and resource commitment has been made available to you for environmental education over the last six years?

2. Did your principal, continue to support (how strongly?) the goals of environmental education and make the school facilities and resources available to you?

VIII. Questions concerning the characteristics of the teachers who did/are currently "teaching" environmental education. (1)

1a. What are some of the personal/professional characteristics (list 5) that have enabled you to continue to be committed to and model the integration of environmental education as developed in the original project (versus those teachers who have not continued their commitment)?

1b. What are some of the personal/professional characteristics (list 5) that you would have needed to enable you to continue to be committed to and model the integration of environmental education as developed in the original project (versus those teachers who have continued their commitment)?

IX. Questions/Comments:

