Using the concerns based adoption model as a framework for studying teacher implementation of structural change in one school: validating a research model in a unique setting.

Thomas E. Wolf

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USING THE CONCERNS BASED ADOPTION MODEL AS A FRAMEWORK FOR STUDYING TEACHER IMPLEMENTATION OF STRUCTURAL CHANGE IN ONE SCHOOL: VALIDATING A RESEARCH MODEL IN A UNIQUE SETTING

A Dissertation Presented
By
THOMAS E. WOLF

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION
February 1984
School of Education
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The author is not sure if the following is an acknowledgement or dedication, but he would like to thank some people. His committee, Jack Hruska, Sheryl Riechmann, and Harry Schumer were not only supportive but pushed him so that he learned as well as finished. Karen Thatcher retained her sense of humor and efficiency despite the author's revisions and last minute changes of mind. His family was just that, gently participating in his prolonged conspiracy of silence, prodding him when he needed it, and each growing and making their own meaning out of the move to Amherst. Lastly, the Smith School staff, who are real risk takers in their willingness to commit themselves to teaching, a profession marked by uncertain rewards and change.
ABSTRACT

Using the Concerns Based Adoption Model as a Framework for Studying Teacher Implementation of Structural Change in One School: Validating a Research Model in a Unique Setting

(February 1984)

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Directed by: Professor Jack Hruska

The Concerns Based Adoption Model is a conceptual framework for studying teacher adoption of educational innovations developed by the Center for Research in Teacher Education in Austin, Texas. The framework is based upon a theory which assumes that innovation adoption is a developmental process, should be studied at the point of adoption (the teacher), and is only a focused piece of a larger ill-defined change process. Two instruments have been developed by the Center: the Stages of Concern Questionnaire which assesses the concerns individual teachers have as they implement a particular innovation; and the Levels of Use Interview which assesses the way in which individual teachers use a particular innovation.

This study used both instruments to assess the Smith Elementary School teachers' implementation of school-wide structural innovation based upon developmental theorists such as Erikson and Piaget. The SoC Questionnaire and LoU Interview were administered to the teachers at regular intervals over a two year period. The effectiveness of
the CBAM framework for assessing the Smith School teachers' innovation adoption is discussed in light of the patterns of the dependent (SoC and LoU) variables over time as posited by the CBAM theory and established by previous research on the model in other settings.

Generally, the results of the two year study at the Smith School show that the CBAM framework is an effective framework for tracking innovation adoption. It is sensitive to both the developmental patterns of the adoption process and the contextual variables which influence that process. Further research is suggested on the nature of the interrelationships of the developmental stages posited by the CBAM theory; the relationship between the SoC and the LoU and their relationships to interest (SoC) and action (LoU); and, the need to develop a taxonomy of innovations and an understanding of how different types of innovations impact on the CBAM model of adoption.

In light of the current turbulent social context and the demands for change it places on schools, the author found his research on CBAM theory and techniques were helpful not only in understanding a particular innovation setting but also in learning about pre-conditions for successful innovations, possible characteristics of successful innovations, and ways of knowing and discussing the process of change.
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Chapter I proposes the rationale for the research question through a discussion of three areas: the recent social context and history of educational change and innovation; the characteristics of the CBAM model that make it an effective tool for studying educational change; and, the characteristics of the particular innovation at the Smith School that makes the study potentially fruitful. While there remains a commitment to educational change, there are growing societal concerns about the difficulty of implementing planned change in a complex, turbulent social environment and about the apparent lack of success of much of recent educational innovation. Clearly, effective models for studying educational innovation need to be developed and tested. The CBAM model offers such an effective framework for studying educational innovation precisely because it is a model that is sensitive to both individual adoption of innovations and the social context in which innovations are tried. The dissertation proposes a research question focused on the study of educational innovation which uses the Concerns Based Adoption Model as the theoretical base.
The Research Question

This dissertation proposed the following research question:

To what extent is the Concerns Based Adoption Model an effective diagnostic framework in assessing the Smith School teachers' implementation of the structural innovation in their school?

The Concerns Based Adoption Model is a conceptual framework for studying the implementation of educational innovations developed by the Center for Research in Teacher Education in Austin, Texas. Two instruments have been developed by the Center: the Stages of Concern Questionnaire which assesses the concerns individuals have as they implement a particular innovation; and, the Levels of Use Interview which assesses the way in which individuals use a particular innovation. This study proposed to use both instruments to assess the Smith School teachers' implementation of the structural innovation in their school. A time series research design was used over a period of two years. The SoC Questionnaire and LoU Interview were administered to the Smith School staff at regular intervals during the study period. The analysis of the data from each instrument was conducted according to the procedures established by the Concerns Based Adoption Model and determined how both the dependent variables of teacher concerns about the innovation (SoC) and their use of the innovation (LoU) changed over time. The effectiveness of the CBAM
A framework for assessing the Smith School teachers' implementation of the structural innovation at their school is discussed in light of how the dependent variables changed or remained constant according to patterns posited by the theory and established by previous research on the model in other settings.

There are three questions that serve as background and introduction to the research. What is the social context for and the recent history of implementation of education innovations? What are the characteristics of the Concerns Based Adoption Model that make it a potentially useful theoretical framework for studying educational change? What is the nature of the innovation at Smith School that sets it apart from previous studies which have used the Concerns Model, thus offering the possibility of the study being able to provide new insights into the validity and usefulness of the model? These questions are interlocking. By discussing each in turn, the author presents not only a brief social context for the research question but also a discussion of the conceptual framework and an introduction to the proposed focus of the study.

A Brief Context

The idea of social scientists participating in and actively influencing the planning and implementing of social change has been a center of controversy in America since the emergence of the idea in the late nineteenth century. The idea of social planning and governmental employment of experts is, of course, much older. But the differentiation of the more behaviorally oriented social sciences . . . gave new
impetus to the Baconian dream of a New Atlantis governed by scientific thinkers and doers.¹

These words begin the authors' book, The Planning of Change, an anthology of writings that approach the issues of innovation and change from a wide range of perspectives and in a wide range of fields. As the authors suggest, the idea of social change and innovation is not a new one. In fact, the theme of society breaking new ground and shaping its own destiny has been a central one in this country's history. Today, it manifests itself in one way through innovative social programs to meet the needs of a changing people. Weiss (1972) talks about this country's long tradition of social programs in a wide range of areas that focus "to improve human condition and alleviate attendant ills" and our continuing response to problems by setting up new programs.² Much of the writing in management science has focused on planned change and innovation. Systems theory, the Delphi model of forecasting, computer models, simulations, satisficing models, taxonomic inquiry have all been used as techniques for planning change in recent years.

Issues surrounding innovation have become increasingly problematic as the society has become more complex, itself seemingly more susceptible to growth and less predictable and stable. Emery and Trist (1973) describe four types of social fields, or environments. These are: the placid random, the placid clustered, the disturbed reactive, and the turbulent. It is the turbulent field that most
resembles the social environment of today:

These are environments in which there are dynamic processes arising from the field itself which create significant variances for the component systems. Like the disturbed reactive and unlike the placid random and placid clustered, they are dynamic environments. Unlike the disturbed reactive, we are postulating dynamic properties that arise not simply from the interaction of the systems, but also from the field itself.\(^3\)

The authors point out that the emergence of turbulent environments seems to be a natural concommitant of a number of factors: the increasing size of systems, their interdependence, the explosion of knowledge and its application, and the increasing sophistication of communication systems. For whatever reasons, they assert that "these fields are so complex, so richly textured, that it is difficult to see how individual systems can, by their own efforts, successfully adapt to them."\(^4\)

Schön approaches organizational effectiveness and the necessity for managing change and innovation from another perspective. He points out that the questions that organizations ask themselves about their effectiveness have changed over the last fifty years. From, "Is the firm well organized?" through, "Does the organization foster individual creativity, and with it, invention and discovery?" and "Is the organization innovative?" to, "Is the organization able to manage change?" the author points out that the demands and expectations for change have become a necessity rather than a response to an isolated
problem. If one looks at the first question, its demands upon the organizations are analogous to those of a placid clustered environment (Emery and Trist) might make upon it. Similarly, the demands implicit in the fourth question are analogous to those of a turbulent environment. Schön goes on to draw an even more pointed comparison to turbulent environments:

But the discontinuities and zones of turbulence we used to think about as occasional events in the background—events we had to endure as part of the price of getting to the stable place on the other side—now have become foreground. We can no longer conceive of future action simply as a linear extension of the past.5

These two ideas, that the planning of social change and innovation is important and that it is an increasingly complex and problematic task, given our society, are widely held and discussed in a number of areas. Lindblom's article, "The Science of Muddling Through," in which he points out the folly of rational planning in a complex society sparked a great deal of acrimonious debate among management theorists.6 Authors like Robert Coles, Thomas Cottle and Erik Erikson have written about the uncertainty's effect on children.7 The anomie and hostility that many see in youth has been popularized in any number of articles and books. One can choose from a bewildering array of self help books in psychology and sociology. Consultants are available to help organizations deal with these issues. Writers like Walter Schumacher (1973),8 politicians who appeal to a
return to a simpler era, and the numbers of people who either in
groups or as individuals opt out of the complex set of systems in
whatever way they can all attest to the more theoretical presenta-
tions of Emery and Trist and Schön.

The Educational Context

It is to be expected that commitment to planned change set
against an increasingly complex, changing environment would also
characterize the educational system. In fact, this appears to be true. Planned change, the commitment to developing educational
institutions that are responsible to the needs of society, has been
a common theme in American history. In his introductory chapter,
Michael Katz (1971) includes quotations from both the 18- and 1960s
which emphasize the need of American schools to better meet the needs
of its urban population and introduce specific suggestions and pro-
grams to accomplish that goal. The Fiscal Year 1975 Annual Eval-
uation Report on Federally Funded Programs published by the Office
of Education lists close to one hundred separate programs, most of
them specifically focused on change efforts in the public schools.

Goodlad (1975) points out that the last two decades, beginning with
Sputnik, have seen a great deal of attention paid to schools, for
better or worse:

For reasons that are difficult to sort out, a good deal of
the resulting sadomasochistic behavior [after Sputnik] on the part of Americans focused on the schools, . . . The faith that we had in our schools began to crack a bit, as did some of the dreams about that personal and family future envisioned in the fifties.11

The author characterizes the decade that follows Sputnik as "the schooling decade." A great deal of money and energy was poured into the public schools with the idea that curriculum, organization, functions and norms could be changed to not only better meet our needs but make us more competitive in a changing world. Although Goodlad would say that the seventies were marked with a growing disaffection with schools and the job they had done, he would not say that the emphasis on planned change had lessened. Rather, the thesis of his book is that schools must change:

This book is based on the premise that schools, under certain conditions, can become much more vital than they currently are. They can and must be reconstructed, just as most of our other institutions are in need of reconstruction . . . The focus here is not, then, the prescription of utopias but the building of Waldens.12

It is also clear that the environment for educational systems has become increasingly turbulent and complex in a number of ways. New or competing theories have challenged procedures. Information theory and the practical applications of computers; the importance of different developmental theorists like Piaget and Kohlberg; the bitter controversies sparked by Jensen; and, the dispute about the
most effective evaluation theories and methodologies and uses of evaluative information in educational planning all are examples of the turbulent theoretical context.

The past twenty years have seen a profusion of innovations that have all been advanced by different people as 'answers' to different problems. In a rough chronology, new curricular organization in light of Bruner's theory, compensatory education as exampled by Head Start programs, alternative education as an answer to the "dehumanizing" structures of the monolithic public school system, bilingual and multi-cultural education to answer the needs of a growing diverse population, new special education laws that empower families to keep their children from being shut away from the mainstream educational opportunities, and career and experiential learning to better prepare all children for the choices of an increasingly complex society have all come and gone as the 'in' source of funding and the latest educational innovation.

In addition to the new theories and specific innovations, the environment for the educational system has been shaken by several social trends. The push for more responsive schools, as characterized by a number of the specific innovations mentioned above, also led to more angry confrontations between the schools and students or communities. The people who criticized the schools for symbolizing the monolithic and unresponsive institutions during the sixties were gradually replaced by people who pointed to studies that showed that all the money spent during that decade had not improved student
scores in basic skills. The new critics of schools in the seventies began to insist on accountability, on less money spend on education, on a change back to methods and structures that had been successful. Perhaps as an outgrowth of the push in the sixties for more responsive social institutions and as a reaction to the growing accusations that schools were not doing their jobs in the seventies, there has been a growth in teacher unions and confrontations between these unions and their employers. A new school year does not begin without a number of teachers' unions out on strike and students out of school.

The Effectiveness of Recent Educational Innovation

While the above is not meant to be a comprehensive review of the past twenty years, it does point out that there has been a commitment to educational change and innovation, that there has been a great deal of change and specific innovation introduced, and that the environment has indeed become what Emery and Trist would characterize as "turbulent."

It is not surprising that a number of writers have been pessimistic about the effectiveness of educational change. Katz presents an historical perspective on a variety of school reforms. His major thesis is that change has been cosmetic, that major innovation in the educational system's approach to the poor has avoided real issues rather than addressing them:
From depraved to deprived: This is an oversimplified, but not inaccurate, way of describing the changing image of the poor in educational thought of the last 125 years. Throughout this period the assumption of the inferiority of the poor has remained, although the basis of the belief has shifted from moral philosophy to social science as the ethos of the age has made it appropriate.

With this quotation as a framework, it is not difficult to see other opinions of the efficacy of recent attempts at educational change. Sarason (1972) presents a discussion of change in which he asserts that the problem of change in schools must be seen from the perspective of the cultural norms of schools, their regularities and structures. His contention is that planned change may be introduced into a school setting, but it is rarely implemented. Goodlad (1974) points out a more disturbing trend about educational innovation. In a study focused on the implementation of recent innovation he found:

It is clear, however, that a substantial number of principals and teachers perceived ongoing instruction to be characterized by some of our "reasonable expectations" when members of our staff did not. They claimed individualization of instruction, use of a wide range of instructional materials, a sense of purpose, group processes, and inductive or discovery methods when our records showed little or no evidence of them.

Goodlad's concern with the implementation of educational change, or as he states, finding out why most of the educational innovations blunt themselves "on the classroom door," is evident in his leadership of the League of Cooperating Schools Project, sponsored by
I/D/E/A. In his report of the project, Goodlad (1975), reviews his sense that most educational change has been unsuccessful and develops a model of change (as implemented by the League) he hopes will prove more workable and effective. One of the more discouraging reports of how educational change has not worked is the review of the Ford Foundation of the change projects it sponsored (The Ford Foundation, 1972). The foundation looks at its attempts at educational change. The appraisal is honest and rueful and must be seen as an admission of failure.

In addition to literature with a wide perspective, there are a number of case studies which look at specific failures of innovations. The Anatomy of an Educational Innovation (Smith and Keith, 1972) is one such study. Its title is apt. A team of researchers followed closely one school as it attempted to implement an open space, flexible elementary school. The hopes and excitement faded into closed space and more traditional methods of schooling.

Gross, Giacquinta, and Bernstein (1971) also followed one educational innovation. Their major conclusion is that "the major organizational innovation failed."

It must be noted here that not all pictures of educational innovation and its effectiveness have been as pessimistic as those that have been mentioned above. The Joint Dissemination Review Panel continually reviews programs that have been federally funded to determine if they have been successful. Those programs that meet the panel's rigorous standards are validated and receive support to dis-
seminate their efforts for others to consider. The Rand Study of Federal Programs Supporting Educational Change (1974)\(^\text{20}\) presents a more balanced view of educational innovation. However, this study points out that many funded programs rarely last beyond the point at which federal funds run out and that the impetus for seeking funds is most often an opportunistic decision to get additional money into a district rather than a rational decision based upon an educational need and unique solution to that need. The League of Cooperating Schools reports success in implementing innovations using the model developed by Goodlad and his associates.\(^\text{21}\) However, this author would note that the work that reports successful innovations is characterized by what might be called an indigenous inevitability. For the most part, the innovation is rarely transplanted successfully to other environments, adoption often becomes more a process of cooperation rather than adaptation.

It is clear that the study of educational change and innovation needs new models. The commitment to planned change has not lessened. The focus on schools, the need for them to be accountable and their importance in the network of social systems, has intensified in this period of scarce resources. The authors who present a pessimistic picture of the efficacy of educational innovation feel strongly that new models for looking at change in schools are necessary.
A Perspective for Looking at Educational Innovation

Many of the writers quoted here who looked at educational innovation either from a broad base or through the specifics of a case study have pointed out the need for a more systematic/systemic study of educational change and innovation. The choice of a teacher's perspective in the implementation of innovations for this dissertation seems justified. First, teachers are an integral part of the social system of schools. Most educational change as it impacts upon students must be utilized by school teachers. Moreover, the teacher's role in the social system of the school has become the focus of a good deal of sensitive writing which points out that the role is often lonely, frustrating, and without the rewards that sustain other adults in their work. Sarason points out that teachers tend to characterize their life as routinized, uninteresting, and a dead end.22 Younger teachers who leave the profession often point to older teachers as negative role models, and as the reason they leave when they do. Knoblock and Goldstein (1971) also point out that teaching is a lonely occupation, that teachers have traditionally not sought out other adults to share feelings of loneliness and powerlessness.23 Greene's (1973) title of her book, Teacher as Stranger, implies that she feels the teacher must pursue the loneliness of the existential model of being if he/she is to help students learn to be proactive in a complex, confusing world.24 Lortie (1975) points out that it is possible that teachers do not have to
choose uncertainty, that it may be endemic to the profession:

Today we are constantly exposed to messages upholding the benefits of schooling. Yet that hope, legitimization, and clamor can induce us to forget that education is an uncertain affair. It is necessary to keep such uncertainty in mind if we are to understand the psychic world of classroom teachers, for uncertainty is the lot of those who teach.25

It is important to note here that Lortie links the need to understand the 'psychic world' of teachers with the 'hope, legitimization, and clamor' that surrounds the society's focus on schooling. The author reemphasizes here that many of the other writers, Sarason, Knoblock and Goldstein, Greene, Jackson, and Goodlad are examples, link the efficacy of any future change or innovation in education with the need to understand the teacher as part of the social system of the school.

The need to focus on the teacher is evident in another important way:

For the foreseeable future, improving public education will depend upon improving the capabilities of presently employed teachers, principals, teacher aides, counselors, and other school district staff. With the general teacher shortage at an end and with school district budgets being cut back, teacher turnover in most school districts has declined dramatically. There has also been a corresponding increase in the average length of time that teachers remain in a particular school system . . . Further, recent research has confirmed a point that is obvious to anyone who has taught in a school or administered one—if the day to day process of teaching and learning is going to change, school staff members need effective inservice training.26
Volume Seven of the series, "Designing Education for the Future," is entitled **Preparing Educators to Meet Emerging Needs**. Throughout the series of articles on a variety of different subjects, common threads emerge. Society itself is changing and placing new demands upon schooling and the institutions of schooling. Teachers must adapt to these demands. New training or experiences need to be provided to help teachers adapt.\(^{27}\) Federal programs such as Teacher Corps and Teacher Centers have focused directly on inservice as the way to facilitate change in schools. Many of the socially oriented programs referred to earlier have inservice components as an integral part of their funding requirements. Professional growth linked to pay increments has been common in most school districts. States and local districts are increasingly making inservice a required part of teachers' lives.

In light of this complex of forces: the turbulence of the educational environment, the pessimistic opinions about the efficacy of educational change, the disillusionment with the educational system, the continuing assumption that the educational system will/must change, the pressure (through the assumptions about and focus on inservice) on teachers to change, the sense that new, systemic models must be used to study change in schools, and that the role of teachers in the social system of the school has been poorly understood and characterized by uncertainty and loneliness; it is appropriate and necessary that the study of change and innovation in schools develop research models from a teacher perspective.
A Personal Note

Before presenting the proposed research model and theory, the author would like to talk briefly about his own experiences. He began teaching in a suburban high school where it was fashionable to talk about getting so many 'zachs' for a curriculum project. Zachs was short for Zacharias, the MIT professor who was one of the leaders of the curriculum reform movement in reaction to Sputnik. The writer spent a good deal of the Ford money that the Foundation ruefully feels was to no lasting purpose in curriculum development projects. His last teaching position was in one of the first alternative schools in the country. After leaving teaching he worked with teachers in a variety of change oriented activities, working alongside of them as they confronted the realities and complexities of the classroom and the social demands on schools. Thus, he would characterize his experience in education as both being focused on change and being centered in a teacher's perspective. He recognizes that while the choice of a teacher perspective in a research model for studying change is justified, he also understands that there is a clear personal history that not only led to this choice but may also keep him from seeing the forest for the trees.
Chapter I Notes


4. Ibid., p. 53.


12. Ibid., p. 2.


22. Sarason, op. cit.


CHAPTER II
A REVIEW OF THE LITERATURE

Introduction

The review of the literature presents the CBAM model and writing about it, writing about implementation of innovation in other social settings, other writing about implementation of educational innovation in schools, and other models for analyzing teacher adoption of educational innovations. The CBAM model was developed from the work of Frances Fuller on the concerns of beginning teachers. These concerns are developmental and move through three stages: a lack of concern about teaching issues; concerns about how teaching effects oneself; and, concerns about how one's teaching effects students. In expanding the Fuller hypothesis, the CBAM model has the following central characteristics: innovation implementation focuses upon the individual teacher concerns and use; it is a developmental process; an individual teacher's concerns and use are interrelated and analogous; and the innovation itself must be clearly understood if effective research on innovation implementation is to be conducted. While no other models for such sustained study on teacher implementation of innovations currently exist, other writing about innovation adoption in schools surface the issues that are the assumptions behind and characteristic of the CBAM model.
The review of the Concerns Based Adoption Model as it has been developed by the Research and Development Center for Teacher Evaluation at the University of Texas/Austin is meant to be an introduction to the model as a whole. A presentation of the two instruments used in this study (the Stages of Concern Questionnaire and the Levels of Use Interview) are presented in Chapters IV through VI. Accordingly, this chapter will present an historical overview of the model; a review of the conceptual frame for the model; a brief look at the overall model; and a brief discussion of the SoC and LoU instruments.

Historical Background

The Concerns Based Adoption Model (CBAM) for studying the ways in which educational innovations are adopted was developed by the Research and Development Center for Teacher Education at the University of Texas/Austin. Much of the research has been funded by federal money for about fifteen years. For the past nine years, research has been conducted by the Procedures for Adopting Educational Innovations Project, headed by Dr. Gene Hall.

Over the years, the research has undergone a series of natural steps that have increased its focus and sophistication. In the late sixties, Dr. Frances Fuller became interested in the seeming irrelevance of education courses that purported to prepare undergraduates for teaching. Her research centered on the concerns of beginning teachers, how these concerns changed over time, and how teacher prep-
aration courses did not seem to speak to the concerns of the students. This "concerns-based" approach to teaching was elaborated upon by Gene Hall, Richard Wallace, and William Dossett (1973). They theorized that the innovation adoption process and the stages that an individual teacher would go through in that process were similar to the process and stages that a beginning teacher goes through as developed by the prior work of Fuller. Their paper, "A Developmental Conceptualization of the Adoption Process Within Educational Institutions," has served as the conceptual framework for most of the work that has followed at the Center and is always referred to in the introduction to subsequent research.

Two instruments were developed to test the two hypotheses that innovation adoption is primarily an individual process that teachers experience and that it is developmental. The Stages of Concern Questionnaire looks at teachers' concerns about adopting a particular innovation. The Levels of Use Interview looks at how teachers are actually using a particular innovation. Work on developing, testing, refining and using these instruments in research studies has taken place throughout the middle seventies to the present. A chronological development of each of these instruments has been prepared by the project office, and are found in Appendix A (SoC) and Appendix B (LoU). These chronological tables can be referred to in later discussions.

Two major developments in the project's work have followed and closely paralleled the development of these two instruments. The
first is research in innovation configurations (Hall, Loucks, 1977), (Hall, 1977), and (Hall, Loucks, 1978). Innovation configurations is a term used to specify what actually happens, what people are doing when they use or implement a particular innovation. Research in innovation configurations has been based upon data which shows that: different teachers will implement an innovation in different ways, implementation (or use of an innovation) will change over time; what is perceived as innovation implementation by administrators and curriculum designers may not be perceived as such by teachers; and, implementation does not occur simply because the plans call for it to happen. Thus, to conduct effectiveness evaluation studies on the impact of a particular innovation without doing the necessary research to find out if the innovation has been adopted (and in what way it has been adopted) will be misleading and inaccurate. The project staff has not only researched the process by which an innovation configuration changes, but they have also developed a method by which the researcher can conceptualize and monitor the configuration of a particular innovation as people perceive and implement it over time.  

The second major development has been in the development of a taxonomy of intervention strategies:

In earlier research, the program has been able to identify developmental Levels of Use (Hall, Loucks, Rutherford, and Newlove, 1975) and Stages of Concern (Hall and Rutherford, 1976) the characteristics of individual users of an innovation as they experience the change process in educational
settings. Past research has also analyzed the different configurations, or forms, of the selected innovation (Hall and Loucks, 1979) being implemented.

Recent program research has focused in describing in a systematic fashion the actions and events that occur in relation to the change effort. In order to document what happens to advance or retard a change effort, the program is attempting to develop a "taxonomy of interventions." To date, the work is incomplete. All aspects of the taxonomy have not been fully developed. However, a definition of interventions and a preliminary classification system, or Intervention Taxonomy, will enable us as change facilitators and researchers to make both conceptual and operational distinctions between various types of actions and events that influence the use of an innovation. The taxonomy is being developed from the frame of reference of the change facilitator and with the ultimate goal of proactive change facilitation clearly in view.3

From its beginnings which emerged from the experiences of change facilitators working with teachers and teacher centers in Texas, the research has developed conceptual frames for studying how individual teachers adopt innovations, for analyzing the nature of the innovation being implemented, for studying the nature of change agent interventions and their effect on innovation adoption. Moreover, the model is systemically complete, containing the innovation, the user system, the change agent system, and the temporary system which results from the interaction. It is important to remember that the important central assumption of the fully elaborated model is that innovations are adopted by individuals and that the process of innovation adoption is developmental.

At a 1979 AERA symposium the Austin Center presented a case study which uses all of the conceptual frames in the model as they
are currently in place (R&DCTA, 1979). The case study is of a midwestern junior high school that received a Teacher Corps Grant with a university in the same city. Both the SoC and the LoU were administered to teachers over a two and one-half year period. The innovation configuration was developed and updated over time. The taxonomy of interventions was developed and field tested at this site.4

The Conceptual Frame

As most of the publications from the Center for Research and Development indicate, the conceptual frame for the CBAM model is most carefully articulated in Hall, Wallace, and Dossett (1973). This article credits the beginnings of the concept to the work on concerns conducted by Frances Fuller (1969) and the authors' work in the field in a number of change efforts in both education and industry. This review will look at both the Fuller article and the Hall (et al.) article in turn.5

The Fuller article begins with the assertion that the opinion that "many education courses are not relevant to the needs of teachers is so common in the academic community, in legislatures and among the public at large that it requires little documentation." Rather than accept the idea that the courses are worthless, Fuller begins her research with the hypothesis that the courses do not meet the needs of the students. Impetus for this hypothesis comes from a pilot of 100 students, 97 undergraduates with no teaching experience
and three teachers with a good deal of teaching experience. In individual interviews about a course all students took, the three experienced teachers were the only people who thought the course was interesting and useful. What was it about their experience or the undergraduates' experience that created these results?

As the first step in her research on teacher concerns Fuller reviewed a number of prior studies about the concerns of beginning teachers.

To summarize the data as it is reported by these investigators, what we know is that beginning teachers are concerned about class control, about their own content adequacy, about the situations in which they teach, and about evaluations by their supervisors, by the pupils and of their pupils by themselves.6

The research, conducted on widely different groups of beginning teachers is remarkably consistent in the concerns expressed. Moreover, in none of the studies were concerns expressed about the content usually found in beginning education courses.

Fuller's research was conducted in two studies. The first study made use of a group counseling session which was substituted for the regularly scheduled weekly teaching seminar with two small groups of teachers beginning their internship. These student teachers were guaranteed confidentiality and told they could discuss anything they wanted to. Their supervisor was not present for these weekly sessions, and the sessions took place throughout their student teaching
semester. The second study asked a similar population of beginning student teachers to write their concerns out. These written statements were collected biweekly over the semester of their internship.

The results of both studies are similar. First, the topics discussed or written separate into two clear categories: concern with self and concern with pupils. Second, there is a gradual shift in concerns over the semester from concern with self to concern with pupils (although a number of the population did not make this gradual shift).

The next step in the research was to analyze the previously reviewed studies in light of these two categories. Fuller notes three points. The first is that all ten of the studies are consistent despite their diverse populations, the different years in which they were conducted, and the fact that the researchers were not aware of the other studies. The second is that all of the studies support the idea that beginning teacher concerns are largely with self:

i.e., concern with self-protection and self-adequacy: with class control, subject matter adequacy, finding a place in the power structure of the school and understanding expectations of supervisors, principal and parents.

and not pupil:

with their learning, their progress, and with ways in which the teacher could improve this progress.7
Finally, it was interesting to Fuller to note that this pattern was consistent with not only pre-service teachers but also beginning in-service teachers as well.

As a result of this research process, Fuller conceptualizes concerns of teachers as developmental in three stages. The first stage is "The Pre-Teaching Phase: Non-Concern." Fuller believes that until the pre-service teacher has had actual classroom experience, he/she will have very little, if any, involvement with concerns about teaching even though many such individuals take education courses at this time. The second stage is "The Early Teaching Phase: Concerns with Self." Fuller asserts that these concerns are deeply felt but seldom discussed overtly by beginning teachers. They were the subject of intense discussion during the confidential counseling sessions and exit interviews but rarely surfaced elsewhere. These concerns "all are assessments of the teacher's adequacy, by the class and by the supervisor. Taken together they are a massive concern to beginning teachers." The final stage is "Late Concerns: Concerns with Pupils." While Fuller has found less data on this stage, nonetheless it seems to be a stage in which experienced teachers "focus on pupil gain and self-evaluation as opposed to personal gain and evaluation by others." 8

Although their use of the word concerns in the theory indicates their heavy indebtedness to Fuller's earlier work, Hall, Wallace, and Dossett (1973) elaborate this conceptual frame in their positing of the Concerns Based Adoption Model. The important first assumption
that is made is that adoption of educational innovations is analogous to beginning teaching:

Broadly speaking, the concerns hypothesis states that when an individual encounters a new situation that requires interaction with others, his/her behavior is initially governed by concerns about his/herself and the demands that this situation makes upon him/her. As these self-concerns have become resolved, the individual moves to concerns focusing on the nature of the task and the quality of the task performance. Ultimately, the individual becomes concerned about the impact he/she is making on others and strives to optimize his/her effort for others.9

Embedded in this paragraph in which the authors generalize the work of Fuller to apply to a more generic situation are three important characteristics. First, unlike other research on innovation adoption, the model assumes that a given system has already decided to use a particular innovation. As the authors state, "adoption, as used in this model, goes far beyond the initial decision to adopt; it closely parallels the Clark-Guba phases of trial, installation, and institutionalization." The assumption results in a more focused definition of the adoption process than is posited in many of the theories reviewed by Havelock (1973).10 Second, while the authors state that the understanding of the social setting is important in any research on innovation adoption, they assert that the individual still must adopt the innovation in his/her own classroom and that too little attention has been paid to this encounter. Finally, the authors feel innovation adoption is a developmental process, not an
event, and an individual's concerns about and ways of using a particular innovation can be expected to change over time. At the close of the article, the authors argue strongly for this perspective for viewing innovative adoption:

It may seem to some readers that conceiving of the adoption process as a "growth continuum" for individuals and institutions is of little significance. However, the authors firmly believe that failure to view the innovation adoption as a growth process may account for the "blunting" effect noted by Goodlad. The fields of social psychology and organizational development provide the contextual variables that comprise the change process; however, these fields do not have the adoption of specific innovations as a goal.11

These constructs of the concern model: the focused definition of implementation, the individual as the focus of the change process, and the developmental nature of the process are then articulated into two scales, representing two complementary developmental processes: concerns about the innovation expressed by the users and their actual use of that innovation. Appendix A presents the seven stages of concern initially developed by the Center, and Appendix B presents the six levels of use that were initially developed.12

While they are present in this article, the two later developments in the model--innovation configurations and a taxonomy of interventions--appear in beginning form. The importance of understanding just how a particular innovation is being implemented is emphasized as part of the complexity of assessing levels of use. The taxonomy of interventions is the as yet unformalized frame of the change
facilitator's interventions to promote the adoption of two innovations in the case study (pp. 22-27) and his/her role as 'trouble shooter' or 'quarterback' who "transforms his/her data about user needs and readiness into tentative action plans designed to resolve concerns, satisfy needs, and advance the level of use of the innovation" (pp. 19-20).

The authors end the article by stating, "We have shared the Concerns Based Adoption Model with the profession in the hope that it will be of use to practicing adoption agents and will stimulate others to think about and study innovation adoption from this perspective . . . we will continue our efforts to refine and simplify the model." Research on the model has, in fact, continued; and, while there has indeed been development, the central hypotheses as presented in this article remain unchanged:

1. Innovation adoption can be defined as the interaction of the user system and the individuals who implement the innovation with the innovation.

2. Innovation adoption is a developmental process, not an event or a series of discrete events.

3. The process of adopting educational innovations must be studied through the individual teacher's perspective and this perspective includes the teacher's feelings or concerns about the innovation and the way in which the teacher uses the innovation.

4. It is expected that the teacher's concerns and use of the intervention are both interdependent and analogous in their developmental stages.

5. The innovation itself must be clearly delineated so that research in innovation adoption is accurate and
reflects what is actually being implemented rather than what the rhetoric asserts is being implemented.

The CBAM System

The model is based upon the assumption that educational innovations are facilitated from outside the system. "The resource system is an agency or an institution that has the capability to assist the adopters of an innovation. In the beginning of the collaborative adoption process, the resource system is the senior partner in the collaborative system." The goal of the resource system is to assist the innovation adopters to become independent users of the innovation, both comfortable and sophisticated in their use and concerns. The resource system interacts with the innovation adopters, or user system, diagnosing system concerns, readiness, and use and designing and delivering appropriate technical assistance that will aid innovation adoption.

The user system, given the model's definition of innovation adoption, is "aware of its own needs and has made the decision to adopt the particular innovation as a solution to its needs." A successful adoption process will see the user system gradually become independent of the resource system as it institutionalizes the innovation to meet its needs.

The process as diagrammed in Figure II.1, also indicates the presence of a collaborative system, the temporary system which exists
Figure II.1
Conceptual Structure and Functional Process
Organization of CBAM Components

LINKAGE
CHANNELS INVOLVING
CHANGE AGENT

USER SYSTEM
Analysis of Institutional Needs
Analysis of Institutional Capabilities
Resolution of Concerns
Progress in Usage and Readiness for Use
Progress in Stage of Users' Concerns

INFORMATION
Needs
Capabilities
Concerns
Usage

RESOURCE SYSTEM
Innovation Development
Training System Development
Concerns Analysis
Usage Analysis
Diagnosis and Evaluation
Action and Treatment Selection

ACTION
Probing for Concerns
Orientation
Training
Consultation
Treatment
until the user system achieves "independent use of the innovation."

**Stages of Concern Concept**

George (1977), Hall, George and Rutherford (1977), and Hall and George (1978) are representative papers which show how the Stages of Concern has been developed as a logical outgrowth of the CBAM model.¹⁴

Before presenting the concept of concern, Hall and George briefly review change literature which points out the importance of the personal dimension in the change process. Personality characteristics, receptivity to change, attitudes toward the innovation, and attitudes toward the system are all mentioned as important individual attributes which will be important variables in any process of innovation implementation. Accordingly, the concept of concern is posited as basic in the CBAM models and defined as:

The composite representation of the feelings, preoccupation, thought, and consideration given to a particular issue or task is called concern. Depending on our personal make-up, knowledge, and experiences, each person perceives and mentally contends with the given issue differently; thus there are different kinds of concerns. The issue may be interpreted as an outside threat to one's well-being, or it may be seen as rewarding. There may be an overwhelming feeling of confusion and lack of information about what "it" is. There may be ruminations about the effects. The demand to consider the issue may be self-imposed in the form of a goal or objective that we wish to reach, or the pressure that results in increased attention to the issue may be external. In response to the demand, our minds explore ways, means, potential barriers, possible actions,
risks, and rewards in relation to the demand. All in all, the mental activity composed of questioning, analyzing, and anticipating consequences is concern. An aroused state of personal feelings and thought about a demand as it is perceived is concern.¹⁵

Concerns theory hypothesizes that an individual's concerns with an innovation are developmental and depend upon the individual's familiarity with and skill in using the innovation. Early concerns deal with self or how the individual will be affected by the innovation. These concerns are replaced by task concerns, or the logistics and practice of implementing the innovation. The final set of concerns are impact concerns, or how the innovation affects students, other professionals and students, or education in general. Figure II.2 presents the definitions of each stage of concern. Stages 0 and 1 are non-concern stages; Stage 2 is concerns about self; Stage 3 is concerns about task; Stages 4, 5, and 6 are concerns about impact. It should be noted that the authors feel that at any given time, an individual will express concerns across the spectrum of stages and that this profile will depend upon the individual's degree of involvement and comfort with the innovation. For example, a teacher just beginning to use a particular innovation will be expected to have fairly intense concerns at Stage 3 and perhaps Stage 2 and low concerns at other stages.

Two instruments have been developed to assess an individual's concerns. Newlove and Hall (1976) present a "procedure for eliciting concerns from individuals through the use of an open-ended question."
Figure II.2

Stages of Concern About the Innovation*

0 AWARENESS: Little concern about or involvement with the innovation is indicated.

1 INNOVATION: A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about herself/himself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

2 PERSONAL: Individual is uncertain about the demands of the innovation, her/his inadequacy to meet those demands, and her/his role with the innovation. This includes analysis of her/his role in relation to the reward structure of the organization, decision making, and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

3 MANAGEMENT: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

4 CONSEQUENCE: Attention focuses on impact of the innovation on students in her/his immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.

5 COLLABORATION: The focus is on coordination and cooperation with others regarding use of the innovation.

6 REFOCUSING: The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

This instrument provides a quick and economical way for persons re-
sponsible for facilitating personalized change to acquire useful in-
formation. As this study was a research study, the standardized
SoC questionnaire was used. A more detailed presentation of the de-
velopment of the questionnaire along with reliability and validity
studies are presented in Chapter IV, Methodology. Appendix A con-
tains a full chronological development of the instrument.

The Levels of Use Concept

Hall, Loucks, Rutherford and Newlove (1975), Loucks, Newlove,
and Hall (1976) and Loucks (1977) all present the concepts of Levels
of Use. As there is a good deal of overlap in the papers, the
first and third will be used in this discussion.

In her review of the literature on implementing innovations,
Loucks (1977) shows how different studies discuss the importance of
measuring innovation implementation from the perspective of the in-
novation and its characteristics. Loucks states that the CBAM Pro-
ject "has conceptualized a generic implementation variable that de-
scribes the performance of an individual who uses an innovation." Hall et al. (1975) present a more detailed discussion of the impor-
tance of measuring innovation implementation through the behavior of
the individual user:

Based on our experiences in the field as practitioners and
adoption agents and on our past research efforts, we have found that "change" or innovation adoption is not accomplished in fact just because a decision maker has announced it. Instead, the various members of a user system, such as teachers and professors, demonstrate a wide variation in the type and degree of their use of an innovation. One of the reasons for this variation is the commonly overlooked fact that innovation adoption is a process rather than a decision-point—a process that each innovation user experiences individually. A basic assumption of our present research is that this variation in use by each individual innovation user must be behaviorally described and systematically accounted for if innovations are to be used with maximum effectiveness.

The authors posit eight different levels of use of an innovation. These are presented in Table II.3. Like the Stages of Concern, as an individual becomes increasingly familiar and skilled at using an innovation he/she can be expected to move through "orientation, management, and integration" stages of use. The Levels of Use scale is different from the Stages of Concern in that it focuses on describing the behavior of innovations users and not on attitudes or concerns. While the Stages of Concern Questionnaire will produce an individual profile of concerns across a number of stages, the Levels of Use Interview is expected to produce a description of user behavior that places an individual clearly in one of the eight stages.

The interview itself makes use of a series of focused questions which allow the respondent to respond naturally. These questions use "a branching technique [Figure II.4] derived from the decision points which separate each level." A more detailed presentation of the development and characteristics of the interview is found in Appendix B. Reliability and validity studies are presented in Chapter IV,
<table>
<thead>
<tr>
<th>Level of Use</th>
<th>Behavioral Indices of Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV Renewal</td>
<td>The user is seeking more effective alternatives to the established use of the innovation.</td>
</tr>
<tr>
<td>V Integration</td>
<td>The user is making deliberate efforts to coordinate with others in using the innovation.</td>
</tr>
<tr>
<td>IVB Refinement</td>
<td>The user is making changes to increase outcomes.</td>
</tr>
<tr>
<td>IVA Routine</td>
<td>The user is making few or no changes and has an established pattern of use.</td>
</tr>
<tr>
<td>III Mechanical Use</td>
<td>The user is using the innovation in a poorly coordinated manner and is making user-oriented changes.</td>
</tr>
<tr>
<td>II Preparation</td>
<td>The user is preparing to use the innovation.</td>
</tr>
<tr>
<td>I Orientation</td>
<td>The user is seeking out information about the innovation.</td>
</tr>
<tr>
<td>O Nonuse</td>
<td>No action is being taken with respect to the innovation.</td>
</tr>
</tbody>
</table>
Figure II.4
Overview of Branching Format of the LoU Interview

Are you currently looking for information about the innovation?

Have you decided to use it and set a date to begin use?

Are you using the innovation?

What kinds of changes are you making in your use of the innovation?

- USER-ORIENTED
- NOTHING UNUSUAL
- IVA

Are you coordinating your use of the innovation with other users, including another not in your original group of users?

Are you planning or exploring making major modifications or replacing the innovation?
Methodology.

Other Adoption Models

A review of the literature and a computer search through journals and ERIC was undertaken to study other innovation adoption models, both within the field of education and within other related social fields. This section presents the work in other related fields, education and follows these reviews with a brief summary and comparison with the approach of the CBAM model of teacher adoption of innovations.

Other fields. Greaves (1982) studies two key variables in the implementation of an innovative nursing curriculum. His findings lead him to assert that innovation adoption is dependent more on systemic and personal variables than it is on the nature of the curriculum. Successful implementation of the new curriculum occurs when the client clearly understands the nature of the innovation; how it affects him/her; and the change agent allows for a developmental process of adoption by the client. Unsuccessful implementation will occur if the curriculum is communicated purely as technical information to be used by clients because they rationally perceive it as superior to past curricula. Rosen and Metsch (1977) study how Professional Standard Review Organizations have failed in the health field. They found that a common characteristic of these innovative organizations
is that they are staffed by fringe, or liminal, type people who are cut off from the system and that the organization itself exists at the fringe of the system. This staff and organizational pattern poses no risk to the existing power structure. In fact, the innovation has been set up for problematic adoption in its reliance on a rational acceptance of its ideas and goals and its ignoring of important systemic variables. Baldridge and Burnham (1975) show that individual, organizational, and environmental factors will influence how an organization adopts innovations. It is their contention that the structural or organizational characteristics, such as size, complexity, and role definition, are the most important variables in explaining innovation adoption. While they do assert that heterogeneity in the environment will encourage an organization's adoption of innovation, structural variables are found to be more important. Downs and Mohr (1976) feel that success in predicting what kinds of innovations will be adopted by whom is problematic. They also feel that research on innovation adoption that is either multiple (more than one particular innovation) or self-report is also problematic. They go on to begin a typology of innovations which differentiates between primary (innovations which are intrinsic to an individual system) and secondary (innovations which are part of the environment or external) innovations. They also are careful to point out that the time it takes for an individual or organization to adopt an innovation is quite different from the depth to which the innovation is adopted. The same authors push their theory of innovation
adoption still further (1979). This article presents three important concepts: (1) the "innovation decision" hypothesizes that an adoption process will vary according to a context and one must pay careful attention to the nature of the innovation for each context; (2) the adoption process is two-stage—diffusion and adoption—and only in the second stage is the innovation actually used, or implemented; and, finally, (3) the authors hypothesize a "fair-trial" point ratio to determine innovation adoption and this concept is a use-based model. Finally, Nelson and Yates' (1978) collection of nine case studies of innovation in a variety of settings and social organizations points out the difficulties of generalizing system parameters that would fit across innovations that are site-specific. Very few ideas about adoption of innovations surfaces as generalizable from the studies other than planning must be an ongoing activity during the implementation phase.

Education. A number of authors begin their discussions of innovation adoption with the assertion that the traditional rational diffusion process has not worked. Kerr (1978) deals specifically with the role of the media consultant in the innovation process. He points out that a successful innovation process must both see the given system ecologically and recognize that teachers cannot be grouped together easily. Baldridge (1980) emphasizes the political and systemic nature of innovation, that personal interaction is crucial to an innovation's success, and that innovations have a discernible life
cycle all their own. House (1976) presents nine propositions for innovation which are based upon the assumptions that the political and systemic properties of an organization must be considered and that individual teachers' concerns need to be kept in mind during the implementation process.\(^{30}\)

Whitney (1979) asserts that the research/diffusion model is ineffective because it is power coercive. Successful innovation adoption must be a self-initiated process by teachers with the locus of control within their scope. Systemic support and clarity of expectations are also two important factors in what the author sees as a developmental process. The author also ties an in-service model of assessing problems, developing solutions, and implementing innovations to the aspect of self-initiated change he sees as central.\(^ {31}\)

Louis and Rosenblum (1979) also emphasize the need for planned change and the need for teachers to participate in the decision-making process of the planned change model. However, their study does report the data according to organizations and roles rather than individuals.\(^ {32}\) Roweton (1979) also asserts that planned change depends not upon the innovation but upon the individual teacher's use of the innovation. This article is interesting in that while it asserts that the individual teacher's perspective is central to the innovation process, the author still pursues ways to make the research and diffusion process more effective.

One of the most interesting collections of views of the traditional research and dissemination (RDX) process is found in Radnor...
The articles point out the shortcomings of the traditional RDX model and introduce the importance of some recurrent ideas. Rich (Chapter Four) points out that "users are affected by the processes through which the end products are produced. If they are not part of or do not understand the process, then the information is of little use." Traditional innovation adoption models confuse the qualities of the product with the quality of the process. This classic model of diffusion doesn't work in educational settings. A more successful model would be one which engages the user and begins with user concerns. There needs to be a partnership between researcher, linkage agent, and user. The innovation adoption process needs to be seen systemically. Zaltman and Sikorski (Chapter Five) clearly point out that the knowledge utilization process is developmental, systemic rather than rational, focused on individuals rather than organizations, and user rather than research driven. Kotler et al. (Chapter Six) point out the same issues from a marketing perspective. The RDX process should understand the market and develop marketing strategies according to user needs. Lingwood and Havelock (Chapter Seven) attempt to synthesize a number of common themes present in the other articles. The innovation adoption process cannot work with the classic top-down rational model. They hypothesize a linkage model which emphasizes client need orientation, a systemic and developmental view of the process, a responsiveness to individuals, and an agent or facilitator to actively bridge the gap between knowledge production and utilization.
Aylen et al.'s (1978) study was begun because of the sense that many educational innovations have failed and haven't been implemented. The study of change or innovations is poorly understood, especially the process of innovation adoption. The rural diffusion model is the prevalent one used and this model does not recognize the systemic complexities of educational organizations nor does it provide a way to focus on the individual teacher as innovation adopter. In keeping with this rationale, Aylen's review of the literature highlights the narrowness of the adoption process within the larger concept of change, the cyclical nature of innovation adoption, political and sociological features of the system and role of teacher, and the need to focus on the individual adopting teacher.

Using the Rogers-Shoemaker (1971) adoption scale—non-awareness, awareness, interest, evaluation, trial, adoption—Aylen developed an interview and questionnaire protocol designed to:

1. Identify several characteristics of teachers who adopt recommended teaching practices in their classrooms,
2. Identify characteristics of the social system that are related to the adoption of recommended practices,
3. Identify events or influences such as in-service instruction, personal contacts, work toward certification, and personal endeavors that are related to the adoption of recommended practices,
4. To investigate the relationship between adoption of recommended practices and (a) sources of information available to teachers, (b) the degree to which the teacher views the occupation as a profession, (c) the teacher's participation in professional ac-
Activities such as taking an active part in professional organizations and reading professional journals (p. 45).

The interview protocol, while far less systematic than the Levels of Use Interview, does use five questions to place an individual teacher in the Rogers/Shoemaker scale of innovation adoption:

(Awareness) Do you know about this teaching practice?
(Interest) Have you sought any additional and more detailed information on this practice?
(Evaluation) Have you given any consideration as to whether you can apply this practice to your teaching situation?
(Trial) Have you tried out the practice to see if it applies to your teaching situation?
(Adoption) Have You Adopted this Practice as A Regular Part of Your Teaching? (p. 47)

The authors looked at teacher adoption of 17 innovative practices and found that climate variables such as the existence of a staff committee for the innovation, in-service activity and professional involvement, and class size were positively correlated with the degree of innovation adoption.

A number of previous dissertations also focused on the factors which influenced innovation adoption by teachers. All of these studies used one form or another of self-report format as the measure of innovation adoption and the nature of the innovation being adapted.
Medieros (1967) found that good student-teacher relationships were the primary factors in successful adoption. Wygel (1966) focused on teacher characteristics as factors and found that "innovators" perceived themselves as such and were generally younger. Yegge (1971) found that support from significant others was an important variable. Haven (1973) found it difficult to isolate specific variables and found that the process of innovation adoption was not uniform. Bettas (1974) found the degree to which teachers were positively involved in the development of the innovation was correlated with their degree of adoption.

The work of Fullan (1972) and Fullan and Pomfret (1977) is perhaps most directly analogous to the CBAM research. In the earlier work, Fullan sets up clearly the rationale for looking at innovation adoption through the user, teacher, perspective. The complexity and the developmental nature of the process of innovation adoption make the industrial/rural model an inadequate frame. The use of the innovation has to be carefully tracked because there are a wide range of variables that may interact with the developmental process. While the Havelock and Benne models are good, Fullan sees them as focusing on planned change, as having an organizational or innovation rather than a user focus. As such, these models will be less sensitive to what actually happens in the process. For example, Fullan sees the innovation as gradually becoming an end in itself with user and system interaction and impact which are not taken into account in planned change models.
Based upon this discussion, he posits a model for effective change or innovation adoption which accepts the process as developmental, has a systemic perspective, and looks at the way in which the individual user is actually implementing the innovation. Too much of the past research depended upon reports of supervisors about whether or not the innovation is being used and a check list of administrative "process" goals (i.e., the workshops introducing the innovation were given and attended by all the users).  

The Fullen and Pomfret article's major focus is on the review of implementation studies. The authors point out that past discussions of innovation implementation have not really focused on the process of implementation. They find the past studies problematic for the following reasons: poor definition of the innovation does not lead to knowing what exactly has changed; implementation is combined or confused with other steps in the change process; self-report questionnaires' poorly understood definition of what the innovation is or administrators' perceptions of some generic innovation in their district or school; and, observation studies which tend to focus on the innovation as planned rather than the actual process of implementation. The organizational studies that have been done show that there are real differences in both the degree of quality of implementation of innovations across and within organizations.
A Brief Summary

As the Fullan and Pomfret article indicates, very few studies focus as directly on the actual user and the user's process of innovation adoption as does CBAM. Most of the other studies focus on the causes or features which influence innovation adoption. Generally, recent writing agrees with the CBAM model in a number of assumptions:

1. The failure of innovations necessitates more intensive study of the adoption process.
2. The individual user is an important part of the process.
3. Implementation must be separated out from the rest of the change process.
4. Planned change is a complex, problematic process in social systems. The classic research/diffusion theory does not hold. Models which are both systemic and see change as a developmental process must be developed.
5. Classical definitions of the theoretician and practitioner are not suitable for the innovation adoption process.

However, the CBAM model differs from most of the other studies in that it has carefully built its theory in stages:

1. Clear focus on ways to isolate and reach consensus on what exactly the innovation is.
2. Clear focus on ways to measure an individual's degree and fidelity of innovation use.
3. Clear focus on the systemic issues which relate to an innovation adoption process.
(4) Clear focus on the use of the above data to develop an intervention theory to maximize the adoption of a particular innovation.

The core of the model remains the study of actual innovation adoption. It is this core which was the central thrust of this study.
Chapter II Notes


2. Gene Hall and Susan Loucks, "A Developmental Model for Determining Whether the Treatment is Actually Implemented," R&DCTE (Austin, TX, 1977); Gene Hall, "What Context? Is it in Use" R&DCTE (Austin, TX, 1977); and Gene Hall and Susan Loucks, "Innovation Configurations: Analyzing the Adoptions of Innovations," R&DCTE (Austin, TX, 1978).


7. Ibid., p. 211.

8. Ibid., pp. 214-216.


11. Hall, Wallace, and Dossett, p. 28.

12. It is interesting to note some of the earlier characteristics of the model that appear in this article and which are refined in later research. The two scales are models. As yet, they have not been validated by the development of either the LoU Interview or the SoC Questionnaire. These two instruments are
not mentioned as techniques for assessing the process of innovation adoption. Stage Two in both use and concern scales has undergone a slight shift as a result of further research. While it is still a 'non-user' stage, the emphasis has shifted from the respondent's receiving training to actively seeking information about the innovation prior to planned "use." Stage IV in the Levels of Use scale has since been broken down into two substages as a result of continued research. These substages are: IV A, comfortable use of the innovation as designed; and IV B, slight modifications in the innovation to increase student impact.


15. Hall and George, pp. 8, 9.

16. Ibid., p. 4.


19. Loucks, p. 3.

20. Hall et al., p. 52.


22. Ibid., p. 8.


35. The next four notes are found in Michael Radnor, ed., Information Dissemination and Exchange for Educational Innovations:
Conceptual and Implementation Issues of a Regionally-Based System, Northwestern University (Evanston, Ill, 1977).


37. Gerald Zaltman and Linda Sikorski, "Implications of Diffusion Research for RDX."

38. Philip Kotler et al., "A Marketing Approach to the Development and Dissemination of Educational Products."


42. Benjamin Raymond Wygel, "Personal Characteristics and Situational Perceptions of Junior College Instructors as Related to Innovativeness," Diss. (University of Texas at Austin, 1966).


CHAPTER III
AN OVERVIEW OF THE SMITH SCHOOL INNOVATION

Introduction

The use of the CBAM model to study the Smith School innovation seems appropriate. This section presents an overview of the Smith School innovation, the theory underlying the new organization of the school, and the specific innovations that have been undertaken. As the CBAM designers state, it is important to be clear about the characterization of the innovation configuration. As Smith School has been a lab school with a history of attempting innovative ideas, a correct characterization of the innovation is perhaps more important. Moreover, as suggested by the CBAM designers, the model cannot be effective if its focus is too wide. Thus, the author has studied one of the specific innovations, the transition period, as an integral part of the general attempt to restructure the school.

The Smith School: An Introduction

The following introduction to the innovations at the Smith School appeared in the "Visitor's Guide" to the school. It is quoted here at length because the author feels it is the best description available of the school.
Program

The Staff has begun exploring the area of developmental theory associated with Piaget, Gesell, Bruner, Kohlberg and others. In particular they were concerned with how the theories could be applied to the classroom to enhance and enrich the possibilities for children's growth. Viewing a child's development as moving from the simple to complex, concrete to abstract, and absolute to relative, the staff has created a profile of a child's development in the areas of social/personal development, communication, concept development, and problem solving. Within each of these areas, eight or nine specific developmental criteria have been identified and analyzed.

For example, in the area of social/personal development, the following developmental criteria are observed:

- Self-Regulation
- Cooperation
- Self-Evaluation
- Leading
- Following
- Social Perspective
- Enthusiasm
- Self-Direction
- Resolving Conflicts

Using knowledge gained from the literature and their own experiences with children, the staff identified a continuum for each of the developmental criteria. Several examples show sample behaviors for a child at different developmental points. Thus, staff and parents can observe and discuss a child's developmental progress in order to plan appropriate educational activities. For example, although two children may be ready to work on multiplication problems, one child may need much work with manipulatives and the other child may be able to grasp the concept through paper and pencil activities. When a teacher plans a group activity that requires a leader, he/she might choose a child who has developed leadership skills for a difficult task or choose a child needing leadership experience for a less difficult task.

We have learned several important things through our initial efforts with the checklist.

First, while the developmental approach focuses on patterns of growth common to all children, there are many individual differences. Children at the same developmental level may show differences in personality, inter-
ests, learning styles, content knowledge, and quickness. Therefore, in addition to the focus on general patterns of growth suggested in the Developmental Checklist attention should be given to those individual differences which enrich the learning process.

Second, children's developmental growth tends to move along continuums from less to more sophisticated levels of behavior. However, development rarely proceeds smoothly. Growth along a particular continuum may be intermittent, occur in spurts and even appear at times to be going in reverse.

Third, the developmental continuums often overlap with one another. At times, they are so entwined that particular observations of a child's behavior may simultaneously suggest levels of maturity on several related continuums. Rarely does development occur along one continuum without affecting developments on other continuums. For this reason, it is sometimes difficult to label a set of behaviors as belonging solely to one continuum. For example, when observing a child who makes a sophisticated move in a checkers game setting up a "triple jump," we might conclude one or a combination of the following: (1) the child thinks about many variables simultaneously, thus exhibiting the ability to think complexly; (2) the child is able to mentally project several moves in advance, thus exhibiting the ability to make abstractions; and/or (3) the child places him/herself in the opponents' position and can guess the moves that he/she would be likely to make--to decentralize.

Fourth, children exhibit a range of behaviors, not just a single point of development along a continuum. Children sequentially exhibit behaviors at different levels--one minute acting immature and the next minute being very sophisticated. Children's behavior can be best described as falling within a range, rather than being at a point of development.

Fifth, early learning experiences provide the building blocks for later stages of developmental growth. Stated another way, more advanced levels of development subsume earlier levels.

Sixth, understanding children's developmental levels and needs helps teachers and parents provide appropriate learning opportunities. This insures that children will not be frustrated by learning activities which are too
advanced nor bored by activities which are too simple, but rather challenged and kept on the "cutting edge" of their own development.

Seventh, learning opportunities which are "open-ended," which provide for a range of possible responses at different maturity levels, enable the teacher to observe differences in children's developmental levels more easily than "closed-ended" activities.

A Developmental Profile is being created that lists the continuum and allows staff to record the range of a child's behavior on each continuum.

The staff is also presently involved in expanding the Profile to include aesthetic development, psychomotor development (movement and manipulation), and development of symbol understanding.

**Program**

In order to implement this developmental profile methodology, Smith School is providing a flexible way for children to pass through elementary school years.

First, it is important that age and calendar no longer be the criteria for children moving from one classroom to another. Children of the same age may be at various academic and developmental levels. The school provides for flexible entrance to school, various transition times within the school year, and flexible exit points. Therefore, neither classrooms nor children are labelled according to grade designations.

Flexible entrance—Rather than the accepted practice of children beginning school if they are five between January 1 and December 31, children at Smith School enter at various points during the year. Children enter in September, if their birthday is between July 1 and December 31. They enter in January, if they become five between January 1 and March 31. If children become five between April 1 and June 31, they enter in April.

As more children enter each year in January and April the grade level designations become less meaningful for children, parents and staff.

In addition, rather than waiting one year before be-
ginning a full day school program, five-year-old children at Smith School are eligible for a full-day program at the end of four weeks or as soon after that time as is appropriate for the individual child, as determined by parents and staff together.

**Transition**—At the end of each quarter, approximately every nine weeks, each child is evaluated as to whether their present placement is appropriate. The evaluation is actually an ongoing informal process involving use of the developmental profile and academic accomplishments. If another placement seems more appropriate, the child may then move to another classroom.

**Flexible Exit**—Since the children are not placed in grades and there is no set time for children to be at Smith School, there is an opportunity for children to enter the junior high program in either September or January. Although most children will spend approximately seven years at Smith School, some children will need to spend less time and others more time.

The other part of the Smith School program is the connection of the classrooms and their relationship to the Developmental Profile. Classrooms are organized into four clusters: Early Learning Centers, South Learning Centers, North Learning Centers, and the Workshop Program.

**Early Learning Centers**—The children in these classrooms range in age from 4-7. Early Learning Centers emphasize those skills needed for success in all curriculum areas. The goal is to build a firm foundation for later learning.

**South Learning Center**—These children range in age from 5 to 9.

**North Learning Center**—Children in these classrooms range in age from eight to twelve.

**Workshop Program**—For some of the children aged 9 to 12 there is a different format. Whereas the classrooms in the Early, South and North Learning Centers are self-contained with one teacher responsible for approximately 25 children, children in the workshop program move from one teacher to another throughout the day. This program's only academic requirements are a fourth-grade reading level and a basic understanding of the four mathematical operations with whole numbers. Each quarter children choose four
workshops from a variety of topics within each of the curriculum areas including art, music, physical education, and foreign language as well as language arts, math, science, and social studies. Children are expected to handle long-term assignments with less direction from the teacher. During each of these nine-week concentration periods, students are given basic knowledge by the teacher and then guided to pursue further skills in areas of interest.

Some children participate in a partial workshop program. This program permits children from the North Learning Center to attend workshop classes for a particular curriculum area for the quarter. This might continue each quarter or only once or twice each year.

The progression of students through Smith School can be diagrammed the following way.

ELC  SLC  NLC  Junior High

Partial Workshop

Full Workshop

Staffing

There are presently twelve classroom teachers at Smith School and their teaching assignment depends on the numbers of children at different developmental levels.

In addition to the classroom teachers a number of other staff are available to assist in the education of the Smith School children.

Specialists--Teachers in art, music and physical education are available four days per week to provide instruction in each of these important areas. A foreign language teacher in French and Spanish is available each morning to provide instruction to our ten-, eleven-, and twelve-year-old children.

Title I--Smith School is a Title I school and through the program aides are provided to assist the classroom teachers in meeting the needs of those children having some difficulty in reading or math.

Resource Team--In addition to a full-time guidance counselor and part-time remedial reading teacher to work
with the children, there are special education staff available to work with children with more serious needs. A half-time speech and language teacher works with children of all ages. Children with severe learning disabilities or need for more intense counseling are served by two special education teachers. One is full-time and one half-time.

Library--The library, in the basement of the School of Education, is extremely important to our program, providing the needed resources to both students and staff.

Other Special Features

After school day-care program--Because of the many children of working parents and university students, Smith School provides the space for an after-school program. The program has been extremely successful and always has a waiting list. Another elementary school in Amherst has recently adopted this program.

Center for Research in Applied Developmental Theory--Given the focus of the Smith School program and the link faculty at the School of Education have with Piaget, the Center for Research in Applied Developmental Theory was organized to foster research and discussion in developmental theory. The Center is presently seeking funding for its programs, while providing a forum for seminars in developmental theory.

Although there are questions yet to be answered about the Smith School program, the initial responses from children, parents, and staff are very positive. Our children are learning and enjoying the learning process. We feel we are definitely headed in the right direction.

The Innovation

The choice of the transition period, or transition as it has been described in the Visitor's Guide, has been made for a number of reasons. First, it was suggested by the principal and staff as a
central feature of the new school structure. Second, it was a significantly different procedure than was usually followed by the staff, many of whom work hard at the social issues of development through the creation of a classroom community over the year. Thus, the innovation challenged some of their strongly-held assumptions and practices. Third, it was localizable in time and presented a set of logistical problems that cannot be ignored. Staff members had the innovation clearly in mind as they met deadlines. Finally, it was the one particular innovation that involved all staff members of the school directly.

CBAM designers Loucks and Hord (1980) suggest an inductive method for determining any specific innovation configuration. These steps are presented in Figure III.1. The author sees these steps as necessary in studying an innovation that will have a large population that spans different schools and districts. However, he saw no such procedure as necessary in this case. There was a finite number of subjects (n = 20), and the innovation took place within a single setting, and the developers were the implementers (see Step One of the suggested procedure). The author has already interviewed the principal and the staff members. There was a high degree of agreement as to the configuration of the innovation of the transition period. The series of steps is listed below:

(1) Before the end of the transition period, the teacher looks at each child in his/her room with the developmental criteria in mind.
Figure III.1

A Procedure for Identifying Innovation Configurations

Step 1
Ask Developer for Essential Innovation Components
Ask Facilitator for Essential Innovation Components

Step 2
Interview a Small Number of Users
Observe a Small Number of Users

Step 3
Develop Interview Questions

Step 4
Interview a Large Number of Users

Step 5
Construct a Checklist and Complete for Each User
(2) Children that are identified for possible movement are discussed with other teachers and specialists.

(3) The logistics and environments of other classroom communities are analyzed to see if movement is possible.

(4) The principal is notified of the possible move. A discussion with the child and family is initiated to explore the possibility of the move.

(5) Pre-move activities (visiting new classroom, etc.) are set up to ease the transition.

(6) After the move is made, a child's progress is followed up.

(7) Working with teachers, children, and parents who will be moving into a class to establish appropriate transition activities and adjustment procedures.

It is important to note here that these steps assumed that the proposed transition would be carried out successfully. The staff at the Smith School was clear in its feeling that participation in the innovation of the transition periods must include Steps 1-4, even if the move is ultimately not made, that any number of problems may make movement problematic and those problems should not be seen as ones which interfere with innovation implementation. If, however, staff do not approach transition periods by engaging in the beginning of the process, that should be seen as a sign that the implementation is not taking place.

Some Concluding Remarks

The author would briefly like to review two features of the
Smith School and the innovation that complicate the study. First, the school's "Visitor's Guide" indicated that the overall innovation configuration is highly complex and ambitious. Hall (1975)\(^2\) discusses system overload, a phrase that characterizes a situation in which a number of innovation bundles are introduced into a system. Each innovation requires getting used to on the part of a teacher. While this was the case in the Smith School, a mitigating feature was that each specific innovation was a direct outgrowth of a common theoretical base and was clearly understood by each staff member as part of a whole. Moreover, the staff were the developers. No outside consultants made conflicting demands on them to see that their specific innovation was being implemented. Finally, the staff saw the specific innovation proposed for this study as integral to the new school structure and one which they were committed to trying.

Second, the school's past experience as a lab school in a politically ambiguous environment proved problematic. Implementing innovations often get confused or linked with different people's or subsystems' agendas in a setting of this nature. The author was sensitive to this circumstance, and it must be pointed out that the CBAM model allows for research into individual teachers' implementation of an innovation and maintains a sensitivity to context.

Finally, the author felt that a number of conditions made this study desirable. First, his preliminary conversations with the staff were positive. They looked forward to the study and the opportunity to talk about the innovation as it occurred, even though this dia-
logue was carefully structured. Second, the school system supported the innovation in a number of ways. Third, most of the research conducted on the CBAM model has been done on specific curricular innovations or teaming procedures. Rarely has the opportunity arisen to research a total school innovation, one which begins from many of the change assumptions and values that authors like Goodlad, Sarason, Coser and Keith, and Gross, et al. assert should be at the center of future educational innovations.
Chapter III Notes


CHAPTER IV
THE METHODOLOGY

Introduction

The methodology chapter reviews the reliability and validity of the instrumentation used in the study, presents the proposed study design, and reviews and evaluates the actual research process, and presents an overview of the analysis. Both the SoC Questionnaire and the LoU Interview have been found to have acceptable levels of reliability and validity, although because of the lack of other models and previous research the LoU validity process is somewhat circular. The research design called for gathering questionnaire and interview data at regular, relevant intervals from the entire Smith School teaching staff. This design has been successful, although gathering interview data for one interval during the first year was judged to be unnecessary. The data processing of the instruments was done strictly by the procedures and parameters established by the CBAM model and analysis will look at how teachers' concerns about (as measured by the SoC) and use of (as measured by the LoU) the transition periods changed over time.
The Research Question

As has been stated in Chapter I, the research question for this dissertation can be stated as follows:

To what extent is the Concerns-Based Adoption Model an effective diagnostic framework in assessing the Smith School teachers' implementation of the structural innovation in their school?

Periodic and regular use of both CBAM instruments (the SoC Questionnaire and the LoU Interview) over two years has provided extensive data from which to draw conclusions about the question. Discussion of the instrumentation's development and reliability and validity studies, the proposed data collection design and retrospective evaluation of that design as it might influence results, and the overall plan and rationale for data analysis follow in this chapter. It is important to note here that specific discussion of the data analysis of the SoC Questionnaire is presented in Chapter V and specific discussion of the LoU Interview is presented in Chapter VI.

The SoC Questionnaire--Development, Reliability and Validity

Development. The development of the SoC Questionnaire has been documented by a number of Center papers. Hall and George (1977) and George (1977) both review the process by which the reliability and validity of the SoC Questionnaire has been established. George's
"The Development and Validation of a Concerns Questionnaire" will be used here to present the reliability and validity studies done by the Center.  

The initial step in working towards an instrument was to hypothesize 7 stages of concern (see Chapter II) about an innovation based on the previous work by Fuller already cited and the case studies that the Center staff developed as a result of their experience. Then, over 300 elementary teachers and college professors were asked to write their concerns about the innovations being adopted at their own institutions. These concerns were developed into discrete statements and Q-sorted by ten judges according to the 7 stages. Those items that were agreed upon by six or more judges as being an example of one of the stages of concern were included as an item in an initial questionnaire. Thus, the initial questionnaire did not have an equal number of items per concern (195 total, from 14 to 68 per concern). A subsequent factor analysis produced 10 factors. Three of these were discarded because no items had primary loadings on them. There is a high correlation between the 7 remaining factors and the hypothesized stages of concern.  

A comparison of the hypothesized scales with the obtained factor structure revealed surprisingly high congruence. Stages of Concern scores calculated by summing each person's responses on the items for each scale can be correlated with factor scores computed on the basis of the VARIMAX rotated factor structure. A program developed these correlations, which are summarized in Figure IV.1. This matrix shows
At this point, the final 35 item questionnaire was constructed by selecting the five items for each factor that had the heaviest factor loading (at least .5).
that VARIMAX Factor 7 corresponds to the SoC scale for Stage 0, Factor 1 corresponds to Stage 1, etc. This analysis led project members to infer that the 7 scales tapped 7 independent constructs which could be identified readily with the seven Stages of Concern proposed in the Concerns-Based Adoption Model.

Reliability. As would be expected, the internal reliability of the instrument should be quite high, given the way the items were selected. In fact, Figure IV.2 shows this to be true. The figure represents the responses of 830 teachers and professors to the 35-item questionnaire and KR20 internal reliability studies. Of these 830 respondents, 171 were randomly selected for a two-week interval test-retest reliability study. Over 75 percent (N = 132) returned the questionnaire and the reliability statistics presented in Figure IV.3 are just as strong.

Validity. As the George article states, validity of the SoC Questionnaire was more problematic, given the lack of other accepted measures or theories.

These indicators of measurement stability reflect the reliability of the scores obtained on the questionnaire. The validity of the scores as measures of concerns (as we conceptualize concerns) could not be demonstrated as easily. There does not exist another measure of concerns with which we could easily compare our measure. Following Cronbach and Meehl (1955), we have endeavored to demonstrate that scores on the questionnaire relate to each other and to other variables exactly as we would expect concerns to be
Figure IV.2

Coefficients of Internal Reliability for the Stages of Concern Questionnaire, N = 830

<table>
<thead>
<tr>
<th>Stage</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alphas</td>
<td>.64</td>
<td>.78</td>
<td>.83</td>
<td>.75</td>
<td>.76</td>
<td>.82</td>
<td>.71</td>
</tr>
</tbody>
</table>
Figure IV.3
Test-Retest Correlations on the Stages of Concern Questionnaire, N = 132

<table>
<thead>
<tr>
<th>Stage</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson-r</td>
<td>.65</td>
<td>.86</td>
<td>.82</td>
<td>.81</td>
<td>.76</td>
<td>.84</td>
<td>.71</td>
</tr>
</tbody>
</table>
related. Thus, intercorrelation matrices, judgments of concerns based on interview data, and confirmation of expected group differences and changes over time have been used to investigate the validity of the SoC scores.\(^3\)

The intercorrelation studies were done on the same data that provided data for the reliability studies. Items in each stage correlated with each other to a much higher degree than they correlated with either the total score of the instrument or with items representing the other stages. In addition, scores from the 1974 study were converted to percentiles and a composite table prepared which represents the average percentiles for those individuals who peaked on a given stage. Analysis of those percentiles show expected patterns of concern. For example, scores adjacent to the highest concern tend to be higher than those further away which adds weight to the developmental nature of concerns. The fact that Stage 6 concerns tend to be higher than others for people with high Stage 0, 1, and 2 concerns is consistent with the notion that people with high non-user concerns would naturally be more interested in something else (renewal) than they would be in the innovation's impact on children.

The second study for validity dealt with interviewing ratings of Stages of Concern compared to scores on the SoC Questionnaire. Three staff members interviewed 28 respondents randomly selected from several hundred people who completed the questionnaire in 1976. Figure IV.4 presents the r values as correlations between interviewer ratings and SoC Questionnaire scores of peak concern scores. Ideal-
**Figure IV.4**

Correlation of Peak Stage Estimates and Rank Order of SoC Percentile Scores

<table>
<thead>
<tr>
<th>Quantitative Ratings</th>
<th>Peak SoC</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>.02</td>
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<td>1</td>
<td>.15</td>
<td>.47</td>
<td>.47</td>
<td>-.09</td>
<td>-.11</td>
<td>-.50</td>
<td>-.45</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.03</td>
<td>.38</td>
<td>.42</td>
<td>-.21</td>
<td>-.10</td>
<td>-.24</td>
<td>-.34</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-.25</td>
<td>-.08</td>
<td>.00</td>
<td>.30</td>
<td>-.04</td>
<td>.02</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-.05</td>
<td>-.22</td>
<td>-.26</td>
<td>-.01</td>
<td>.13</td>
<td>.08</td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-.20</td>
<td>-.48</td>
<td>-.20</td>
<td>-.03</td>
<td>.31</td>
<td>.54</td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-.20</td>
<td>-.20</td>
<td>.16</td>
<td>-.15</td>
<td>.24</td>
<td>.17</td>
<td>.31</td>
<td></td>
</tr>
</tbody>
</table>

N = 65  
Critical $r = .25$ \( p \leq .05 \)  
$r = .32$ \( p \leq .01 \)
ly, the highest r values would occur in the diagonal high left to low right. In other words, the highest positive correlations would occur at 0/0, 1/1, 2/2, etc.

As George indicates, the above validation studies seem problematic. All the previous work mentioned by George has a circularity to it in that reliability and validity depend on criteria and conditions already established by the Center. Thus, the factors in the analysis may have been determined by the Q-sort, in turn predetermined by the existence of 7 posited factors. The internal reliability (KR-20) scores are guaranteed by the factor analysis as were the r values on item analyses for the intercorrelational validity studies. Even the rigorous interview study was done by Center staff members with the predetermined set that posits the 7 stages of concern.

However, in the final validation study, the SoC Questionnaire was used in two instances in which new data was gathered from teachers who were participating in implementing innovations that were different than the ones used in the development of the instrument. In one study, one group of teachers had more experience with an innovation than another comparable group. In the second study, one group of teachers was studied over time. The SoC Questionnaire was administered before workshop training, after workshop training, and again after the teachers had been using the innovation (Figure IV.5). If the SoC Questionnaire is valid, one would hypothesize a difference in profiles of the two groups in the first study. In fact, the work-
Figure IV.5
Concerns Profiles for Workshop and Nonworkshop Groups

![Graph showing concerns profiles for workshop and nonworkshop groups.](image)
shop participants show lower Stage 0, 1, 2, and 4 concerns than the non-participants which is to be expected, given their relative degree of familiarity with the innovation. In the second study, we would expect Non-User (Stage 0, 1, 2) and Management (3) concerns to decrease over time. In fact, they do. In addition, Collaboration (5) concerns increase over time as people begin to want to share what they are doing with others (Figure IV.6).

While the reliability and correlation statistics are quite impressive for the research done from 1974 to 1976, the writer is more impressed with the studies that were conducted in these later studies using the instrument in new situations and that support the hypotheses contained in the theories about innovation concerns developed by the Center.

The LoU Interview—Development, Reliability and Validity

Hall, Loucks, Rutherford and Newlove (1975), Loucks, Newlove and Hall (1976), and Loucks (1977) all present the concepts of the interview. The third presents the reliability and validity statistics and will be used in this discussion. 9

Development. The Levels of Use Interview has less data available for reliability and validity than does the Stages of Concern Questionnaire. Statistical research is problematic for an interview which "does not ask a specific list of predetermined, pre-sequenced ques-
Figure IV.6
Concerns About a Preschool Thinking and Reasoning Program
Assessed at Three Points in Time

Pre-assessment
Post-assessment
Follow-up

Intensity of Concerns

0 1 2 3 4 5 6
Stages of Concern
tions, but rather uses a branching technique derived from the defined decision points which separate each level... The interview follows the flow of ideas reported by the interviewee, making the interview conversational in tone yet yielding enough information to place the individual at a particular Level of Use. Instrument development was not so much a question of developing internal reliability as it was being sure that the branching questions adequately surfaced the decision points and categories of knowledge and activity that characterize an individual's Level of Use of an Innovation. This process was accomplished by a series of steps involving item writing and Q-sorts.

Reliability. Inter-rater reliability is the most important form of reliability for the interview. Here, the statistics are quite impressive. The procedure for rating Levels of Use Interview tapes evolved as the measure was developed and refined. In the first year of the 1974-76 longitudinal studies of innovation at elementary school and college levels, two raters independently listened to each tape and gave ratings for overall LoU and the seven categories. If the raters disagreed as to the overall LoU, a third rater rated the tape independently. Overall LoU was determined when the third rater agreed with one of the original raters. Using this procedure, the first two raters agreed upon 66% of the 1,381 interview tapes made in this first year. Another 26% were resolved by the third rater. The remaining 8% were rated collectively by staff members and a con-
sensus rating was made. Traditional reliability coefficients obtained for the first two raters indicated inter-rater reliabilities of .87 to .96.

In the second year of the longitudinal studies, an effort was made to reduce the complexities of the rating procedure to make it more cost-effective without decreasing percent agreements and interrater reliabilities. As the interview procedure was refined, it was found that a trained interviewer could often rate the individual immediately after the interview, so the interviewer rating took the place of one of the two ratings. (The interviewer listened at a later time to those interviews that posed some rating difficulties.) Therefore, only one other rater was needed. Using this procedure, interrater reliability on overall LoU rating was .96, with 73% agreement between the two raters. Those tapes that were not agreed upon were discussed by the two raters and a consensus rating was reached. This procedure was utilized in the second year (Fall 1975 to Spring 1976) of the two-year longitudinal study.

Validity. Validity for the LoU depends on correlating the "self-report" data of the interview with some method of observing the respondent's behavior. Moreover, as Loucks states,

... use of an innovation cannot be assessed solely by observing classroom behavior. Large amounts of out of class time are often spent planning, looking for information, discussing the innovation with others, and organizing for its use. Furthermore, Levels of Use are defined in terms of qualitative aspects of use, rather than the quantity of certain behaviors.

While the Center did not have the resources to undertake a full ethnographic research project to validate the LoU Interview, 45 teachers
who were participating in a junior high school science curriculum innovation were interviewed and 17 of these who were spread across the Levels of Use scale were chosen for intense ethnographic research. The ethnographers spent entire school days with each teacher developing a protocol which provided a detailed description of the classroom and activities of the teacher throughout the day.

Independent Levels of Use ratings were made by the ethnographer, by two readers of the ethnographic protocols, by the interviewer, and by a second rater of the interview tape. Two major comparisons (in order of importance) were made to determine validity: (1) between the ethnographer's rating and the consensus interview rating (when disagreements occur, a final rating decision is made by consensus), and (2) between the consensus reader rating and the consensus interview rating. The correlation coefficient determined for the first comparison was .98, indicating that the LoU Interview validly represented what was learned by the ethnographer in a full day of observation. The coefficient for the second comparison was .65, which lent support to the validity of the interview, although at the same time revealing the difficulty involved in conveying sufficient information second-hand (i.e., the rough written protocols) to allow an adequate judgment of an individual's LoU.14

The r values seem quite acceptable. The difference in the two may be due to the fact that the consensus reader rating is not a direct LoU rating, but rather a "once removed" look at the data on the part of people who may not have high inter-rater reliability on their understanding or interpretation of ethnographic protocols.
Data Gathering and Training for the SoC Questionnaire

The schedule presented in Figure IV.7 was the proposed systematic administration of the SoC Questionnaire to be used to gather Smith School teachers' concerns about the transition period innovation.

It is important to note that the design called for questionnaire administration at only two of four transition periods for both years of the study. There are a number of reasons for this proposal. First, the nature of the questionnaire is such that it seems repetitive to respondents. Too frequent administration of the instrument would have set up some resistance that the author wished to avoid. Second, because the study depended upon the continued cooperation of the teachers and because the author had a good deal of sympathy with the teacher's day, he did not want to get into the pattern of pursuing them for another onerous "piece of paper." Extensive experience with questionnaires shows that initial return rates are low. Moreover, his experience with group administration of this questionnaire had been unsatisfactory. Thus, he distributed the SoC with the letter to teachers which requested them to schedule an interview. He followed up on the questionnaire data informally and individually while he was on site interviewing. A group administration of the questionnaire would have been intrusive to a problematic degree in an individual teacher's expression of their concerns. Finally, the span of time between administrations was no greater than other longi-
## Figure IV.7

Proposed SoC Interview Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year One</strong></td>
<td>End of Fall Transition Period</td>
<td>Following week</td>
</tr>
<tr>
<td></td>
<td>SoC #1</td>
<td>Distributed</td>
</tr>
<tr>
<td><strong>Year Two</strong></td>
<td>SoC #3</td>
<td>Distributed</td>
</tr>
<tr>
<td></td>
<td>End of Winter Transition Period</td>
<td>Following week</td>
</tr>
<tr>
<td></td>
<td>SoC #1</td>
<td>Collected</td>
</tr>
<tr>
<td></td>
<td>End of Spring Transition Period</td>
<td>Following week</td>
</tr>
<tr>
<td></td>
<td>SoC #4</td>
<td>Distributed</td>
</tr>
<tr>
<td></td>
<td>Prior to Summer Transition Period</td>
<td>First week in June</td>
</tr>
<tr>
<td></td>
<td>SoC #2</td>
<td>Collected</td>
</tr>
</tbody>
</table>
tudinal studies done using the questionnaire. Thus, not only for data gathering reasons, but for substantive reasons, the author felt comfortable with the proposed process for gathering questionnaire data.

Training for the use of the instrument was not necessary. As the Research and Development Center for Teacher Education states in the manual (Hall, George and Rutherford, 1977) for using the instrument, it is possible to use the SoC without training. In addition to providing background information about the Concerns Model and the Stages Questionnaire, the manual presents suggestions on how to use the instrument, sample demographic data sheets and introductory letters to potential respondents, a program for scoring the instrument, and sample interpretations of concern profiles. The author had a reasonably extensive experience with the questionnaire. He used the questionnaire in five different projects that he was involved with. One of his uses of the questionnaire has been in collaboration with an individual who has previously used the SoC as part of a validated Massachusetts Title IV-c Project. Thus, no special plans for training in or becoming familiar with the questionnaire were undertaken.

Data Gathering and Training for the LoU Interview

Major issues in conducting the Levels of Use Interviews seemed to be scheduling the teachers and standardizing the process. The author felt that most effective time for an interview was the week
following each Transition Period. Use of the innovation was fresh in the teachers' minds, its effects on them and students was strong, and they were not pressured to fulfill the demands of the innovation (the reason for not interviewing, or attempting to schedule an interview in the week preceding the Transition Period). The scheduling for interviews in June for the last Transition Period of the year was different. The week after this period was, by definition, the week after school was over. Thus, the author interviewed the teachers before the close of school. He did not feel that this variation was as problematic as it might have been, due to the fact that the actual work for the Fourth Transition Period had taken place before the end of school, and he scheduled interviews after this work had taken place. Thus, the interview took place at a similar perceptual time for the teachers. The proposed interview schedule over a two-year period is presented in Figure IV.8.

Each interview was organized to balance the necessity for standardizing the process with the parameters of a school setting and the fact that the interview process is an intrusive one, both for a teacher's work day and his/her personal life. At least one week before interviews were scheduled, the author put a short note in each teacher's mail box reminding them of the interview and asking them to sign up for the interview in a folder placed in the Main Office. During the week preceding the interviews, the author visited the school to informally check the schedule for completeness and personally schedule those teachers who had not yet signed up. Because the
Figure IV.8

Proposed LoU Interview Schedule

<table>
<thead>
<tr>
<th>YEAR ONE</th>
<th>YEAR TWO</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of Fall Transition Period</td>
<td>End of Winter Transition Period</td>
</tr>
<tr>
<td>Following Week</td>
<td>Following Week</td>
</tr>
<tr>
<td>Interview #1</td>
<td>Interview #2</td>
</tr>
<tr>
<td></td>
<td>End of Spring Transition Period</td>
</tr>
<tr>
<td></td>
<td>Following Week</td>
</tr>
<tr>
<td></td>
<td>Interview #3</td>
</tr>
<tr>
<td>Prior to Summer Transition Period</td>
<td>First Week in June</td>
</tr>
<tr>
<td></td>
<td>Interview #4</td>
</tr>
</tbody>
</table>
school was crowded and teachers' schedules were busy, it was not expected that the interviews would be able to be held in the same place or same time over the period of the study. Because the protocol is standardized, this change in time or place was not problematic. If, however, teacher concerns or external variables intervened to disrupt the standard pattern of the interview, the author terminated and rescheduled it with the teacher. It was also expected that some teachers would be unable to meet their originally scheduled appointment and that they would have to put off the interview until the following week. This delay was problematic only if it became a pattern with a teacher or teachers. However, this pattern did not emerge.

Training and familiarity with the LoU Interview is important. In order to use the Levels of Use Interview, the Center for Research in Teaching mandates a training process for an individual. This process consists of a two-day workshop on site in Austin in which the trainee learns how to conduct the interview and score it. This process is followed by the trainee's conducting interviews in his/her own setting and mailing these to Austin for a Center review of interview techniques. Once the trainee has passed this step, the Center sends him/her sample tapes for scoring. This process is continued until the trainee has reached an acceptable level of scoring expertise. The author has participated in this training process and is an accredited Levels of Use interviewer and scorer. The author has used the interview protocol in other projects he has worked on. Thus, he has had both the initial training and additional experience
in conducting the interview.

**Overall Review of the Data Gathering Design**

For the most part the proposed design proved to be successful and provided the study with a rich set of questionnaires and interviews which provide an in-depth look at one school faculty's adoption of a particular innovation during the first two years of the innovation's use.

The technique used for insuring a high rate of return on the SoC Questionnaires worked. Teachers remarked to the author that "I don't want to come to the interview without the questionnaire," or "I'm sorry I don't have the questionnaire done, I'll get it to you by the end of school." Because he was in the school for an entire week, he was a visible reminder for teachers and rarely had to pursue an individual teacher for the completed questionnaire. Thus, there was a very high rate of return for each of the four administrative dates, and the author has confidence that the data represents individual teacher concerns about the transition periods. A full presentation of the data will follow in Chapter V.

The author also feels that gathering the data for the LoU Interview was successful. In addition to his letter to teachers which requested that they sign up for an interview, he went into the school the Thursday and Friday before the week of scheduled interviews and personally scheduled each teacher who had not yet signed up. While
it is true that the interviews were conducted at different places and times over the week, it is interesting to note that people generally scheduled themselves for the same times and places for each of their interviews. Moreover, they showed increasing comfort with and ability to focus on the questions with each successive interview, thus increasing the usefulness of the interview and ease of scoring. The one major departure from the proposed design was that no interview data was collected for the third transition period for Year One of the study. The interval between the second and third and fourth transition periods appeared too slight. Effective base line data was established by conducting the interviews for the first transition period of Year One and four other interview times were judged to be enough for the research question. A full presentation of the data follows in Chapter VI.

In addition to gathering LoU Interview data, the author decided to gather more informal, contextual interview data about the individual's perceptions of and feelings about the experience generally. Accordingly, he adopted the following procedure. After the LoU was completed, he turned off the tape recorder and turned the cassette over. He then asked the teacher to comment on these questions:

What has happened with the innovation to date (since the last time we talked)?

How is the innovation affecting you?

How are decisions being made about the innovation?
How are people getting along, communicating with you?

Are there any outside groups or events which are influencing the innovation?

What do you feel is the most noteworthy thing about the innovation?

and recorded responses. This data has been used as contextual background. One of the questions that may be asked about the inclusion of this informal interview is the degree to which its presence is problematic to the validity of the LoU data. The author feels this interference did not occur. No teacher ever expressed the desire to hurry through the LoU Interview to get to the important questions. The author was quite formal about the LoU protocol and probed each teacher's responses until enough information was gathered to make scoring the interview clear. There were no cases in which teachers saved information for the informal interview that they should have given during the LoU Interview. In fact, rather than interfering with the LoU process, the informal data provides a rich context for discussion of the research question.

Data Analysis

The research question for this dissertation hypothesizes that teachers at the Smith School will validate the CBAM model in their adoption of the transition period innovation. Thus, the analysis of the SoC Questionnaire data will focus on the degree to which the
staff's concerns about adopting the transition period innovation develop over time; and the analysis of the LoU interview data will focus on the degree to which the staff's use of the innovation develops over time.

In his work within the school, interviewing, administering questionnaires, and setting up the logistics of the study, it became clear that there were five distinct sub-groups of teachers that were formed by the new organization of the school: the three Learning Centers, the Workshops, and the Support Service teachers whose work spanned all four. While the entire staff was involved in implementing the innovation of transition periods, each sub-group was affected in different ways. Thus, the author's analysis of data included procedures for looking at both the entire staff and the differences between each role group.

SoC. For the SoC specifically, data analysis occurred according to the precise guidelines established by the SoC Manual (see Appendix A). The two most important analysis techniques are profile analysis and analysis of highest and second highest stage concerns. Both of these are holistic, interpretive procedures which make use of both questionnaire data and the context in which the respondents completed the questionnaire. The manual also suggests statistical analysis of the data within one population's responses to the questionnaire as a way of getting a sensitive picture of the respondents' concerns about a particular innovation in a specific context.
It is important to note here the difference between profile interpretation and relevant statistical analysis. Profile analysis is a holistic interpretation of all of the stages of concern. Use of the percentiles and the chart allows interpretation of the relative strengths of each stage of concern, what is the predominant stage of concern(s), and what an individual or group's overall feeling about an innovation might be at any one moment in time. Juxtaposition of profiles will allow interpretation of how these things either do or do not change over time. Statistical analysis will focus on one particular stage, looking at how one individual or group's score for a particular stage changes (or does not) over time or how different individuals or groups relative intensity of concern for a particular stage is different (or is not) for a particular moment in time. This analysis can be accomplished by using an analysis of co-variance, with role as an independent variable and time as a covariant and significant results used as a way of validating the holistic analysis.

With these procedures in mind, the author used both the descriptive method of interpreting the profiles and appropriate statistical analysis of stage scores to look at the entire staff's and five subgroups' stages of concern over time.

- Analysis of concerns scores suggested in Section IV of "Measuring Stages of Concern About the Innovation" for entire staff over the four administrations of the questionnaire.

- Analysis of concerns scores suggested in Section IV of "Measuring Stages of Concern About the Innovation" com-
paring five different role groups scores for each of the two administrations in Year Two.

- Analysis of covariance with role as the independent variable and time as a covariant.

LoU. For the LoU specifically, data analysis occurred according to guidelines established by the authors of the instruments (see Appendix B). As the author has stated, he is an accredited scorer.

As with the SoC Questionnaire, data was analyzed both for total staff and for different role groups. It is also important to remember that the final overall LoU rating is judgemental, that while the LoU are developmental, they are still discrete categories and parametric statistics would have been confusing and inappropriate. Therefore, analysis was the following:

- Descriptive analysis of frequency tables by total group.
- Descriptive analysis of frequency tables by role group controlling for time.
- Chi-square analysis of frequency tables by total group.

The general research question was addressed by compiling group profiles for both SoC Questionnaire and LoU Interview and analyzing how these profiles did or did not change over time. According to the patterns posited by the theory, it was expected that the informal research data would aid in the interpretation of the CBAM data by providing a context for the profiles.
Chapter IV Notes

1. A.A. George, "Development and Validation of a Concerns Questionnaire," R&DCTE (Austin, TX, 1977).

2. Ibid., p. 6.

3. Ibid., p. 7.

4. Ibid., p. 7.

5. Ibid., p. 7.

6. Ibid., p. 12.


8. Ibid., p. 15.


10. Ibid., p. 7.

11. Ibid., p. 10.

12. Ibid., p. 10.

13. Ibid., p. 11.


CHAPTER V
STAGES OF CONCERN QUESTIONNAIRE

Introduction

CBAM theory hypothesizes that an individual's or group's concerns about an innovation will develop over time—that is, people who are unfamiliar with or just beginning to use an innovation will exhibit low stage concerns and their concerns will move to higher stages with increasing experience with the innovation. It is also important to note that the questionnaire developers feel that the context in which people encounter the innovation will influence their concerns about the innovation. Group data from the Smith School tends to confirm the CBAM theory. Over time, there is a lessening of lower stage concerns and a slight increase in higher stage concerns. Issues of context can be seen to be very important by analyzing different subgroups' stages of concerns. These role groups differ greatly in their stage of concerns profiles, and this difference can be logically interpreted in light of the context. There are some issues: the size of the study sample, the nature of the innovation, the fact that the overall profile of concerns over time is not quite developmental, and there is a circularity to concerns analysis, that are problematic. Discussion of these issues are deferred to Chapter VII.
The Questionnaire Administration

The Stages of Concern Questionnaire was administered to teachers at the Smith School to determine their intensity of concerns about the Transition Period innovation over the two year study.

Figure V.1 presents the times of administration and the number of teachers who completed the questionnaire each time. The author feels that the low response to the questionnaire in Year One is due to a number of factors. His focus on the logistics and content of the Levels of Use Interview gave an implicit message about the lesser importance of the questionnaire. The first administration of the questionnaire was while the pattern of research was still being set and accepted. The second administration of the questionnaire was done in June and may have been put aside as less important than other demands for the end of the year. Of the four teachers (Nos. 5, 10, 13, and 14) who did not return a questionnaire in Year One, three of these were non-classroom teachers who did not see themselves as being directly involved in the research as the Learning Center or Workshop teachers. Complete returns for Year Two reflect the author's combining the SoC logistics with those of the interview and stressing the questionnaire's importance.

Profile Analysis

As stated in Chapter II, the Concerns Theory posits the hypoth-
Figure V.1
Completed Questionnaires
by Teacher and Date of Administration

<table>
<thead>
<tr>
<th>Transition Period:</th>
<th>Year One</th>
<th>Year Two</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#2</td>
<td>#4</td>
</tr>
<tr>
<td>Teacher #</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 NLC</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2 SS</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>3 NLC</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>4 SLC</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5 SS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 ELC</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>7 NLC/WORK</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>8 WORK</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>9 SLC</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>10 SS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 ELC</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>12 SS</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>13 WORK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 SS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 SS</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>16 SS</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>17 WORK</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>18 SS</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>19 SLC</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>20 SLC</td>
<td>x</td>
<td>x</td>
</tr>
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<td></td>
<td>13</td>
<td>14</td>
</tr>
</tbody>
</table>
esis that there "is a developmental movement through different concerns, that teachers will manifest intense concerns at lower stages and non-intense concerns at higher stages as they begin to implement an innovation, that continued use and adoption of the innovation will result in their profile of concerns changing to non-intense lower stage concerns and intense higher stage concerns. Figure V.2 represents this hypothesis." ¹

It is important to note that the theory does not assume that this developmental movement will inevitably take place for all teachers who implement innovations:

However, resolution of earlier concerns and the arousal of later concerns are not accomplished simply by having more knowledge about or time and experience with the innovation. Many other factors influence concerns as well. For example, the innovation may be basically a bad one. The knowledge and skill requirements may be beyond the person's capabilities. Or other demands on the person may prohibit the innovation from having a high priority in the person's life space. In any case, the process of the arousal and resolution of concerns is highly personal and requires time as well as timely intervention of both cognitive and affective natures. ² Whether and with what speed higher level concerns develop will depend upon the person as well as the innovation and environmental context. ²

Thus, a validation of the theory does not just depend upon the results of the SoC Questionnaire showing individual or group profiles reducing intensity of concerns at lower stages and increasing intensity of concerns at higher stages over time. Rather, the profile must be interpreted in light of important contextual variables for
Figure V.2

Hypothesized Development of Stages of Concern
Total Staff Profile Analysis

Data for the total group is presented in Figure V.3. There seem to be a number of important features in the profiles:

(1) The early concerns of Stage 1, Stage 2, and Stage 3 decrease over time.

(2) Stage 0, 1 and 2 concerns are generally lower than later concerns.

(3) Stage 0 concerns increase for the last administration of the questionnaire.

(4) Stage 5 concerns are higher in Year One than in Year Two and are lowest for the third administration of the questionnaire (Fall of Year Two).

(5) Stage 6 concerns are highest for the fourth and last administration of the questionnaire.

These characteristics would seem to fit both the expected developmental pattern in teachers' adoption of innovations and the contextual influences for this particular setting. The first two characteristics of the profiles fit the CBAM hypothesis. (1) As teachers become used to the innovation, they will become less concerned with information, personal and management issues (Stages 1, 2, and 3) and focus more on the effects of the innovation on children (Stage 4, Consequence), working with other teachers (Stage 5, Collaboration), and eventually using the innovation as a stepping stone to other
Figure V.3
Profiles for Total Staff for Four Administrations of SoC Questionnaire

SoC STAGES

RELATIVE INTENSITY

Year One, Second Transition Period (n = 13)
Year One, Fourth Transition Period (n = 14)
Year Two, First Transition Period (n = 20)
Year Two, Third Transition Period (n = 20)
ideas and practices (Stage 6, Refocusing). The lower early stage concerns can be understood in light of the fact that the school staff had talked extensively about and planned for the innovation as a school staff under the leadership of the principal. Thus, the information and personal concerns experienced by teachers as they plan for an innovation had in all probability been experienced in the year prior to the actual implementation of the innovation.

The other three characteristics of the profiles point out how the contextual variables will influence teachers' adoption of innovations. (3) The profiles shows a lack of concern about the innovation which increases slightly in the last administration of the questionnaire, even though it remains low in comparison to higher stage concerns. (4) The next characteristic indicates that there is less interest in working with others on issues about the innovation in Year Two than there was in Year One. (5) The final characteristic shows more of an interest in refocusing, or moving beyond the innovation, for the last administration of the questionnaire than at any other time. There are a number of contextual variables which operated during the second year of the innovation in the school which are consistent with these patterns in the data. The principal took a year's leave of absence and was replaced by someone who was from a different school. While the acting principal was competent, it took him some time to understand and administrate the rather complex innovation which is a structural and philosophical change rather than a methodological change in instruction which teachers can implement.
or not in their individual classrooms. Moreover, the principal who took the year's leave was the architect of the innovation. Teachers felt that the concepts, shape, and impetus were initially his. Throughout his tenure, he provided leadership which the teachers had come to count on in faculty discussions of their philosophy and values about education and learning. Finally, the excitement of planning the innovation for a year and then beginning to implement it in the next year was giving way in some teachers to an understanding of some of the problems inherent in the Transition Period innovation.

The differences in the experiences of the different role groups (Workshop teachers, Learning Center teachers) was clear and a source of tension amongst the staff (see Figures V.8 to V.11). Thus, the concern for collaboration, or sharing, as expressed in Stage V, decreased in Year Two. The author notes that this decrease is especially noticeable in the early Spring of Year Two, a time in the school year when teacher morale is traditionally lower than it usually is. The profile for the fourth administration of the questionnaire shows that Stage VI concerns (Refocusing) are higher than Stage IV (Consequence) concerns. In past studies this profile often indicates some resistance to the innovation on the part of the participating teachers. Therefore, this pattern is consistent with some of the growing concern about the innovation's problems on the part of the staff.
Total Staff Highest and Second Highest Stage Scores

The manual suggests looking at the highest Stage of Concern and second highest Stage of Concern in a grid as another fruitful analytical procedure for the instrument. Figures V.4 to V.7 present the grids for the four administrations of the questionnaire at the Smith School.

There is an expected similarity in the total staff data viewed this way and the total staff data viewed as a profile. Relatively low early Stage Concerns, decreasing Stage 3 Concerns and increasing Stage 4 Concerns would be expected as people become used to an innovation, more comfortable with managing the day-to-day logistics and more sensitive to its impact on students. However, there are a number of features in the data which indicate that contextual variables are important to consider. Stage 5 Concerns remain very high throughout the two-year period. There is a gradual increase in early Stage Concerns. There is a dramatic increase in Stage 6 Concerns. Finally, there are patterns of Stages 3 and 5 and Stages 5 and 6 in the second year.

These characteristics seem to reflect the tensions in the second year already noted by the author. People have a high concern to talk with others about the innovation. However, this desire for collaboration centers around management, getting a better handle on how to control the innovation, and then refocusing, doing something else. In an atmosphere of tension or doubt, Stage 5 concerns can sometimes
Figure V.4

Highest and Second Highest Stage Scores for First Administration (Year One, Second Transition Period)

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</tr>
</tbody>
</table>

Grid Characteristics:

1. Low incidence of Stage 0, 1 and 2 concerns, either as highest stage concerns or as second highest stage concerns.

2. Predominance of highest Stage 3 and highest Stage 5 concerns.

3. Low incidence of highest Stage 4 concerns as compared to either Stage 3 or Stage 5.
Figure V.5

Highest and Second Highest Stage Scores for Second Administration
(Year One, Fourth Transition Period)

<table>
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</table>

Grid Characteristics:

1. Low incidence of Stage 0, 1 and 2 concerns, either as highest or second highest stage concerns.

2. Predominance of highest Stage 3 and highest Stage 5 concerns.

3. Patterns (5,3); (5,4); (5,6); and (3,5) in highest/second highest stages.

4. Low incidence of highest Stage 4 concerns as compared to either Stage 3 or Stage 5.
Figure V.6

Highest and Second Highest Stage Scores for Third Administration (Year Two, First Transition Period)

<table>
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</table>

Grid Characteristics:

1. Low incidence of early Stage Concerns (0, 1 and 2) from first year.
2. Predominance of highest Stage 3 and highest Stage 5 concerns.
3. Patterns (5,4); (3,2); and (3,6) in highest/second highest stages.
4. Increasing evidence of Stage 4 concerns.
Figure V.7

Highest and Second Highest Stage Scores for Fourth Administration (Year Two, Third Transition Period)

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<td>3</td>
<td>5</td>
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<td>3</td>
</tr>
</tbody>
</table>

Grid Characteristics:

1. Low incidence of early Stage Concerns (0, 1 and 2) from first year.
2. Lower relative highest Stage 3 Concerns.
3. Higher relative highest Stage 4 Concerns.
4. Increasing incidence of Stage 6 Concerns as second highest stage.
5. Continued high number of highest Stage 5 Concerns.
reflect a need to be in touch about an innovation, to share what is happening, rather than a desire to collaborate with others. Finally, the increasing incidence of low Stage Concerns is a signal that these people are emotionally withdrawing from the innovation.

**Role Group Analysis**

It is interesting to note that while differences do exist, the four profiles in Figure V.3 are still roughly similar. There is no percentile difference of more than 10 points for any stage for any administration date. They are marked by low early concerns and higher later concerns. However, when one looks at the profiles by role groups, the differences are striking (Figures V.8 to V.11).

As the author has mentioned previously, data collection procedures for Year One were problematic. Therefore, he felt that using the Year Two data provided him with a more sensitive picture of all the role groups because the small number in each group makes any missing data (in the case of Year One at least 30 percent for each administration) very problematic. The extra care in Year Two has resulted in a 100 percent response rate, making analysis by role group more fruitful, even though the small numbers in each group must be kept in mind.
Figure V.8

SoC Profiles by Role Groups for Year One, Second Transition Period

SoC STAGES
- Early Learning Center (n = 1, 50%)
- South Learning Center (n = 4, 100%)
- North Learning Center (n = 3, 75%)
- Workshops (n = 1, 33%)
- Support Services (n = 4, 50%)
Figure V.9
SoC Profiles by Role Groups for Year One, Fourth Transition Period

Early Learning Center (n = 1, 100%)
South Learning Center (n = 4, 100%)
North Learning Center (n = 3, 33%)
Workshops (n = 1, 100%)
Support Services (n = 4, 62%)
Figure V.11
SoC Profiles by Role
Groups for Year Two, Third Transition Period

SoC STAGES

Early Learning Center (n = 2)
South Learning Center (n = 4)
North Learning Center (n = 3)
Workshops (n = 3)
Support Services (n = 8)
Role Group Profile Analysis

Figures V.10 and V.11 present the SoC profiles for each role group for Year Two administrations. Profile characteristics for Figure V.10 are listed below:

1. Workshop profile quite different from others. The intensity of concerns is generally lower. Peak concerns are at Stage 4 and Stage 5. Stage 3 concerns markedly lower than other groups. Stage 0 and Stage 2 concerns generally lower than other groups.

2. North Learning Center exhibits generally highest intensity of concerns. Peak concerns are at Stage 3. Stage 6 second highest Stage of concerns.

3. South Learning Center peak concern at Stage 3.

4. Support Services profile similar to Workshop profile. Peak concerns are at Stage 4 and Stage 5. Stage 2 and Stage 3 concerns are somewhat lower than three other role groups.

5. Most role groups peak concerns are either at Stage 2 or Stage 3.

The author has previously noted the fact that problematic issues arose during the second year. One of the most difficult issues the staff faced was defining the differences between the North Learning Center and Workshops. Workshop teachers felt that the criteria for entry into the workshops needed to be maintained and that not all children of a certain age were ready for the demands, either intellectual or personal, of the workshop experience. North Learning Center staff felt that the workshop program as designed was a form
of de facto tracking with the less able, less mature students winding up in their classes. Moreover, they felt that even when one of their students was permitted to have a partial workshop experience (one or two workshop periods a day with the rest of the day in their self-contained classroom), the logistics of balancing children's work and maintaining a class community was difficult. They also felt that the Transition Periods were especially difficult for them because of the number of different transition options open to children in their class. Workshop staff, on the other hand, felt quite positive about the way in which the innovation was being implemented. Their concerns about implementing the Transition Period innovation were different than those of the North Learning Center Staff. Their concerns centered around planning different workshop curricula for each quarter rather than managing the Transition Period, getting students ready to move in or out of self-contained classrooms, or juggling a variety of different schedules. With this difference in mind, profile characteristics #1 and #2 are quite understandable, even predictable. Workshop staff exhibits a profile of a group that is becoming comfortable with an innovation in its second year. North Learning Center staff exhibits a profile of a group that is concerned about the innovation, is having trouble with it, and is thinking about moving on.

The same analysis used with the NLC profile might also be considered for the South Learning Center. Transition Periods proved to be somewhat problematic for SLC staff. Overcrowded classes limited
options for transition from the South Learning Center into the North Learning Center, especially because of the limited options for transition into the workshops. SLC staff had had the experience of getting children ready to move, or diagnosing children ready to move and then seeing that there was no room for the transition—that the theoretically justifiable transition was not possible for logistical reasons. Moreover, the SLC staff was in the process of more clearly defining itself as a Center. Were there real differences between the classes within the Center that would justify internal transitions; which class, if any, would serve as the link with the Early Learning Center; or, which class, if any, would serve as the link with the North Learning Center were all transition questions facing the SLC staff. Thus, the SLC profile of a group that is very concerned with management issues, that is somewhat concerned how the innovation will effect them personally, and that would like to talk with others about what is happening, is quite understandable.

The profile of the Support Services role group is also interesting. This diverse group of staff did not have primary responsibility for the Transition Periods. Rather, they advised the classroom teachers in the other role groups about transitions for different children. Thus, it is expected that intense management and personal concerns would be less for them than would consequence or collaboration concerns. The author feels that their having a more school-wide perspective than the workshop teachers and their working with all of the classroom role groups made them more sensitive to
the issues that all role groups faced and thus made the intensity of their concerns greater than that of the workshop staff.

Profile characteristics for Figure V.11 are listed below:

(1) Workshop profile is a profile of a group of people becoming used to an innovation with a single peak concern at Stage 4.

(2) Profiles for the ELC and NLC staff show Stage 3 concerns have increased and exhibit dual peak concerns at Stage 3 and Stage 6.

(3) SLC profile is marked by a dual peak at Stage 2/3 and Stage 6. The profile continues to be marked by very low Stage 4 concerns. However, Stage 3 concerns have decreased since the last administration.

(4) The general intensity level of concerns has increased for the ELC.

The problems noted by the author in the profile analysis of the Year Two, First Transition Period, are present here. The workshop staff profile is greatly different than the other three classroom role groups (ELC, SLC, and NLC). Both the ELC and NLC profiles indicate groups who had more difficulty managing the innovation which may have led them to look for other options. ELC's resistance to or concerns about Transition Periods increased. This profile reflects their growing concern with shifting very young students in the middle of the year and the negative impact it had on them. The ELC staff also felt that they could provide children with the necessary curricular stimuli supposedly available in the SLC. While the SLC profile still reflects some tension with the Transition Periods (peaks at
Stage 2, 3 and 6), the lessening of Stage 3 concerns is consistent with a series of steps the staff took during the winter of Year Two to lessen the impact of Transition Periods on the children in the Learning Center and smooth the process for themselves. These steps directly addressed the logistical issues of transition for children within the South Learning Center and links between the SLC and the ELC and NLC.

**Role Groups Highest and Second Highest Stage Scores**

Data for this analysis are found in Figure V.12 and V.13. The grid characteristics of Figure V.12 suggest an interpretation that is consistent with the profile analysis. The Workshop staff seem comfortable with the innovation and exhibited characteristics of people becoming comfortable with an innovation. The North Learning Center staff still had high concerns about managing the innovation. One NLC staff member had high personal concerns and management concerns. Another's interest in the innovation was all but extinguished (6 - Refocusing, 0 - Awareness). Most of the South Learning Center staff also showed their difficulties with the Transition Period innovation. One person had very little interest in the innovation (0 - Awareness, 3 - Measurement); and another was ready to move on (3 - Management, 6 - Refocusing).

This split in the staff is also present in Figure V.13. Once again, Workshop staff showed concerns which indicate some degree of
Figure V.12

Highest and Second Highest Stage Scores for Third Administration (Year Two, First Transition Period)

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</tr>
</tbody>
</table>

Grid Characteristics:

1. Workshop staff all show high Stage 4 Scores. Two workshop staff have highest Stage 5 concerns. No workshop staff listed for high Stage 3 concerns.

2. Two North Learning Center staff show high Stage 3 scores. One NLC staff shows 6,0 combination.

3. Three South Learning Center staff show high Stage 3 scores.

4. No discernible pattern evident in Support Services staff sources.
Figure V.13

Highest and Second Highest
Stage Scores for Fourth Administration
(Year Two, Third Transition Period)

<table>
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<tr>
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Grid Characteristics:

1. Workshop staff all show high Stage 4 Scores. No workshop staff show high Stage 3 (or below) scores.

2. North Learning Center staff all show high Stage 3 scores.

3. South Learning Center staff all show high Stage 6 scores.

4. Early Learning Center staff all show high Stage 6 scores.

5. No discernible pattern for Support Services staff.
interest and satisfaction with Transition Periods. The other classroom groups were more concerned about management or refocusing. It is interesting for the author to note that there was no discernable pattern for the Support Services staff for either administration. One possibility for the distribution is that the role group was more of a negative definition (non-classroom) or umbrella (Special Services, Guidance, Art, Language, Physical Education, etc.) than a specific role group.

Analysis of Variance

The statistics for the analysis of variance are presented in Figure V.14. The data indicates significant variation of Stage 1, 2, 3 and 6 concerns for the Smith School staff by role over the four dates of administration. This statistical analysis corroborates the profiles and profile analysis of the preceding pages. Clearly, stage scores varied greatly depending on a teacher's role in school and the progress of the innovation of Transition Periods over a period of two years.

Conclusions

The author would like to conclude this chapter by commenting briefly on the process of analysis and stages of concern as a model for looking at innovations. On the one hand, both forms of holistic
### Figure V.14
Analysis of Co-Variance with Stages of Concern
as Dependent Variable, Role as Independent Variable,
and Time as Co-Variant (n = 59)

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"fitting" available contextual data with questionnaire data to arrive at a plausible scenario that describes expressed concerns. Why, then, not just sensitive ethnographic analysis when it may have to be a pre-condition for questionnaire interpretation? The author proposes to defer a discussion of these questions until Chapter VII and will now present the data from the Levels of Use Interview.
Chapter V Notes


2. Ibid., p. 6.

3. Ibid., p. 40.

4. In addition to the analysis of covariance, the author conducted a one-way analysis of variance using role as the independent variable and controlling for time. The results were not significant, indicating the importance of time as determining factor. In turn, this point is very important in looking at the theory as developmental.
Introduction

CBAM theory hypothesizes that an individual's or group's use of an innovation will develop over time—that is, people who are unfamiliar with or just beginning to use an innovation will exhibit lower levels of use than will people who have had more experience with the innovation. It is also important to note that the interview developers feel that the context in which people encounter the innovation will influence their use of the innovation. Group data from the Smith School tends to confirm the CBAM theory. Over time, there is a movement from lower levels of use to higher levels of use. Issues of context can be seen to be very important in explaining both a slight shift downward in use in Year Two and the ways in which different role groups exhibit different patterns in their levels of use. There are some issues: the size of the sample, reliability in scoring the interviews, the short period of time of the study, the complexity of the innovation, the downward shift in levels of use at the end of Year Two, and the circularity to CBAM analysis that are problematic. Discussion of these issues is deferred to Chapter VII.
Interview Administration

The Levels of Use Interview was administered to teachers at the Smith School to determine how they used the Transition Period innovation and how that use changed over a period of two years.

Figure VI.1 presents the number of respondents and the times interviewed. As can be seen, the interview schedule has five dates. The original proposal called for interviews at all four Transition Periods in Year One and Two Transition Periods in Year Two. Both the LoU theory and the resistance of the Smith School staff made it seem advisable for the author to remove Transition Period Three, Year One from the interview schedule. The respondents seemed involved in the interview. There were no people who avoided the interviews. As the manual suggests, interview time decreased as both the interviewer and interviewee became familiar with and thus focused on the questions.

LoU Analysis

The analysis of the LoU interviews is posited on the CBAM theory that use of an innovation is developmental, and an individual can be expected to progress through the different levels of use. However, as with the SoC, an individual or group's LoU is also dependent upon the context. As the manual states,

If the innovation is relatively simple and the users are
Figure VI.1

Completed and Scored Interviews
by Teacher and Date of Interview*

<table>
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<th>Year One</th>
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<td>#2</td>
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<tr>
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<td>x</td>
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<tr>
<td>20</td>
<td>x</td>
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</tbody>
</table>

* While the author gathered data from staff members #5, #15, and #18, it was clear that their roles did not have them involved in using the innovation. Thus, their interviews were not used as part of the study but were useful in establishing context.
receiving effective training and support, the advancement from LoU II to LoU IVA can come within four months. However, if the innovation is complex, there is not sufficient training, or there are counter-productive activities also present, then the rate of movement from LoUII to LoU IVA can take several cycles of use requiring several years.\(^2\)

Data for the total group are presented in Figure VI.2. These five characteristics noted in Figure VI.2 are quite consistent with both LoU theory and the path of the innovation discussed in Chapter V. (1) The innovation was a total school process, and it was not an option for teachers not to use the Transition Periods. Moreover, they had all been involved the previous year in an extensive planning process and knew a great deal about the concepts behind Transition Periods and how they were supposed to work. (2) The teachers who did not use the innovation the first Transition Period were all planning to use Transition Periods the next time. By the winter of the first year, all teachers were involved in implementing the innovation. (3) The large percentage of Level III users (41.2%) for the first Transition Period is hardly surprising, given the fact that this is the first time the innovation was implemented. The growth in the percentage of Level III users for Time 2 (62.5%) indicates that the entire faculty is now actively involved in implementing Transition Periods and that it is a difficult process. The drop in Level III users at the end of the first year is also consistent with LoU theory. Three Transition Periods have gone by. People are more experienced and comfortable (Level IVA) with the use of the innova-
### Figure VI.2

Total Group LoU Interview Ratings Presented by Time (n = 17)

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<tr>
<th></th>
<th>Year One</th>
<th>Year Two</th>
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</thead>
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<td>Time 1</td>
<td>Time 2</td>
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<tr>
<td>LoU 0</td>
<td>9(11.11%)</td>
<td>10(11.1%)</td>
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<tr>
<td>LoU I</td>
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<tr>
<td>LoU II</td>
<td>6(35.3%)</td>
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<td>LoU III</td>
<td>7(41.2%)</td>
<td>10(62.5%)</td>
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<tr>
<td>LoU IVA</td>
<td>4(23.5%)</td>
<td>4(25.0%)</td>
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<tr>
<td>LoU IVB</td>
<td>2(12.5%)</td>
<td>2(13.3%)</td>
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<tr>
<td>LoU V</td>
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<tr>
<td>LoU VI</td>
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Contingency Table Characteristics:

1. No Level 0 or Level I non-users throughout the two years.

2. No Level II non-users after the first transition period in Year One.

3. A complicated pattern of Level III users which increases, declines dramatically, and then begins to increase again in Year Two.

4. A dramatic increase in Level IVA users which begins to decline in Year Two.

5. No Level IVB users either the first or last administration and a small percentage for the middle three administrations.

* One past user noted in the Interviews for this time period. His/her estimated level of use was noted to be III.
tion. It is the gradual rise in Level III users during the second year that would seem to confound the theory. However, it is precisely during this time that management issues became paramount to a number of the staff. As the author mentioned in Chapter V, the theory of Transition Periods became difficult to implement in practice. Bottlenecks of crowded classrooms and learning centers, disagreements among staff about appropriate criteria for moving children, and de facto tracking issues all made implementation of Transition Periods difficult and a source of tension. (4) These issues also explain the drop in Level IVA users at the end of Year Two after the expected increase in Year One. (5) With such a difficult innovation as Transition Periods, it is to be expected that the expected movement to Level IVB and beyond will be slow and not accomplished in one year.

Data for the different role groups is presented in Figure VI.3 to VI.7. As can be expected, most of the role groups reflect the trends of the staff as a whole: a gradual diminishing in lower-level users and an increase in higher-level users during the first year and a reversal of that trend in the second year. The major exception to this pattern can be found in the Workshop staff. As has been previously discussed, these teachers were not troubled by the issues that made implementation of the transition period innovation problematic for other role groups.

A chi-square procedure was performed for the entire staff using time of administration and levels of uses as variables. The chi-square was 42.668 with a level of significance of less than .01.
### Figure VI.3

**Early Learning Center Levels of Use by Time**

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<th>V</th>
<th>VI</th>
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### Figure VI.4

**South Learning Center Levels of Use by Time**

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<th>VI</th>
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### Figure VI.5
North Learning Center Levels of Use by Time

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### Figure VI.6
Workshops Levels of Use by Time

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Figure VI.7
Support Staff Levels of Use by Time

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<tr>
<td>Year Two</td>
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</tbody>
</table>

* One past Level Three user interviewed.
The contingency table is presented in Figure VI.8.

**Conclusions**

Because the LoU is a behavioral measure which must have a simple number or score, results are easier to interpret than results for the SoC questionnaire. Contingency tables, backed up by the chi-square analysis, show that there was definite growth in the staff's level of use of the Transition Period innovation. The use can be characterized in four steps: predominant II and III, predominant III with some IVA, predominant IVA, and predominant IVA with an increase in III. This profile fits strongly with CBAM theory. Because the innovation has been carefully planned by the staff and mandated for use, there should be no Level 0 or Level I Non-Users. Level II Non-Users should be few and disappear soon in the first year. Level III Users who are learning how to use the innovation should predominate in early use, giving way to Level IVA Users as people become comfortable with the innovation. There should be few Level IVB Users in the early stages of an innovation implementation because people must be comfortable with and understand how an innovation works before they will modify it to increase its impact on children. Finally, one would expect no Level V or Level VI Users to emerge after two years of using an innovation as complex as Transition Periods. CBAM theory also states that development through the levels of use does not happen at a fixed rate and that contextual variables are important in
## Figure VI.8

Contingency Table for LoU by Time of Administration with Chi-Square Statistic

<table>
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<tr>
<th>Time</th>
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<th>2.I</th>
<th>3.I</th>
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<tr>
<td>Row Pct</td>
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</tr>
<tr>
<td>Col Pct</td>
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</tr>
<tr>
<td>Tot Pct</td>
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<tr>
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<tr>
<td>Tot Total</td>
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</table>

Column Total 17 16 15 17 16 81

Raw Chi Square = 41.66832 with 12 degrees of freedom.

Significance = .0000.
influencing the development process. Thus, the process over two years in the Smith School staff's implementation of Transition Periods is gradual, moving slowly from Level III to Level IVA. Moreover, as management problems arise during Year Two, they are reflected in the increase in Level III Users. Finally, the difficulties that different role groups experience in implementing the innovation is directly reflected in their level of use pattern (Figures VI.3 to VI.7).

**Issues for Further Discussion**

While the above argument presents a strong case for the validation of the LoU Interview and CBAM theory as a model for studying innovation implementation, the author would like to raise the following issues. (1) Despite the fact that he has had experience with the LoU Interview and has been suggested by the R&DCTE as a resource for other users, his scoring still may reflect a bias toward the theory. (2) The trend at the end of the Year Two (the gradual growth of Level III Users and diminishing of Level IVA Users) may not validate LoU theory but be indicative of its shortcomings in working with an innovation as complex as the Transition Periods, with a population as small as is in the Smith School, and over so short a period of time. (3) Finally, as the author has noted in Chapter V, there may be a certain a priori acceptance of the theory implicit in the interpretation of the contingency table trends.
Notes for Chapter VI


CHAPTER VII
A DISCUSSION OF THE CBAM THEORY:
CONCLUSIONS AND IMPLICATIONS BASED UPON THE RESEARCH

Introduction

The author reviews the careful context in which the R&DCTE developed the SoC and LoU, the limitations the center places upon the use of the instruments and interpretation of the data, presents a new look at the Smith School data which indicates that individuals' SoC and LoU are related, and reviews an analogous study conducted by the center in which the SoC and LoU were administered to a staff in a single school over a period of two years. Based upon this discussion, he finds that the CBAM model for studying adoption of educational innovations is a useful one, seems to be a valid developmental process, and fits well with emerging theories of organizations and the process of implementation. He does raise questions for further study such as: the need to be clearer about the way in which the developmental stages are interrelated and the movement between stages; the need to be clearer about the nature of innovations and the recognition of the way different innovations will influence the developmental process; and, the need to further explore the relationships between the SoC and LoU and the degree to which these relationships are analogous to the relationships between intent and action.
The author has raised some questions about the effectiveness of the CBAM theory as a model for studying innovation adoption. As a way of beginning to discuss these issues and drawing some conclusions about the theory, he would like to present three pieces of evidence: the contexts provided for using the SoC and LoU by the R&DCTE; a recombination of the Smith SoC and LoU data, and a brief review of a study conducted by the R&DCTE that is analogous to the present one conducted in the Smith School.

SoC and LoU instruments. Both manuals developed for use with the SoC Questionnaire and LoU Interview clearly establish limitations and caveats for users.¹ (1) The SoC manual clearly presents the questionnaire as a diagnostic tool, meant for generating hypotheses about people's concerns which should be verified by other means. (2) The manual offers a number of analytical processes for looking at data, not only the two methods employed in this research, but two others as well. (3) Throughout the manual, emphasis is placed on interpreting concerns profiles in light of the context. (4) In addition to this emphasis, the Center suggests that context will be a more important determinant of concerns than will demographic variables.

The LoU manual is careful to present the pitfalls that may interfere with getting a clear sense of just what Level of Use a particular individual is at. (1) Separating out and agreeing in advance
upon just what the innovation is will ensure that an individual's responses will be about the innovation and not anything else. (2) The variety of categories and the importance of getting behavioral information about all of them will add to the accuracy of use placement. (3) As with the SoC, emphasis is placed on interpreting LoU within context. (4) Varying rates of movement between Levels of Use and possible downward trends must be seen in light of the innovation, the kind of training and support an individual receives, and forces in the environment.

Moreover, it is appropriate to briefly review the development of the theory and instruments. The theory grew inductively out of sustained observation and prior research based upon sustained observation. The Q-Sort and factor analysis process for the SoC Questionnaire produced seven stages of concern with high statistical agreement with the seven stages hypothesized by the Center. The Levels of Use Interview was developed using sound sociological assumptions and a sound training program was developed to insure against its misuse.

The author has previously mentioned some other misgivings about the research: the small sample size, the lack of 100% return for the SoC questionnaire in Year One, and reliability as an accurate interview rater. These issues, however, should not be seen as problematic to the theory but as built into the particular design and process and as context for reading the author's conclusions.
Smith School data and the CBAM theory. Underlying the SoC Questionnaire and the LoU Interview is the CBAM theory. Briefly, it posits a developmental process that might be characterized in Figure VII.1. One way of validating the theory is to assume that there will be a relationship between concerns and use, between attitude and behavior. Accordingly, the author designed a matrix with Stages of Concern as the vertical variable and Levels of Use as the horizontal variable. He then took the four dates (Year One, Transition Periods 2 and 4--Year Two, Transition Periods 1 and 3) for which there are both SoC and LoU scores. He then entered (by role group) each staff member for whom he had both scores in the matrix by highest Stage of Concern and Level of Use. Figures VII.2 to VII.5 represent this process.

If the CBAM theory is to have some merit as being developmental and measuring real concepts, there should be a close relationship between an individual's attitudes (SoC) and behavior (LoU). In fact, this relationship is strong with the Smith School data. The percentages of individuals whose highest Stage of Concern is equal to or within one of his/her Level of Use is quite high: 73% (Figure VII.2); 91% (Figure VII.3); 76% (Figure VII.4); and 65% (Figure VII.5). In addition, most of the exceptions have combinations that are quite acceptable in light of CBAM theory and the context of the innovation. For example, the three individuals in Figure VII.2 are all at LoU III. The difficulties they are experiencing in "managing" the innovation has led them to be concerned about sharing with other people (SoC 5). Two people in Figure VII.4 are somewhat comfortable
Figure VII.1

CBAM Theory As Reflected in the SoC and LoU

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<th>LoU Stages</th>
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<td>Preparation</td>
</tr>
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<td>3</td>
<td>Management</td>
<td>Mechanical Use</td>
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<tr>
<td>4</td>
<td>Consequence</td>
<td>Routine</td>
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<tr>
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<td>Refinement</td>
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<tr>
<td>5</td>
<td>Collaboration</td>
<td>Integration</td>
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<td>Refocusing</td>
<td>Renewal</td>
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Figure VII.2
SoC and LoU Scores
Year One, Second Transition Period
(n = 11)

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<th>Levels of Use</th>
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<tr>
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<td></td>
</tr>
<tr>
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<td></td>
</tr>
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</table>

E - ELC
S - SLC
N - NLC
W - Workshops
X - Support
Figure VII.3

SoC and LoU Scores
Year One, Fourth Transition Period
(n = 11)

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E - ELC
S - SLC
N - NLC
W - Workshops
X - Support
Figure VII.4
SoC and LoU Scores
Year Two, First Transition Period
(n = 17)

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<td>N,X,E</td>
<td>S</td>
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</table>

E - ELC
S - SLC
N - NLC
W - Workshops
X - Support
with the innovation (LoU IV), but are already experiencing the tension and administrative difficulties which surrounded the use of transition periods in Year Two and are looking to more beyond transition periods (SoC 6). Four people in Figure VII.5 represent the role groups that had the most difficulty with implementing transition period. For them, use is a question of management (LoU III). Their concerns are either disinterest (0) or resistance (6). Finally, the movement of the percentage of agreement directly reflects the already noted growth of tension which surrounded implementation of the innovation. It is not surprising that the pattern would tend to disintegrate as the context became more uncertain. This data strongly suggests that the CBAM theory is both a valid and useful tool in studying procedures for adopting educational innovations.

R&DCTE's analogous study. The Research and Development Center for Teacher Education conducted a study somewhat analogous to the one attempted at the Smith School, a Teacher Corps Project focused on a single junior high school's attempt to develop a success-oriented teaching/learning environment based on William Glasser's concepts and techniques. (1) The particular innovation studied was Positive Discipline Strategies. (2) All the teachers in the building (n = 42) participated in the Teacher Corps Project. (3) The LoU Interview and SoC Questionnaire were administered three times in Year One and twice in Year Two. (4) Participation in the project was school-wide and the decision to "buy in" to the change process was as a school prior
Figure VII.5
SoC and LoU Scores
Year Two, Third Transition Period
(n = 17)

<table>
<thead>
<tr>
<th>Stages of Concern</th>
<th>Levels of Use</th>
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<tr>
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</table>

E - ELC
S - SLC
N - NLC
W - Workshops
X - Support
to the implementation period. (5) The innovation itself was complex, part of a bundle that was difficult to disentangle. Finally, staff were organized into instructional teams, much like the learning centers and workshops. The study did differ in three respects: the research team was officially appointed as part of the Teacher Corps Project and used a number of other research techniques; there were a number of planned organizational and programmatic in-service interventions designed to facilitate innovation adoption; and the number of staff was larger.

There are a number of interesting similarities in the findings of the SoC and LoU data of the study with the one conducted at the Smith School.

SoC Profiles for Non-Users (LoU determined) show high Stage 0, 1 and 2 concerns and the characteristic higher Stage 6 (than Stage 4 or 5) that indicates resistance over all the administrations. This relatively higher Stage 6 score is especially pronounced in the beginning and end dates. This upswing is also present in two specific teams in the present study and is especially noticeable in the last SoC administration.

SoC Profiles for Users (LoU determined) show a lessening of Stage 0, 1, 2 and 3 concerns over time. They also show that Stage 3 concerns remain higher than Stage 4 or 5 concerns for each administration and that the last two administrations (Year Two) show the higher Stage 6 scores indicative of resistance to the innovation. The Smith School study also shows a lessening of early concerns over time, comparatively higher Stage 3 concerns, and a beginning of the higher Stage 6 score for the last administration of the instrument.

While the total staff profiles are not particularly different for each of the four administrations (neither are the profiles of all Users and all Non-Users) team profiles
exhibit a marked difference both internally over time and between other teams. This characteristic of profiles is also true for the Smith School study.

LoU percentages over time indicate a gradual increase in Users, a gradual increase in Level IVA and decrease in Level III Users, and then a growing number of Non-Users toward the end of Year Two. This pattern is also analogous to Smith School data. There is the difference that the downward trend is to Level III rather than Level 0.

These similarities in the data are further paralleled by similarities in the analysis. (1) There is ample evidence in the data for both instruments to assert that the CBAM theory is valid. Early concerns decrease over time, later concerns increase slightly. More staff members become users (LoU III) and then users who are comfortable with the innovation (LoU IVA). (2) The data that show the wide differences in teams, the dramatic increase in Non-Users in Year Two, and the variations in the hypothesized "wave" theory of concerns development over time is understood and clearly explained with ethnographic detail and sensitivity to contextual variables. (3) Finally, there is a retrospective concern expressed by the R&DTCF that the particular innovation studied proved to be problematic, perhaps an inextricable part of a complex bundle that made research into innovation adoption difficult.

Conclusions

While these three pieces of evidence by no means prove anything
conclusive about the CBAM theory, they are important. The brief review of the R&DCTE awareness of the strengths and limitations of the instruments is an indication that the center has not only been careful in developing the instruments, but has taken some care that use of them produces usable and not misleading information. The high degree of correlation between attitude and behavior as evidenced in the Smith School staff's SoC and LoU scores is an indication that the developmental theory posited in the CBAM is a valid one. Finally, the striking similarities of the Smith School research with the R&DCTE research for the Teacher Corps Project suggests that the anomalies in the Smith School data that the author explained by referring to contextual variables, the nature of the innovation, and the importance of role groups may not raise questions about the CBAM theory, but rather show how the theory and the instruments can be an important barometer of a complex innovation implementation process in a school.

There are more general considerations in considering the CBAM theory and the present research. (1) The developmental process of personal involvement: non-awareness, ego-centered or present awareness of, cooperation with others, issue or abstraction focused is a familiar one. In no particular order, Kohlberg, Piaget, Bruner, Maslow and Erikson all have highly articulated developmental theories which are either directly similar or analogous to the CBAM theory. (2) The growth of the theory parallels an accepted model of the growth of scientific knowledge. The idea is arrived at by induction,
verified by testing, and validated by use in subsequent settings. While the author has some questions which he will raise later, he feels that the current research has done nothing to invalidate the use of either the theory or the instrumentation. (3) Finally, there is a growing body of research and writing about the nature of implementation of innovations in social and educational systems and the need to study the implementation process:

Concern about the implementation of social programs stems from the recognition that policies cannot be understood in isolation from the means of their execution. A large collection of carefully documented case studies—in education, manpower, housing and economic development—point consistently to the same basic pattern: grand pretensions, faulty execution, puny results. A reasonably broad consensus has developed among analysts of social policy that the inability of government to deliver on its promises derives only in part from the fact that policies are poorly conceived. In some instances, policies are based on poor and incomplete understandings of the problems they are supposed to address. But in the largest number of cases, it is impossible to say whether policies fail because they are based upon bad ideas or because they are good ideas poorly executed.

Along with this notion is the idea that implementation is taking place in a non-rational system, much like the ideas of Lindblom, Schön, and Emery and Trist advanced in Chapter I of this paper. Karl Weick advances the idea of "Educational Organizations as Loosely Coupled Systems":

By loose coupling, the author intends to convey the image that coupled events are responsive, but that each event
also preserves its own identity and some evidence of its physical or logical separateness. . . . when people describe loosely coupled systems, they are often referring to (1) slack times--times when there is an excessive amount of resources relative to demands; (2) occasions when any one of several means will produce the same end; (3) richly connected networks in which influence is slow to spread and/or is weak while spreading; (4) a relative lack of coordination, slow coordination or coordination that is dampened as it moves through a system; (5) a relative absence of regulations; (6) planned unresponsiveness; (7) actual causal independence; (8) poor observational capabilities on the part of a viewer; (9) infrequent inspection of activities within the system; (10) decentralization; (11) delegation of discretion; (12) the absence of linkages that should be present based on some theory—for example, in educational organizations the expected feedback linkage from outcome back to inputs is often nonexistent; (13) the observation that an organization's structure is not coterminus with its activity; (14) those occasions when no matter what you do things always come out the same—for instance, despite all kinds of changes in curriculum, materials, groupings, and so forth the outcomes in an educational situation remain the same; and (15) curricula or courses in educational organizations for which there are few prerequisites--the longer the string of prerequisites, the lighter the coupling.7

Much of Weick's list seems to accurately describe educational organizations. Weick also makes some points about research in loosely coupled systems. First, he warns that overrationalizing and meaning-making will blunt a researcher's ability to appreciate or sense loosely coupled systems, that careful or tight interpretations of events or activities implies tightly coupled systems. Second, he feels that loose coupling can be spotted and examined only if one uses methodology that highlights and preserves such detail about context. Finally, he advances the suggestion that the relationships between intention and action is a potentially fruitful way of looking
at loosely coupled systems.

Given Weick's suggestions for methodology, CBAM theory is a potentially useful way of studying implementation of educational innovations. (1) The limitations of the instrument are carefully set out so that users cannot see more meaning in the data than there actually is. (2) Both instruments emphasize the need to see the data in context, that data should be seen as hypotheses and not results. (3) The theory offers a rich opportunity to study the interaction between intents (as measured by the SoC Questionnaire) and actions (as measured by the LoU Interview). The CBAM as a conceptual framework and the SoC and LoU as diagnostic tools are effective in the study of the adoption of educational innovations. Not only do they assist in generating workable sensitive hypotheses about a process of adoption, but they are able to assist the researcher in setting the process sensitively in context.

Questions for Further Study

While the author sees the CBAM theory and instruments as important, his research has raised some interesting questions about the model.

(1) While the R&DCTE asserts that the LoU Interview is generic, the manual also suggests that it may be modified to better suit a particular innovation. Moreover, the research on both the Teacher Corps Program and the Smith School has raised the issue that innova-
tions may be different in their level of complexity, foci and values they ask teachers to question. The Teacher Corps Project focus on discipline in a junior high immediately calls into question the difference between 7th grade boys and 9th grade girls. In what ways do the 7th grade teachers see the idea of positive discipline? Is this different than the 9th grade staff's perception? How do these differences get translated into a simple focused innovation configuration? More important are the issues of complexity and values. Where did the impetus for the innovation come from, how global is the overall change process meant to be, and how does the discipline program link into the system? The idea of training in the concepts and practices of positive discipline challenges teachers. The implication is that they have been harming students in their approaches to kids and that their deeply-held assumptions about the teaching/learning process are wrong. The idea of Transition Periods at the Smith School is quite complex. The theory turned out to be subject to management issues of space and resources rather than dictating the management (transition) of children based upon theory. The Transition Period was inextricably linked with the developmental checklists used to determine a child's readiness to move to another setting. How does one measure use of the Transition Period if there is a variable use of these checklists if, in fact, different teachers must use different parts of the checklists because of the different ages of the children? More important are the values the innovation questions. How do teachers deal with four mandated Transition Periods
when they believe either that a classroom community is vital to the success of their teaching and children need time to build community or that stability for younger children is a prerequisite for growth?

In addition, recent writing has pointed out that there are a number of frames through which one can see organizations. The CBAM theory points out the concept of the tension between the individual and the organization and the need to study educational innovation at the point of implementation, the teacher. Elmore points out that this tension can be seen in a number of other theoretical contexts. It is tempting to dismiss all conceptual frames with a flip comment like Barth's Law that there are two types of people: those who divide people into two groups, and those who don't. While the author feels strongly that research that focuses on the teacher as the point of implementation is important, he feels that more work needs to be done in defining the nature of innovations just as has been done in systemic analysis and the work on defining interventions in the change process.

(2) While most change or innovation adoption theory talks about the process as a long complicated one, federal grants are traditionally for one or two years. Research is rarely over two years. The author feels that more work needs to be done in researching innovation adoption using the SoC and LoU over a longer period. For example, he sees that much potentially rich data about both the innovation adoption process for the Transition Periods and the CBAM theory was lost in his inability to follow up the patterns in the data that
emerged over the two-year study.

(3) Most developmental theories about human behavior that the author is familiar with pay particular attention to the degree to which different stages interact: to what extent are different stages present in an individual at any time; can an individual exhibit behavior or attitudes at a higher stage of development that s/he currently is; are there common configurations of dominant/non-dominant stages; and to what extent, if any, are these stages amenable to interpretations by groups? The author's research surfaced patterns of concerns that seemed to be consistent with both context and innovation implementation. Some staff members had higher intensity concerns than others. Some staff had dual peak concerns that were quite prominent. There seemed to be dual peak Levels of Use in some staff members as exhibited in the different use categories even though the scoring of the LoU Interview asserts that an individual's use should be pegged at one predominant behavioral level based upon the overall decision points. While there was a marked difference in the different role groups, groups developed concerns and use patterns that may not have been dependent upon the contextual analysis presented by the author. The author feels that the R&DCTE's central assumptions that innovation adoption must be researched at the point of use is crucial. Moreover, his research, reading and experience convince him that the central developmental process is a valid one. However, he does feel that more research on the internal characteristics of the developmental theory needs to be done.
Connected to the above discussion is the author's feeling that the relationships between the SoC and LoU in individuals and groups offer a rich, as yet, relatively unexplored field for research. What are the relationships between intent and action in loosely coupled systems; can highly correlated SoC and LoU scores be seen as tight coupling and disparate scores be seen as loose coupling in innovation adoption settings; what is the relationship between the coupling and implementation; to what extent can SoC be linked with intent, LoU with action; can the relationship between SoC and LoU shed any light on the theoretical discussions about which comes first, intent or action; are all important questions that await further research.

The author began this research by justifying the need for the development and research of models for the study of the implementation of educational innovations, especially from the teacher's perspective. Nothing that has happened in the intervening years has changed this feeling. However, he did undertake the research with the feeling that the CBAM theory would be validated, that the research would champion the perspective of the individual vis-a-vis the organizational. The research has led him to greater appreciate both the complexities of the adoption process and the strengths of the CBAM theory and instrumentation. He looks forward to a more aware and sensitive participation in future innovations and use of the theory.
Notes for Chapter VII


2. For a more complete discussion refer to Chapters II and IV and Appendices A and B.

3. Loucks et al., pp. 2-4.

4. A report of this study presented as a Symposium at the Annual meeting of A.E.R.A., San Francisco, April 11, 1979. The symposium was entitled, "Analysis of Changes Agent Interventions in a Two-Year Innovation Implementation Effort in One Junior High School." Five different papers were presented at this symposium.


CHAPTER VIII

AFTERWORD

Introduction

John Goodlad has recently published another definitive study on American education based upon thorough research. Like most others, indictments are accompanied by suggestions for sweeping changes. The presidential race is heating up. Democratic hopefuls are answering the President's resolve to abandon the Department of Education and cut back federal spending with statements about presidential neglect of children and the need for more federal spending. There has been recent concern about the United States' loss of industrial supremacy and lack of entrepreneurial imagination and initiative. Goodlad is not the only person who indicts schools and by implication teachers for failing United States children. Tough love, multiculturalism, careers, computers, basics, life-long learning are all buzzwords which proliferate the educational landscape with change proposals and specific innovations. Moreover, the economy seems to be heating up. While people may never throw money at the educational system as they did in the sixties, more money may accompany the pressure for change and innovation. This Fall, school people will attend a national conference entitled, "I Care About Quality Education," sponsored by the American Association for School Administration. Education is truly
the turbulent environment that Emery and Trist describe. While the author has no illusions about this dissertation being a bridge over these troubled waters, his learnings have at least made him less seasick. This concluding chapter is a discussion in three parts: preconditions for innovation; the importance of understanding the nature of the innovation; and, knowing about innovations. While the discussion must deal with each in turn, the author hopes that the reader will keep a more musical definition to 'three part' in mind.

**Preconditions for Innovation**

One way of looking at the developmental process of the CBAM model is to see an individual moving from personal (risk-estimate) concerns through management and comfort (structural) concerns to systemic (renewal) concerns. While the author has already compared these developmental stages to other developmental theories, he also feels that there is a cyclical nature to the process that is worth looking at. It is obvious that movement to a new innovation is implicit in the final stage. With this movement, the cycle is initiated anew. Rationale for the new cycle is an educational interpretation of a classical dialectic that goes something like: the structures that we have invented to meet the needs of our clients and the community have come to have a life of their own and are no longer responsive to human needs; in addition, the society has changed and new models are needed to keep pace and to adequately reflect the human condi-
tion. The innovation, while it has its unique characteristics, is nonetheless firmly rooted in definitions of the past, i.e. some remediation of the characteristics of the past structures that are no longer responsive to children. It is this link which gives the process its dialectic nature. The author feels that there are interesting parallels in anthropological theory which are worth considering.²

In primitive societies, the dialectic is somewhat static. Rituals and ceremony are roughly analogous to innovation in that they are cyclical, regular breaks in the structure of the society which for a time overturn laws and norms and patterns and remind all people of their communality and humanness, regardless of their place in the hierarchy of the society. It is the relationship between the two states that is important:

Spontaneous communitas is richly charged with affects, mainly pleasurable ones. Life in "structure" is filled with objective difficulties: decisions have to be made, inclinations sacrificed to the wishes and needs of the group, and physical and social obstacles overcome at some personal cost. Spontaneous communitas has something "magical about it." Subjectively there is in it the feeling of endless power. But this power untransformed cannot readily be applied to the organizational details of social distance. It is not substitute for lucid thought and sustained will. On the other hand, structural action swiftly becomes arid and mechanical if those involved in it are not periodically immersed in the regenerative abyss of communitas. Wisdom is always to find the appropriate relationship between structure and communitas under the given circumstances of time and place, to accept each modality when it is paramount without rejecting the other, and not to cling to one when its present impetus is spent.³

Echoes of Turner's words and concepts are familiar in current organ-
izational development theory. There are two lessons from the anthropological approach which appear to be worthwhile to consider as preconditions for innovation.

The first has to do with leadership style. There have been a number of studies about educational innovation which indicate that the principal is the key to the success or failure of an innovation within the school. The Smith School study seems to confirm this finding. Data indicate that the innovation adoption process became more problematic in the second year when the principal was on sabbatical. There is the possibility that teachers are more apt to risk change (personal concerns as the beginning of the adoption process) if the administrator him/herself has a charismatic style, exhibits the qualities of a Campbellian hero who leads at great personal sacrifice, possesses the truth, and is separate but symbolic of the aspirations of the people s/he leads. In keeping with the theory previously mentioned, this 'hero' will also have to be outside the existing power structure in a liminal relationship to it.

The second precondition has to do with the relationship of communitas and structure, as posited by Turner. Too often, innovations in education are reactive rather than proactive, fail to see their relationship to what they seek to replace, and millenial, assume that both the fervor and concepts of the moment will last forever. In a complex and turbulent society, this picture of the change process can prove problematic. First, there is no concept of the innovation in time, and the systemic concept is rather simplistic being a we/
they, inside/outside notion. The impact of innovations with this world view tends to be limited. The society is able to coopt them in two ways: by tolerating their existence at the fringe of the social structure but without letting the ideas or practices change much of what goes on; or, by re-interpreting those ideas and practices in ways that subvert the innovation to traditional goals. The alternative school movement of the sixties may be a good example of this process. Thus, by implication, it seems to the author that the second precondition for innovations must be a clear systemic view of the change process that takes into account both spatial and temporal variables. For example, while some research asserts that real innovation and change can only be initiated from outside a system and that left to themselves, most systems work towards maintaining homeostasis, the author would argue that real impetus for lasting change is within the system. An extension of this idea can be found in much of the research reviewed in Chapter II which argues that teachers do not adopt innovations as a result of either the classic diffusion process or new ideas which blunt themselves on classroom doors. Only innovations or change processes which assume both theory and the capability to enter the dialectic process on the part of the adopting system will have a chance at success.

Nately gaped at him in undisguised befuddlement. "Now I really don't understand what you're saying. You talk like a madman."

"But I live like a sane one. I was a Fascist when Musso-lini was on top, and I am an anti-fascist now that he has
been deposed. I was fanatically pro-German when the Germans were here to protect us against the Americans, and now that the Americans are here to protect us against the Germans I am fanatically pro-American."

"But," Nately cried out in disbelief, "you're a turncoat! A time-saver! A shameful, unscrupulous opportunist!"

"I am a hundred and seven years old," the old man reminded him suavely.

(Joseph Heller, Catch 22)

The author has had this conversation, both directly and indirectly, with a number of teachers in different settings. He is sure that he is not the only "change agent" to have been so enlightened.

Understanding the Nature of the Innovation

As part of the CBAM model, the R&DCTE has stressed the importance of understanding the specific innovation that is being adopted. Other literature also stresses the importance of understanding the nature of the innovation. Both sets of research see this necessity as a way of seeing if the innovation is being implemented. The author's research leads him to hypothesize that the nature of the innovation will affect: adopters' level of commitment; the fidelity between the innovation as planned and the innovation as adopted; and, the time frame required for movement along the CBAM developmental scheme and the presence of certain developmental stages.

It is easy to say that if individuals are involved in the plan-
ning of change, then their commitment to it will be greater than if they are not. "User driven" theories of staff development and innovation are popular. There is a body of organizational developmental writing that argues strongly for this position. What, then, do we make of the fact that the Smith School data indicate that there is a slight withdrawal from commitment to the innovation over time and that certain people and role groups exhibit different degrees of commitment despite the fact that all of the staff was heavily involved in the planning and choice of the innovation? There is one answer to the question which fits easily with the CBAM and 'humanistic' theories--that is, the major thrust of the innovation in both theory and structure came from the principal and that the planning year was more a year in which teachers had their personal concerns answered than it was a year in which they actively invented the innovation as a response to their felt needs. However, it is not that easy. Evidence suggests that teachers were actively involved in planning.

The author believes that the nature of the innovation may be a major determining factor in the degree to which teachers commit themselves to an innovation adoption process. More specifically, he sees the need for paradigms which reflect the degree of risk involved in innovations as predictors of how teachers will adopt innovations. For example, the Transition Period innovation questioned some Smith School staff's strong needs to build a community of children over the period of a year. The Positive Discipline innovation questioned some
junior high staff's assumptions about children and implied that these assumptions were hurting children. It has been the author's experience that when people are faced with specific issues in implementing high risk innovations they are just as apt to question the whole concept as they are to work on the specific problem solution. To translate this idea into CBAM language, certain innovations may always have relatively high Stage 2 (Personal) or Stage 6 (Renewal, something else) Concerns present or just beneath the surface.

It is the author's belief that the paradigm of risk also influences the relationship between plans and implementation. In all innovations, there are conceptual and technical plans. The conceptual might be viewed as a map of the terrain to be covered—the technical as the itinerary or steps one uses to cross. The degree to which a particular innovation calls into question an individual or group's sense of the terrain will reflect the degree to which the implementation diverges from the plans. If an innovation changes the itinerary but keeps the map constant, for example a new reading book for the first grade, implementation will more closely resemble plans than if the map of the terrain is changed greatly, for example Transition Periods. The author would expect to find that the predicted developmental CBAM pattern for innovation adoption more evident in instances where the innovation focusses on technique rather than concepts. Moreover, if the CBAM pattern is not clear in an innovation process that purportedly focusses on technique, the author would assume that concepts and values of teachers have been questioned but not directly
addressed.

Finally, while a great deal has been written about the need to allow more time for educational change and innovation adoption than has been traditionally allotted, the author feels that the nature of the innovation will influence the time frame of adoption. Where there is high risk involved, the time frame for innovation will have to be longer than where there is little risk involved. Thus, understanding the nature and degree of risk involved in any innovation may also be a precondition for undertaking an adoption process.

** Knowing About Innovations **

A man with one watch knows what time it is.
A man with two watches is never sure.

The need to have models of inquiry that provide sensitive and accurate knowledge about innovation adoption is unquestioned, especially in light of the push for change, and the norm of change, in a turbulent environment. There has been increasing debate about the effectiveness and desirability of qualitative or quantitative research:

Educational researchers have recently devoted increasing amounts of time and energy to the issue of one method versus the other. Unfortunately, much of the discussion has tended to obfuscate rather than clarify. There has been a tendency to engage in polemics and, at times, name calling. We have all heard, if not seen in print at frequently or as bluntly, one side refer to the other as "bankrupt," "number-crunchers," or "storytellers." There has also been
a tendency to see the two approaches, if not as inter-
changeable, certainly as complementary. The implication is
that researchers may variously mix the two approaches for
any particular research or use one at one time and the oth-
er at another time, depending upon the nature of the prob-
lem at hand.17

Smith continues his paper by showing that both methodologies have
sound grounding in history and that there are serious epistemological
differences between the two that cannot be overlooked or glossed ov-
er. In some ways, this debate is like the debate that exists about
theories of change and innovation.18

What, then, of the CBAM model as a methodology? Given Smith's
admonition, does it not attempt to use the best of both worlds? It
uses quantitative methods at the same time it tells the reader to
pay careful attention to context and that results must be interpreted
in light of contextual variables? Why not a sensitive ethnomethodol-
ogical procedure instead? Indeed, Arthur Bolster argues strongly for
qualitative methodology in working with teachers and research on
teaching and would have no problem extending the specific situation
of research on teaching to research on teacher adoption of innova-
tions:

Unlike the more conventional quantitative modes of social
science inquiry into teaching, the basic conceptualization
of this approach is consistent with teachers' perspective
of their craft. Its basic stance is idiographic; its goal
is to provide an in-depth understanding of the complexity
of a particular classroom rather than the experimental der-
ivation of a selected number of elements whose relationship
can be replicated elsewhere.19
The author sees two levels of response to this legitimate question: pragmatic and theoretical. At a pragmatic level, the author has found that the methodology works. It is usable in that it is unobtrusive and practitioner-centered, thus acceptable to teachers. Moreover, it produces hard data that must be responded to because teachers have committed themselves to a position in the data gathering process. Finally, it is not judgemental but descriptive and thus is a non-threatening way of both tracking the progress of innovation adoption and providing decision-makers with information for program growth. To the degree that teachers see the CBAM methodology as both useful and sensitive to the process of innovation adoption, it will work and be effective. As it is an effective measure of a cyclical process, a measure which contains elements of personal risk, structure, and communality, the author feels that it may be sensitive to both the relationship between structure and communitas and the degree to which risk is an important part of the nature of educational innovations. This sensitivity will also make the CBAM methodology a useful tool in innovation adoption.

The author is uneasy about discussing the theoretical validity of the methodology for a number of reasons. First, if the educational environment is as turbulent as he believes, then the whole notion of a valid theory as traditionally defined is somewhat problematic. Second, as he has mentioned elsewhere, one of the ways in which one proves the validity of one theory is to subsume others in it, thus "proving" that one's theory is more complete than others. Finally,
in his discussion of the usefulness of the CBAM methodology he implies that effective use of the methodology entails some mix of qualitative and quantitative techniques, and thus theory. The notion of a theoretical sound methodology seems to push towards "the" way of knowing rather than "a" way of knowing. In a turbulent environment, in the study of an innovation adoption process which is by its nature characterized by change and uncertainty, it seems important to the author that an effective methodology should be a metaphor for the process and not a theoretical construct. A metaphor in that it can be both rich in the fidelity of representation and rich in its ability to engage people in forging those representative links.

It is easy to see the difference between quantitative theory and the use of metaphor. Perhaps it is not as easy to differentiate between metaphor and qualitative theory where the emphasis is on the richness of the particular setting and the speculation about the degree to which emerging patterns are present in other particular settings. For the author, the difference lies in metaphor's emphasis on the person's ability to forge the link between the real (the setting) and the metaphor (the representation of the setting, in this case, the data); in the emphasis on the individual's responsibility as meaning maker and actor in his/her environment. To the extent that the CBAM methodology uses both quantitative and qualitative techniques to involve people in actively interpreting the process of innovation adoption, then it serves as an effective metaphor in the change process.
The author's bias is showing. Like Rieux in *The Plague*, he hopes that he has been able to give an accurate account of the research process and its limitations. However, he feels more strongly than ever that the perspective of the individual practitioner is vital in the change process and the meaning s/he makes of his/her experience needs to be valued and elicited in a sensitive and ongoing way.

Poetry and metaphor assume direction with the first line laid down, run a course of lucky events, and end in a clarification of life—-not necessarily a great clarification, such as sects and cults are founded on, but in a momentary stay against confusion. (Robert Frost)
Chapter VIII Notes


3. Ibid., page 139.


5. Rand Corporation, Federal Programs Supporting Educational Change Vols. I-V (Santa Monica, CA, 1974); the research was done under the leadership of John Goodlad with the League of Cooperating Schools in California.


8. Many alternative schools of the sixties have become defined as places for "special needs" students or have been incorporated into the mainstream with only mild "expressive" freedoms like dress code and open campus and electives remaining.


10. Fene E. Hall, "What Context? Is It In Use?" R&DCTE (Austin, Texas, 1977) is the most direct discussion.

11. See Chapter II and the literature review.

12. Both Teacher Corps and Teacher Center federal programs have made use of this term. The author first heard it used by Dale Mann, then a professor at Columbia Teachers College.

13. This theory is placed nicely in perspective in such books as: Jay R. Galbraith, Organization Design, Addison Wesley (Reading,
MA, 1977); Jacob W. Getzels, James M. Lipham, and Roald F. Campbell, Educational Administration as a Social Process, Harper & Row (New York, 1968); and E. Mark Hanson, Educational Administration and Organizational Behavior, Allyn and Bacon (Boston, 1979).

14. The author's interviews over the two-year period of the study bears this out.

15. Getzels et al., op. cit.

16. The author's sources and thinking about this issue have spanned a number of years and have largely focussed on the more general topic of quantitative versus qualitative research. For example, Barney G. Glaser and Anselm L. Strauss, The Discovery of Grounded Theory, Aldine Publishing (Chicago, 1973); and Ernest R. House, School Evaluation: The Politics and Process, McCutchan Publishing (Berkeley, CA, 1973).


18. The author admits to a certain uneasiness in the field of theory development. His own neuroses may be at work, but he finds that much of it seems to be inventing new phrases for old behavior and one-up-manship.

BIBLIOGRAPHY


_, "The Effects of 'Change' on Teachers and Professors--Theory, Research, and Implications for Decision-Makers." Austin, TX: R&DCTE, 1975.


APPENDIX A
THE STAGES OF CONCERN QUESTIONNAIRE
AND SCORING INSTRUCTIONS*

The Stage of Concern Questionnaire can be found in Figure A.1. Concerns about each stage are represented by five questions each asking the subject to circle an appropriate response on a Likert Scale from 0 (this is an irrelevant concern for me now) to 7 (this is an extremely important concern for me now). Table A.2 represents the questions that specifically measure an individual's intensity of concerns for all stages.

The intensity of concern for each stage is measured by summing responses to all five of the questions that focus on that particular stage. For example, if an individual circled "3" for Question 1, "7" for Question 11, "7" for Question 19, "6" for Question 24, and "5" for Question 32, his/her raw score for Stage IV would be "32" (see Figure A.3). Raw scores for each of the seven stages of concern are translated into percentiles based upon the previous use of the questionnaire. "These percentiles are based upon the responses of 646 individuals who completed the questionnaire in the spring of 1975. The individuals were a carefully selected stratified sample from elementary schools and higher education institutions with a range of experience with the innovation of teaming or modules. Experience shows that the percentiles in the table are representative of other innovations" (page 26).

In turn, these percentiles are entered onto the chart (see Figure A.4) to form a stage of concern profile for an individual or a group. The profile is then interpreted according to guidelines established by the manual in Chapter IV. The most important mode of
interpretation is holistic, with careful attention being paid to the way in which contextual variables influence the profiles.
The purpose of this questionnaire is to determine what people who are using or thinking about using various programs are concerned about at various times during the innovation adoption process. The items were developed from typical responses of school and college teachers who ranged from no knowledge at all about various innovations to many years experience in using them. Therefore, a good part of the items may appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please circle "0" on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale, according to the explanation at the top of each of the following pages.

For example:

0 1 2 3 4 5 6 7 This statement is very true of me at this time.
0 1 2 3 4 5 6 7 This statement seems irrelevant to me.
0 1 2 3 5 6 7 This statement is somewhat true of me now.
0 1 2 3 4 5 6 7 This statement is not at all true of me at this time.

Please respond to the items in terms of your present concerns, or how you feel about your involvement or potential involvement with TRANSITION PERIODS. We do not hold to any one definition of this innovation, so please think of it in terms of your own perception of what it involves. Since this questionnaire is used for a variety of innovations, the name TRANSITION PERIODS never appears. However, phrases such as "the innovation," "this approach," and "the new system" all refer to TRANSITION PERIODS. Remember to respond to each item in terms of your present concerns about your involvement or potential involvement with TRANSITION PERIODS.

Thank you for taking time to complete this task.

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### Figure A.1 (continued)

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7</th>
<th>SoC Questionnaire Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not true of me now</td>
<td>I am concerned about students' attitudes toward this innovation.</td>
</tr>
<tr>
<td></td>
<td>I now know of some other approaches that might work better.</td>
</tr>
<tr>
<td></td>
<td>I don't even know what the innovation is.</td>
</tr>
<tr>
<td></td>
<td>I am concerned about not having enough time to organize myself each day.</td>
</tr>
<tr>
<td></td>
<td>I would like to help other faculty in their use of the innovation.</td>
</tr>
<tr>
<td></td>
<td>I have a very limited knowledge about the innovation.</td>
</tr>
<tr>
<td></td>
<td>I would like to know the effect of the reorganization on my professional status.</td>
</tr>
<tr>
<td></td>
<td>I am concerned about conflict between my interests and my responsibilities.</td>
</tr>
<tr>
<td></td>
<td>I am concerned about revising my use of the innovation.</td>
</tr>
<tr>
<td></td>
<td>I would like to develop working relationships with both our faculty and outside faculty using this innovation.</td>
</tr>
<tr>
<td></td>
<td>I am concerned about how the innovation affects students.</td>
</tr>
<tr>
<td></td>
<td>I am not concerned about this innovation.</td>
</tr>
<tr>
<td></td>
<td>I would like to know who will make the decisions in the new system.</td>
</tr>
<tr>
<td></td>
<td>I would like to discuss the possibility of using the innovation.</td>
</tr>
<tr>
<td></td>
<td>I would like to know what resources are available if we decide to adopt this innovation.</td>
</tr>
<tr>
<td></td>
<td>I am concerned about my inability to manage all the innovation requires.</td>
</tr>
<tr>
<td></td>
<td>I would like to know how my teaching or administration is supposed to change.</td>
</tr>
<tr>
<td></td>
<td>I would like to familiarize other departments or persons with the progress of this new approach.</td>
</tr>
</tbody>
</table>

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R&D Center for Teacher Education, The University of Texas at Austin
Figure A.1 (continued)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Not true of me now</strong></td>
<td><strong>Somewhat true of me now</strong></td>
<td><strong>Very true of me now</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I am concerned about evaluating my impact on students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to revise the innovation's instructional approach.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I am completely occupied with other things.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to modify our use of the innovation based on the experiences of our students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>Although I don't know about this innovation, I am concerned about things in the area.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to excite my students about their part in this approach.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I am concerned about time spent working with nonacademic problems related to this innovation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to know what the use of the innovation will require in the immediate future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to coordinate my effort with others to maximize the innovation's effects.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to have more information on time and energy commitments required by this innovation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to know what other faculty are doing in this area.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>At this time, I am not interested in learning about the innovation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to determine how to supplement, enhance or replace the innovation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to use feedback from students to change the program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to know how my role will change when I am using the innovation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>Coordination of tasks and people is taking too much of my time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7</td>
<td>I would like to know how this innovation is better than what we have now.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Figure A.2

Statements on the Stages of Concern Questionnaire
Arranged According to Stage

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Stage 0</strong></td>
</tr>
<tr>
<td>3</td>
<td>I don't even know what the innovation is.</td>
</tr>
<tr>
<td>12</td>
<td>I am not concerned about this innovation.</td>
</tr>
<tr>
<td>21</td>
<td>I am completely occupied with other things.</td>
</tr>
<tr>
<td>23</td>
<td>Although I don't know about this innovation, I am concerned about things in the area.</td>
</tr>
<tr>
<td>30</td>
<td>At this time, I am not interested in learning about this innovation.</td>
</tr>
<tr>
<td></td>
<td><strong>Stage 1</strong></td>
</tr>
<tr>
<td>6</td>
<td>I have a very limited knowledge about the innovation.</td>
</tr>
<tr>
<td>14</td>
<td>I would like to discuss the possibility of using the innovation.</td>
</tr>
<tr>
<td>15</td>
<td>I would like to know what resources are available if we decide to adopt this innovation.</td>
</tr>
<tr>
<td>26</td>
<td>I would like to know that the use of the innovation will require in the immediate future.</td>
</tr>
<tr>
<td>35</td>
<td>I would like to know how this innovation is better than what we have now.</td>
</tr>
<tr>
<td></td>
<td><strong>Stage 2</strong></td>
</tr>
<tr>
<td>7</td>
<td>I would like to know the effect of reorganization on my professional status.</td>
</tr>
<tr>
<td>13</td>
<td>I would like to know who will make the decisions in the new system.</td>
</tr>
<tr>
<td>17</td>
<td>I would like to know how my teaching or administration is supposed to change.</td>
</tr>
<tr>
<td>28</td>
<td>I would like to have more information on time and energy commitments required by this innovation.</td>
</tr>
<tr>
<td>33</td>
<td>I would like to know how my role will change when I am using the innovation.</td>
</tr>
<tr>
<td>Item</td>
<td>Statement</td>
</tr>
<tr>
<td>------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>Stage 3</strong></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I am concerned about not having enough time to organize myself each day.</td>
</tr>
<tr>
<td>8</td>
<td>I am concerned about conflict between my interests and my responsibilities.</td>
</tr>
<tr>
<td>16</td>
<td>I am concerned about my inability to manage all the innovation requires.</td>
</tr>
<tr>
<td>25</td>
<td>I am concerned about time spent working with non-academic problems related to this innovation.</td>
</tr>
<tr>
<td>34</td>
<td>Coordination of tasks and people is taking too much of my time.</td>
</tr>
<tr>
<td><strong>Stage 4</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>I am concerned about students' attitudes toward this innovation.</td>
</tr>
<tr>
<td>11</td>
<td>I am concerned about how the innovation affects students.</td>
</tr>
<tr>
<td>19</td>
<td>I am concerned about evaluating my impact on students.</td>
</tr>
<tr>
<td>24</td>
<td>I would like to excite my students about their part in this approach.</td>
</tr>
<tr>
<td>32</td>
<td>I would like to use feedback from students to change the program.</td>
</tr>
<tr>
<td><strong>Stage 5</strong></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I would like to help other faculty in their use of the innovation.</td>
</tr>
<tr>
<td>10</td>
<td>I would like to develop working relationships with both our faculty and outside faculty using this innovation.</td>
</tr>
<tr>
<td>18</td>
<td>I would like to familiarize other departments or persons with the progress of this new approach.</td>
</tr>
<tr>
<td>27</td>
<td>I would like to coordinate my effort with others to maximize the innovation's effects.</td>
</tr>
<tr>
<td>29</td>
<td>I would like to know what other faculty are doing in this area.</td>
</tr>
</tbody>
</table>
Figure A.2 (Continued)

Statements on the Stages of Concern Questionnaire
Arranged According to Stage

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>I now know of some other approaches that might work better.</td>
</tr>
<tr>
<td>9</td>
<td>I am concerned about revising my use of the innovation.</td>
</tr>
<tr>
<td>20</td>
<td>I would like to revise the innovation's instructional approach.</td>
</tr>
<tr>
<td>22</td>
<td>I would like to modify our use of the innovation based on the experiences of our students.</td>
</tr>
<tr>
<td>31</td>
<td>I would like to determine how to supplement, enhance, or replace the innovation.</td>
</tr>
</tbody>
</table>
Figure A.3
Examples of Raw Scores Converted to Percentiles

<table>
<thead>
<tr>
<th>Stages:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.0</td>
<td>6.0</td>
<td>7.6</td>
<td>4.6</td>
<td>1.7</td>
<td>5.6</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>12.0</td>
<td>14.0</td>
<td>13.1</td>
<td>8.1</td>
<td>11.7</td>
<td>10.7</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>15.0</td>
<td>17.0</td>
<td>16.6</td>
<td>19.7</td>
<td>18.5</td>
<td>20.1</td>
</tr>
<tr>
<td></td>
<td>23.0</td>
<td>26.0</td>
<td>18.0</td>
<td>25.1</td>
<td>24.6</td>
<td>27.7</td>
<td>22.5</td>
</tr>
<tr>
<td></td>
<td>30.0</td>
<td>35.5</td>
<td>33.1</td>
<td>39.0</td>
<td>32.5</td>
<td>29.6</td>
<td>31.6</td>
</tr>
<tr>
<td>Raw Total</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>14</td>
<td>32</td>
<td>31</td>
<td>18</td>
</tr>
<tr>
<td>Percentile</td>
<td>10</td>
<td>27</td>
<td>35</td>
<td>52</td>
<td>86</td>
<td>91</td>
<td>57</td>
</tr>
</tbody>
</table>
Figure A.4

Percentiles for Figure Recorded on Concerns Chart to Form Concerns Profile
APPENDIX B

THE LEVELS OF USE INTERVIEW AND SCORING INSTRUCTIONS*

The interview is a series of questions and probes about an individual's level of use of a particular innovation defined by seven categories. These categories are found in Figure B.1 in the full Level of Use Chart along with the Decision Points for each LoU. Figures B.2 and B.3 present the interview in two forms. Figure B.2 shows how the interview has been organized into a branching format and what the different answers to each question indicate about an individual's level of use of an innovation. Figure B.3 presents the interview question and the purpose each question has in defining an individual's level of use of a particular innovation.

The general guidelines for the rating or scoring procedure start by asserting:

Although there are operational definitions for decision points, categories, and overall LoU, the rater in the final analysis has to develop a gestalt or global picture of the LoU of each user. The final rating is not derivable from a straight sum of the category ratings, but is a gestalt of how the interviewee is currently using the innovation or what s/he is doing at the present time in regard to future use (page 43).

Each interview is rated by coding each respondent statement in the appropriate place(s) in the protocol, reaching a judgement about the LoU for each category as well as the overall LoU which uses the available evidence of the interview and the existing category and LoU definitions for use and critical change points, and making an overall judgement. Figure B.4 presents a sample interview. Figure B.5 presents a sample scoring protocol with each statement made by the
respondent entered at the appropriate place(s), each category LoU circled, the overall LoU circled, and interview critique.

The Manual discusses a number of problematic issues for rating an individual's LoU. (1) Some respondents may be multiple level LoU's if they are using a particular innovation in two distinct settings. It is important to separate out a particular innovation and reach prior agreement on what its configuration is. (2) Some innovations may be connected to other innovations in a bundle, and it is advisable to interview about these connected innovations separately. (3) It is important to have the respondent substitute a team or total school staff's group use of an innovation for his/her individual use. (4) Past users and Level V and VI users may be difficult to spot in an interview and sensitive use of the probes must be maintained.
## Levels of Use

### Scale Point Definitions of the Levels of Use of the Innovation

Levels of Use are distinct states that represent observable differences in behavior and patterns of innovation use as exhibited by individuals and groups. These levels characterize a user’s development in acquiring new skills and varying use of the innovation. Each level encompasses a range of behaviors, but is limited by a set of identifiable Decision Points. For descriptive purposes, each level is defined by seven categories.

<table>
<thead>
<tr>
<th>LEVEL 0</th>
<th>NON-USE</th>
<th>State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECISION POINT A</td>
<td>Takes action to learn more detailed information about the innovation.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL I</th>
<th>ORIENTATION</th>
<th>State in which the user has acquired or is acquiring information about the innovation and/or has explored it, exploring its value orientation and its demands upon user and user system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECISION POINT B</td>
<td>Makes a decision to use the innovation by establishing a time to begin.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL II</th>
<th>PREPARATION</th>
<th>State in which the user is preparing for first use of the innovation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNOWLEDGE</td>
<td>That which the user knows about characteristics of the innovation, how to use it, and consequences of its use. This is cognitive knowledge related to using the innovation, not feelings or attitudes.</td>
<td></td>
</tr>
<tr>
<td>ACQUIRING INFORMATION</td>
<td>Solicits information about the innovation in a variety of ways, including questioning resource persons, corresponding with resource agencies, reviewing printed materials, and making visits.</td>
<td></td>
</tr>
<tr>
<td>SHARING</td>
<td>Discusses the innovation with others. Shares plans, ideas, resources, outcomes, and problems related to use of the innovation.</td>
<td></td>
</tr>
</tbody>
</table>

### Categories

<table>
<thead>
<tr>
<th>KNOWLEDGE</th>
<th>ACQUIRING INFORMATION</th>
<th>SHARING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows nothing about this or similar innovations or has only very limited general knowledge of efforts to develop innovations in the area.</td>
<td>Takes little or no action to solicit information beyond reviewing descriptive information about this or similar innovations when it happens to come to personal attention.</td>
<td>Is not communicating with others about the innovation beyond possibly acknowledging that the innovation exists.</td>
</tr>
<tr>
<td>Knows general information about the innovation such as origin, characteristics, and implementation requirements.</td>
<td>Seeks descriptive material about the innovation. Seeks opinions and knowledge of others through discussions, visits, or workshops.</td>
<td>Discusses the innovation in general terms and/or exchanges descriptive information, materials, or ideas about the innovation and possible implications of its use.</td>
</tr>
<tr>
<td>Knows logistical requirements, necessary resources, and timing for initial use of the innovation, and details of initial experiences for clients.</td>
<td>Seeks information and resources specifically related to preparation for use of the innovation in own setting.</td>
<td>Discusses resources needed for initial use of the Innovation. Joins others in pre-use training, and in planning for resources, logistics, schedules, etc., in preparation for first use.</td>
</tr>
</tbody>
</table>
### DFSCONT POINT C

#### LEVEL III

**MECHANICAL USE** State in which the user focuses most effort on the short-term day-to-day use of the innovation, with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disappointment and unsupervised use.

- **DECISION POINT D-1**

#### LEVEL IV A

**ROUTINE** Use of the innovation is stabilized. Few, if any, changes are being made in using the use. Little preparation or thought is being given to improving the use or its consequences.

- **DECISION POINT D-2**

#### LEVEL IV B

**REFINEMENT** State in which the user refines the use of the innovation to increase the impact on clients with immediate gain in influence. Variations in the use of innovation are based on knowledge of both short- and long-term consequences for clients.

- **DECISION POINT F**

#### LEVEL V

**INTEGRATION** State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on the use within their common sphere of influence.

- **DECISION POINT F**

#### LEVEL VI

**INNOCATION** State in which the user reviews the quality of use of the innovation and major modifications of use. The use contributes to significant increases in use in the field, and generates new ideas for self and the system.

- **BEGIN**

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>DESCRIPTION</th>
<th>MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>Mechanical Use</td>
<td>Focuses most effort on short-term day-to-day use, with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disappointment and unsupervised use.</td>
</tr>
<tr>
<td>IV A</td>
<td>Routine Use</td>
<td>Use of the innovation is stabilized. Few, if any, changes are being made in using the use. Little preparation or thought is being given to improving the use or its consequences.</td>
</tr>
<tr>
<td>IV B</td>
<td>Refinement</td>
<td>State in which the user refines the use of the innovation to increase the impact on clients with immediate gain in influence. Variations in the use of innovation are based on knowledge of both short- and long-term consequences for clients.</td>
</tr>
<tr>
<td>V</td>
<td>Integration</td>
<td>State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on the use within their common sphere of influence.</td>
</tr>
<tr>
<td>VI</td>
<td>Innovation</td>
<td>State in which the user reviews the quality of use of the innovation and major modifications of use. The use contributes to significant increases in use in the field, and generates new ideas for self and the system.</td>
</tr>
</tbody>
</table>

---

**Figure B.1 (continued)**

- **Begins first use of the innovation.**
  - **Knows on a day-to-day basis the requirements for using the innovation.**
    - **Solicits management information about such things as logistics, scheduling techniques, and ideas for reducing amount of time and work required of user.**
    - **Discusses management and logistical issues related to use of the innovation.**

- **A routine pattern of use is established.**
  - **Knows both short- and long-term requirements for use and how to use the innovation with minimum effort or stress.**
    - **Makes no special efforts to seek information as a part of ongoing use of the innovation.**
    - **Describes current use of the innovation with limited or no reference to ways of changing use.**

- **Changes use of the innovation based on formal or informal evaluation in order to increase client outcomes.**
  - **Knows cognitive and affective effects of the innovation on clients and ways for increasing impact on clients.**
    - **Solicits information and materials that focus specifically on changing use of the innovation to affect client outcomes.**
    - **Discusses own methods of modifying use of the innovation to change client outcomes.**

- **Initiates changes in use of innovation based on input of and in coordination with what colleagues are doing.**
  - **Knows how to coordinate own use of the innovation with colleagues to provide a collective impact on clients.**
    - **Solicits information and opinions for the purpose of collaborating with others in use of the innovation.**
    - **Discusses efforts to increase client impact through collaboration with others on personal use of the innovation.**

- **Begins exploring alternatives to or major modifications of the innovation presently in use.**
  - **Knows of alternatives that could be used to change or replace the present innovation that would improve the quality of outcomes of its use.**
    - **Seeks information and materials about other innovations as alternatives to the present innovation or for making major adaptations in the innovation.**
    - **Focuses discussions on identification of major alternatives or replacements for the current innovation.**
## Categories

### Assessing

Examine the potential or actual use of the innovation or some aspect of it. This can be a mental assessment or an involve actual collection and analysis of data.

- Takes no action to analyze the innovation, its characteristics, possible use, or consequences of use.
- Analyzes and compares materials content requirements for use, evaluation reports, potential outcomes, strengths and weaknesses for purposes of making a decision about use of the innovation.
- Analyzes detailed requirements and available resources for initial use of the innovation.

### Planning

Design and outlines short- and/or long-range steps to be taken during process of innovation adoption. I.e., aligns resources, schedules activities, meets with others to organize and/or coordinate use of the innovation.

- Schedules no time and specifies no steps for the study or use of the innovation.
- Plans to gather necessary information and resources as needed to make a decision for or against use of the innovation.
- Identifies steps and procedures entailed in obtaining resources and organizing activities and events for initial use of the innovation.

### Status Reporting

Describes personal stand at the present time in relation to use of the innovation.

- Reports little or no personal involvement with the innovation.
- Reports presently orienting self to what the innovation is and is not.
- Reports preparing self for initial use of the innovation.

### Performing

Carries out the actions and activities entailed in operationalizing the innovation.

- Takes no discernible action toward learning about or using the innovation. The innovation end/or its encouragements are not present or in use.
- Explores the innovation and requirements for its use by talking to others about it, reviewing descriptive information and sample materials, attending orientation sessions, and observing others using it.
- Studies reference materials in depth, organizes resources and logistics, schedules and receives skill training in preparation for initial use.
Figure B.1 (continued)

| Examines own use of the innovation with respect to problems of logistics, management, time, schedules, resources, and general reactions of clients. | Plans for organizing and managing resources activities, and events related primarily to immediate ongoing use of the innovation. Planned-for changes address managerial or logistical issues with a short-term perspective. | Reports that logistics, time, management, resource organization, etc., are the focus of most personal efforts to use the innovation. | Manages innovation with varying degrees of efficiency. Often lacks anticipation of immediate consequences. The flow of actions in the user and clients is often disjointed, uneven and uncertain. When changes are made, they are primarily in response to logistical and organizational problems. |
| Limits evaluation activities to those administratively required with little attention paid to findings for the purpose of changing use. | Plans intermediate and long-range actions with little projected variation in how the innovation will be used. Planning focuses on routine use of resources, personnel, etc. | Reports that personal use of the innovation is going along satisfactorily with few if any problems. | Uses the innovation smoothly with minimal management problems; over time, there is little variation in pattern of use. |
| Assesses use of the innovation for the purpose of changing current practices to improve client outcomes. | Develops intermediate and long-range plans that anticipate possible and needed steps, resources, and events designed to enhance client outcomes. | Reports varying use of the innovation in order to change client outcomes. | Explores and experiments with alternative combinations of the innovation with existing practices to maximize client involvement and to optimize client outcomes. |
| Applies collaborative use of the innovation in terms of client outcomes and strengths and weaknesses of the integrated effort. | Plans specific actions to coordinate own use of the innovation with others to achieve increased impact on clients. | Reports spending time and energy collaborating with others about integrating own use of the innovation. | Collaborates with others in use of the innovation as a means for expanding the innovation's impact on clients. Changes in use are made in coordination with others. |
| Analyzes advantages and disadvantages of major modifications or alternatives to the present innovation. | Plans activities that involve pursuit of alternatives to enhance or replace the innovation. | Reports considering major modifications of or alternatives to present use of the innovation. | Explores other innovations that could be used in combination with or in place of the present innovation in an attempt to develop more effective means of achieving client outcomes. |
Figure B.2
Overview of Branching Format of the LoU Interview

Are you currently looking for information about the innovation?

Yes

No

Have you decided to use it and set a date to begin use?

Yes

No

Are you using the innovation?

Yes

No

What kinds of changes are you making in your use of the innovation?

User-oriented

Nothing unusual

Impact-oriented

Are you coordinating your use of the innovation with other users, including another not in your original group of users?

Yes

No

Are you planning or exploring making major modifications or replacing the innovation?

Yes

No

LoU IVB VI

LoU IVB V
### Figure B.3

**Interview Questions and Purposes**

<table>
<thead>
<tr>
<th>Question</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you using the innovation?</td>
<td>To distinguish between users and nonusers; to break LoU 0-II from LoU III-VI.</td>
</tr>
<tr>
<td><strong>IF YES</strong></td>
<td></td>
</tr>
<tr>
<td>What do you see as the strengths and weaknesses of the innovation in your situation? Have you made any attempt to do anything about the weaknesses?</td>
<td>To probe Assessing and Knowledge categories.</td>
</tr>
<tr>
<td>Are you currently looking for any information about the innovation? What kind? For what purpose?</td>
<td>To probe Acquiring Information category.</td>
</tr>
<tr>
<td>Do you ever talk with others about the innovation? What do you tell them?</td>
<td>To probe Sharing category.</td>
</tr>
<tr>
<td>What do you see as being the effects of the innovation? In what way have you determined this? Are you doing any evaluating, either formally or informally, of your use of the innovation? Have you received any feedback from students? What have you done with the information you get?</td>
<td>To probe Assessing category.</td>
</tr>
<tr>
<td>Have you made any changes recently in how you use the innovation? What? Why? How recently? Are you considering making any changes?</td>
<td>To distinguish between LoU III (user-oriented changes), LoU IV B (student-oriented changes) and LoU IV A (no or routine changes); to probe Status Reporting and Performing categories.</td>
</tr>
</tbody>
</table>
### Figure B.3 (Continued)

**Interview Questions and Purposes**

<table>
<thead>
<tr>
<th>Question</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>As you look ahead to later this year, what plans do you have in relation to your use of the innovation?</td>
<td>To probe Planning and Status Reporting categories.</td>
</tr>
<tr>
<td>Are you working with others (outside of anyone you may have worked with from the beginning) in your use of the innovation? Have you made any changes in your use of the innovation based on this coordination?</td>
<td>To separate LoU V from III, IV A and IV B. If a positive response is given, LoU V probes (below) are used.</td>
</tr>
<tr>
<td>Are you considering or planning to make major modifications or to replace the innovation at this time?</td>
<td>To separate LoU VI from III, IV A, IV B and V.</td>
</tr>
</tbody>
</table>

**LoU V Probes**

- How do you work together? How frequently?
- What do you see as the strengths and the weaknesses of this collaboration?
- Are you looking for any particular kind of information in relation to this collaboration?
- When you talk to others about your collaboration, what do you share with them?
### Interview Questions and Purposes

<table>
<thead>
<tr>
<th>Question</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you done any formal or informal evaluation of how your collaboration is working?</td>
<td>To separate LoU 0 from I; to probe Status Reporting, Planning and Performing categories. To separate LoU I from II.</td>
</tr>
<tr>
<td>What plans do you have for this collaborative effort in the future?</td>
<td>To probe Knowledge category.</td>
</tr>
<tr>
<td>IF NO</td>
<td></td>
</tr>
<tr>
<td>Have you made a decision to use the innovation in the future? If so, when?</td>
<td>To probe Acquiring Information category.</td>
</tr>
<tr>
<td>Can you describe the innovation for me as you see it?</td>
<td>To probe Assessing category.</td>
</tr>
<tr>
<td>What do you see as the strengths and weaknesses of the innovation for your situation?</td>
<td></td>
</tr>
<tr>
<td>At this point in time, what kinds of questions are you asking about the innovation? Give examples if possible.</td>
<td></td>
</tr>
<tr>
<td>Do you ever talk with others and share information about the innovation? What do you share?</td>
<td>To probe Sharing category.</td>
</tr>
</tbody>
</table>
Figure B.3 (Continued)
Interview Questions and Purposes

<table>
<thead>
<tr>
<th>Question</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are you planning with respect to the innovation? Can you tell me about any preparation or plans you have been making for the use of the innovation?</td>
<td>To probe Planning category.</td>
</tr>
<tr>
<td>Can you summarize for me where you see yourself right now in relation to the use of the innovation? (Optional Question)</td>
<td>To get a concise picture of the user's perception of his/her use or nonuse.</td>
</tr>
</tbody>
</table>

Past Users

Why did you stop using the innovation?

Can you describe for me how you organized your use of the innovation, what problems you found, what its effects appeared to be on students?

When you assess the innovation at this point in time, what do you see as the strengths and weaknesses for you?
I: Are you using instructional modules?
U: Yes, I am. (1)
I: How much student time do they involve?
U: Roughly half of the time. They do them outside of class, so it varies for different students. (2)
I: Are they then "hands on," self-paced packages?
U: Yes. They are completely independent work with stated objectives, pre- and post-tests and, of course, various enabling activities. I teach math methods to secondary students as well as do some supervising in the public school, so you can see I have my hands full. (3)
I: I certainly can.
U: That's right. That is where the time problem comes in, just trying to keep up with it. It takes a great deal of work from me personally. (4)
I: What do you see as the strengths and weaknesses of modules in your situation?
U: I would say I've been pleased with their acceptance by the students. However, I'm not using them anywhere to the extent that they could be because most of us around here just simply don't have the time, and this includes me, to put in the time for the extensive conferences with students that is needed. (5)
I: Are you currently looking for any information about modules?
U: Yes. I'm searching for commercial modules in the area of math; modules that will require less explanation on my part. I feel I waste considerable time telling students what could be clearly spelled out in the various modules. (6)
I: Do you ever talk with others about modules?
U: Some, not a lot. There's only one other person interested in math education, and I seldom see her. (7)
Figure B.4 (Continued)
Sample Interview

I: What do you tell others when you talk to them?

U: I talk about the value of self-pacing for the students and my effort to get things arranged better for feedback to students. (8)

I: Why do you focus on feedback?

U: Well, the students will get behind if I don't keep up with them and encourage them.

I: What do you see as being the effects of using modules?

U: On me or on the students? (10)

I: Either or both.

U: Well, it forces me to set up my objectives, to decide what I think they must know. The students seem to like them, so I'd say the effects on students in general is better satisfaction with the course. (11)

I: How have you determined this?

U: It is an impression. My experience is that students complain if they don't like something. (12)

I: Have you received any feedback from students?

U: They sometimes report that the modules are too long or that they are not well organized. (13)

I: What have you done with the information you get?

U: Try to shift modules to fit their schedule better and sometimes omit one if the pressure gets too great. (14)

I: Pressure on you or them?

U: Both. (15)

I: Does that happen often?
Figure B.4 (Continued)
Sample Interview

U: Often enough. Well, as far as field experience is concerned in elementary and secondary, there is no direct carry-over of the modular approach that I'm using. (16)

I: Have you made any changes recently in how you use modules?

U: I really haven't changed the modules in any substantial way. I've done some reorganizing when things didn't work out very well. I've already told you about that, though. (17)

I: How recently did you make a change like that?

U: Last week, I decided to leave out Module 8 just because there wasn't time to work it into the schedule. (18)

I: Are you considering making any changes in modules or your use of modules?

U: Maybe next summer. At this time, I really haven't a good picture of what is needed. (19)

I: In addition to a possible revision next summer, are you looking ahead to later this year when it comes to plans in relation to modules?

U: Well, there is, it seems to me, a pretty high degree of confusion among students as they work with the, what I'm going to call the more individualized approach, using learning packets or modules, and there's a level of frustration that I've found among students because it is so new and unique to them. I've said they don't complain, but I plan to cut down on some of the scheduling problems we faced this year. (20)

I: Are you working with others in your use of modules?

U: I'm not. It might be a good thing, but I haven't got into that part. The picture is a little mixed among the different members of the faculty in terms of the extent to which the use of modules is, both philosophically and methodologically, consistent with their own view of themselves and their professional role and so on. (21)
Sample Interview

I: Are you considering or planning to make major modifications or replace modules at this time?

U: No. I haven't enough data to do anything like that yet. Modules themselves are kind of concentrated among relatively few in the faculty, and students get exposed to quite different sorts of instruction. I'll have to take it easy and see what develops. (22)

I: Any questions you'd like to ask me, or anything you would like to add?

U: One thing . . . (23)
Figure B.5
Level of Use Rating Sheet (CBAM, 1975)

<table>
<thead>
<tr>
<th>Level</th>
<th>Knowledge</th>
<th>Acquiring Information</th>
<th>Sharing</th>
<th>Assessing</th>
<th>Planning</th>
<th>Status Reporting</th>
<th>Performing</th>
<th>Overall LoU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Use D.P.A.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Orientation D.P.B.</td>
<td>I</td>
<td>I</td>
<td>I⁸</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Preparation D.P.C.</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>Mechanical Use D.P. D-1</td>
<td>III</td>
<td>III⁶</td>
<td>III⁸</td>
<td>III⁵/6/13/20</td>
<td>III³/4/17/18</td>
<td>III⁵/14/18</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Routine D.P. D-2</td>
<td>IVA¹¹</td>
<td>IVA</td>
<td>IVA</td>
<td>IVA</td>
<td>IVA</td>
<td>IVA</td>
<td>IVA</td>
<td>IVA</td>
</tr>
<tr>
<td>Refinement D.P. E</td>
<td>IVB</td>
<td>IVB</td>
<td>IVB</td>
<td>IVB⁵/16</td>
<td>IVB</td>
<td>IVB¹⁴</td>
<td>IVB⁹</td>
<td>IVB</td>
</tr>
<tr>
<td>Integration D.P. F</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Renewal</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
</tr>
</tbody>
</table>

Tape #: Date: / / 75  
Site: I.D. #:  
Interviewer: Rater:
Figure B.5 (Continued)

<table>
<thead>
<tr>
<th>Date: 1/75</th>
<th>Site:</th>
<th>I.D. #:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Use Rating Sheet (CBAM, 1975)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interviewer:</strong></td>
<td><strong>Rater:</strong></td>
<td><strong>Use is not doing:</strong></td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td><strong>Sharing</strong></td>
<td><strong>Assessing</strong></td>
</tr>
<tr>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>ND</td>
<td>NI</td>
<td>NI</td>
</tr>
</tbody>
</table>

**Is the individual a past user?** Yes

**How much difficulty did you have in assigning this person to a specific LoU?** None 1 2 3 4 5 6 7 Very much

**Comments about interviewer:**

**General Comments:**

![Image of Level of Use Rating Sheet (CBAM, 1975)](image_url)
Figure B.6

LoU Interview

O-II/III-IV

Are you currently using ____________________?

NO

Have you ever used it in the past? If so, when? Why did you stop?
(if yes, go to *, then return)

0/I-II

Have you made a decision to use _______ in the future?

I/II

If so, when will you begin use?

Knowledge

Can you describe ______ for me as you see it?

Acquiring Information

Are you currently looking for any information about _______?
What kinds? For what purposes?

Knowledge

What do you see as the strengths and weaknesses of _______ in your situation?

Assessing

At this point in time, what kinds of questions are you asking about _________? Give examples if necessary.

Sharing

Do you ever talk with others and share information about _________? What do you share?

Planning

What are you planning with respect to _________? Can you tell me about any preparation or plans you have been making for the use of _________?

Final Question (Optional)

Can you summarize for me where you see yourself right now in relation to the use of ________?

PAST USERS*

Can you describe for me how you organized your use of _________, what problems you found, what its effects appeared to be on students?

When you assess _________ at this point in time, what do you see as the strengths and weaknesses?
(Return to other nonuse questions.)

YES

Open-ended

Please describe for me how you use ________. (Ask sufficient questions to get configurations.)

Assessing/Knowledge

What do you see as the strengths and weaknesses of _________ in your situation? (Have you made any attempt to do anything about weaknesses? Probe those they mentioned specifically.)
Acquiring Information

Are you currently looking for any information about _______? What kind? For what purposes?

LoU V

Do you work with others in your use of _______? Have you made any changes in your use of _______ based on this coordination? (if yes, go to +)

Sharing

Do you ever talk with others about _______? What do you tell them?

Assessing

(Have you considered any alternatives or different ways of doing things with the program?) Are you doing any evaluating, either formally or informally, that would affect your use of _______? Have you received any feedback from students that would affect the way you're using _______? What have you done with the information that you get?

III/IVA/IVB

Have you made any changes recently in how you use _______? What? Why? How recently? Are you considering making any changes?

Planning/Status Reporting

As you look ahead to later this year, what plans do you have in relation to your use of _______?

III-VI/VI

Are considering or planning to make major modifications or replace _________ at this time?

+LoU V Probes

1. How do you work together? What things do you share with each other?
2. How frequently?
3. What do you see as the effects of the collaboration?
4. Are you looking for any particular kind of information in relation to this collaboration?
5. Do you talk with others about your collaboration? If so, what do you share with them?
6. Have you done any formal or informal evaluation of how your collaboration is working?
7. What plans do you have for this effort in the future?

If yes, go to III-V/VI; If no, go to Sharing.
APPENDIX C

CHRONOLOGICAL DEVELOPMENT OF SoC AND LoU
Figure C.1

History of Stages of Concern Instrument Development

1. **Initial Instruments**: The first pilot instruments consisted of an open-ended concerns statement and a forced ranking.

2. **Stance**: Two strategies are being employed. The first is an attempt to build a highly acceptable psychometric instrument in the form of a quick scoring pencil and paper questionnaire. The second strategy entails the development of a clinical instrument using open-ended questions and an objective scoring procedure for classifying individuals according to their expressed concerns, information needs, positive or negative affect and self-reported activities in regard to the innovation under investigation.

3. **Item Writing**: Staff members were asked to write items that could indicate a concern of an individual at a particular Stage of Concern. Definitions of concerns, modules, teaming, and the scale points in the CBAM paper were used as guidelines. Items were also selected from the open-ended concerns statement.

4. **Q-Sort of Items**: 544 items were generated by the staff. Using the definitions from the CBAM paper, item cards were sorted into eight groups by ten people corresponding to the seven Stages of Concern and an "unacceptable" category. The result of the Q-sort indicated that at least 400 items were agreed upon by six or more of the judges as being related to a given Stage of Concern.

5. **Editing and Selection of Items**: Items classified as relating to a certain Stage of Concern by six or more judges were edited for redundancy and reworded into complete statements. 195 items were selected through this process and included on the pilot instrument.

6. **Pilot Test of 195-Item Checklist**: Stage of Concern Checklist 1 (Modules)
   Stage of Concern Checklist 2 (Teaming)
500 SoCC Questionnaires were sent out to institutions. 359 were returned.

**Data Analysis**: Distributions of responses on the 195 items indicated a wide range of concern within the population sampled on nearly all the items. Preliminary investigation of the item-subscale correlations indi-
cated most items correlate most highly with the subscale measuring the stage to which the item was assigned, somewhat less with subscales measuring adjacent stages, and very little with subscales farther removed. Factor analysis indicated seven factors explain over 60% of the common variance among the 195 items. Rotation toward predefined, stage-related factors indicated varimax rotated factors correlate .63 to .94 with hypothesized factors, five of the seven correlations being over .80.

7. SEDL Concern Checklist: Southwest Educational Development Laboratory inquired about our work with concerns measurement and asked for a measure for use in a workshop and follow-up study. A 60-item checklist was constructed for them, ten items for each of the six Stages, 1 through 6. Concerns about a preschool Thinking and Reasoning program were assessed on thirteen teachers who were to use the program for the first time at three points in time: pre-workshop, post-workshop, and 6-month follow-up. Scores on the lower stages decreased over time while those on higher stages increased.

8. Roanoke Study: In July, 1974, a workshop was conducted at Roanoke, Virginia, for teachers who were to use a new reading program. Later in the summer, SoC scores of teachers who had attended the workshop were compared with scores of teachers who were also going to use the program, but who had not attended the workshop. The workshop teachers expressed less overall concern about the innovation than the non-workshop teachers, but expressed higher concerns on Stages 3, 5 and 6. The non-workshop group had higher concerns about Stages 0, 1 and 2 than the workshop group. No significant difference was observed on Stage 4 concerns.

9. Reliability: Test-retest reliabilities for the seven scales were examined using a sample of 132 individuals who were selected to represent a wide range of concerns about the innovations of teaming or modules. A one-week test-retest interval revealed correlations of subscale scores over time which ranged from .85 to .86. Six of the seven test-retest correlations were above .71, four were above .80.

Internal consistency (alpha) coefficients ranged from .80 to .93, with five items per scale.

Intercorrelation of subscale scores indicated that the scales were highly independent, except that the scales measuring Stages 1 and 2 correlated .82.
10. **Validity**: In addition to the indications of validity noted above, studies of congruence between SoC scores and interview assessments of concerns, open-ended statements of concerns, and alternate self-report of concerns in a structured interview-questionnaire situation were done. Validity reflecting correlation coefficients of .50 and above were found in several studies using alternate measures of concerns.

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<th>Information Source</th>
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<td>September 25, 1974</td>
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11. **The Open-Ended SoC Instrument**: A manual for assessing open-ended statements of concern about an innovation has been published. This manual presents details of the use and scoring of an open-ended concerns statement. This instrument is useful for compiling clinical impressions of the concerns of a group in preparation for a workshop or as an aid to consultants working with educational institutions.

12. **The SoC Questionnaire**: A manual for use of the SoC Questionnaire was published. This manual describes the Stages of Concern theory, the development of the SoCQ scoring and interpreting the SoCQ, as well as the questionnaire itself, along with a FORTRAN program for scoring the SoCQ data.

13. **Use of the SoC Questionnaire**: More than 7,000 questionnaires have been completed and analyzed on over 40 innovations. 126 manuals have been disseminated by PAEI staff. Approximately 20% of the SoCQ data processed by PAEI was collected by persons not affiliated with the R&D Center at Austin for studies they initiated.
1. **Stance:** Originally it was thought that the seven hypothesized Levels of Use should be measured using a coordinated interview plus observation or "hands-on" evidence for each user. Therefore development began of both an observation instrument and an interview protocol.

2. **Item Writing:** Staff members were asked to write items that would indicate a behavior typical of innovation users at different Levels of Use. A total of 993 items were written.

3. **Q-Sort:** Staff members Q-sorted the items by Level of Use, creating criteria that each item apply to one and only one level and that it be unambiguous. The seven LoU plus a reject category were used.

4. **Categorization:** Working from printouts of Q-sorted items, the LoU committee agreed upon and defined a set of categories for classifying different types of user behaviors within and across levels. These categories are:

   - Knowledge Planning
   - Acquiring Information Status Reporting
   - Sharing Using
   - Assessing

   Items were further divided into those appropriate for interview and those requiring observation. During June 1974, different subgroups went to work on each of these two subsets of items.

5. **Change in Stance:** Discussions of both future utility and cost feasibility led to the conclusion that the interview would be relied upon as primary LoU instrument, provided that a validation study, done on a smaller scale and utilizing observation and "hands-on" evidence, were successful. However, a brief "on site" observation checklist would still be used with all interviews.

6. **Parallel Theory Development:** Using the seven LoU categories, scalepoint definitions were written for the seven Levels of Use across the categories (LoU Chart). Decision points were written for differentiating adjacent Levels of Use.

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**Figure C.2**

**History of Levels of Use Instrument Development**

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<td>June 17, 1974</td>
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<td>Scalepoint Definitions of Levels of Use</td>
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<td></td>
<td>July 1, 1974</td>
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7. (a) Interview Protocol Development: Several formats were explored for use in a structured interview. Originally, questions were written to tap LoU for each of the ten categories; these questions were prompted by printout items that were viewed as possible responses. A series of telephone interviews of people at various LoU was initiated and changes in questions and format were based on the responses and reactions of those interviewed. A branching format was developed incorporating use of the decision points differentiating LoU (see LoU Chart). Probes were written using the categories for further confirmation of estimated Level of Use. Preliminary reliability studies were conducted following training of nine interviewer/coders.

(b) Levels of Use Interview Reliability-Validity Study: During September 1974, 82 teachers were interviewed about team teaching and 82 higher education faculty were interviewed about instructional modules. Interviews were taped and later coded by the interviewer and two others. Interrater reliabilities for coding overall Level of Use ranged from .89 to .99. Reliabilities for coding of LoU categories ranged from .69 to .99. However, the percentage of agreement is indicative of a need to refine some scalepoint definitions.

8. Progress in Observation Measurement Development: It was decided that an observation instrument would be developed for use in an interview validation study. Originally, a generic observation system was proposed with examples for specific innovations. Another approach was explored using the characteristics of the specific innovation. An observation system for analyzing team meetings was also under construction.

9. Use of Level of Use Interview in Cross-Sectional Study: During October and November, 1974, 321 teachers and 269 higher education faculty were interviewed in Massachusetts, Nebraska, Colorado, New York, Illinois, Kentucky, Louisiana and Texas.

10. Parallel Theory Development: Based on experiences in the field, the Level of Use Scalepoint Definitions (LoU Chart) were refined. An article presenting the chart was written for publication in the

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<td>Interview Questions LoU July 15, 1974</td>
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<td>Memorandum September 13, 1974</td>
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<td>Memorandum May 31, 1974</td>
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<td>Memorandum September 30, 1974</td>
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<td>Memorandum November 14, 1974</td>
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"Levels of Use of the Innovation: A Framework for Analyzing Innovation Adoption,"
11. Rater Training: Nine individuals not previously knowledgeable of the LoU concept and with varying degrees of education experience were trained to rate LoU interview tapes. Percent agreement on overall LoU ranged from 60% to 70%. Interrater reliabilities ranged from .87 to .96. A rating procedure was established for rating the fall 1974 and spring 1975 tapes in which two raters would rate each tape and a third would rate if discrepancies existed.

12. Use of Level of Use Interview in Longitudinal Studies: In the spring of 1975, after further refinement of the interview procedure, interviews were conducted at the same schools and colleges used in the fall 1974 cross-sectional study (creating, in addition to a longitudinal study, another cross-sectional study). In the fall of 1975, this sample was reduced and interviews conducted on this reduced sample. In the summer of 1975 and again in the fall, interviews were conducted on a sample of teachers of the SCIS science curriculum as part of a small-scale longitudinal study.

13. Rating Decisions for Fall 1975 Tapes: It was determined that for tapes rated to date 60% of final ratings agreed with initial interviewer ratings. It was decided that the interviewer could be considered a reliable rater so that only one additional rating would be made for subsequent tapes.


15. The Use of Training Tapes -- Supplementary to the Manual, Measuring Levels of Use of the Innovation: This supplementary manual contains a step-by-step description of how training tapes fit into the recommended procedure of training as provided by the manual: Measuring Levels of Use of the Innovation by Loucks, Newlove, and Hall. Fourteen tapes representing all LoU's are used to underscore
subtleties that underlie skillful Level of Use interviewing and rating. An easily-referenced chart of the tapes, discussion, rating decisions, and interviewer probing are included.
APPENDIX D

INITIAL STAGES OF CONCERN AND LEVELS OF USE
Figure D.1

Stages of Concern About the Innovation

0  **Unaware:** No indication of awareness that the innovation exists. There may be interest in similar innovations or a complete absence of awareness or interest in the area.

1. No indicators of interest in learning of new things in area that innovation is a part of.

2. Interest in learning of things in the area is expressed.

I. **Awareness:** Indicates a general awareness of the innovation. The potential adopter is likely to inquire about obvious characteristics of the innovation and of himself in relation to it in various non-specific ways (e.g., expressions of general feeling toward innovation, limited evaluation, passive, passing interest in it) may even include expressions of concern about possible personal conflict or threats toward self and personal status quo.

1. No need expressed, passive, no further interest, no questions.

2. Expresses a need to learn more of a general nature about the innovation and getting a broad superficial overview. What does the innovation look like in general to me and my "program?"

3. Expresses need to learn more specific information. How do I learn more detail?

II. **Exploration:** Indicates exploration of the roles played by the individual user and of the demands placed upon him; also includes exploration of role in relation to the reward structure of the organization and exploration of potential conflicts with existing structures or personal commitment that have financial or status implications.

1. Expresses fear, worry, doubt about the future role he must play if innovation is adopted. Worries relate to self, self in structure, and personal or professional rewards.

2. Expresses ambivalence toward the innovation, his role in relation to it, and its effect on the institution's social and professional structure.

3. Expresses questions of a constructive, problem-solving nature in relation to his role, place in the structure, and personal and professional future. Queries reflect a commitment toward the innovation and a drive toward movement.

III. **Early Trial:** Indicates user's exploration of his performance and manipulation of materials and time.

1. Expresses lack of confidence in his ability to carry out his role with the innovation. Expresses discomfort about his ability to handle the organizational aspects of the innovation.
Figure D.1 (continued)

2. Expresses uncertainty about the use of the innovation and tends to interpret materials too literally; requires confirmation that his actions are proper.

3. Expresses general confidence in using the innovation but probes details of organization, sequencing, etc., to make operational use of the innovation more efficient.

IV. **Limited Impact**: Indicates user's exploration of impact of innovation on clients in his immediate sphere of influence.

1. Expresses a need to insure that learners are receiving what they need to function effectively with the innovation; seeks confirmation that he is doing an effective job with the innovation.

2. Expresses desire to identify means by which the learners can gain more from the innovation the next time it is used; seeks to become more effective by eliciting feedback from learners.

3. Expresses need for learners to be able to relate their experiences with the innovation with broader goals of the course; recognizes a personal need to become more knowledgeable about the total operation within the program.

V. **Maximum Benefit**: Indicates user's exploration of the total impact of the innovation in an institutional context on learners and users.

1. Expresses a desire to gain an understanding of what is going on within other parts of the institution in order to integrate more fully the learner's experiences with the innovation; expresses desire to seek effective working relationship with colleagues to further the goals of the innovation.

2. Expresses a desire to maximize the outcomes of the collective effort within the institution with respect to the innovation; expresses a desire to share his experience with others in order to increase the group's capacity to use the innovation.

3. Expresses a need to identify conditions that would tend to sustain the maximum level of output with respect to the innovation; expresses need to achieve full satisfaction for self and the group.

VI. **Renewal**: Indicates user's exploration of new or better ways to reach the same goals or new goals.

1. Expresses desire to adapt the innovation in order to integrate the latest advances in the fields related to the innovation; expresses desire to acquire information and skill which will assist in maintaining current professional level.

2. Expresses need to explore and identify better means to achieve what is already effective output with respect to the innovation; expresses desire to incorporate new techniques into his professional repertoire.
3. Expresses need to keep himself and the institution open to new ideas, goals, and means of achieving maximum outcomes for learners and users; expresses desire for experiences that will broaden his outlook on his personal and professional life.
Figure D.2
Levels of Use of the Innovation

0  Non use: State in which the user does not know that the innovation exists.

Knowledge
1. No knowledge of the innovation or any other similar innovation.
2. Has general knowledge that there are efforts to develop innovations in the area.

Action
1. No action is being made either to individually develop or find out about efforts in the area.
2. Solicits general information from various sources about any efforts that are going on.

I. Orientation: State in which the user is acquiring information about the innovation, its value orientation, its demands upon him, and the user system.

Knowledge
1. Knows name and source of innovation.
2. Knows where to get sufficient information to formulate decision alternatives.
3. Has sufficient information about innovation and its implementation requirements to make a go/no-go decision.

Action
1. Solicits descriptive information about the innovation.
2. Solicits actual materials and analyzes them.
3. Makes an informed decision to use the innovation or not to use it.

II. Initial training: An action stage in which the user is being trained in the logistics and use of the innovation.

Knowledge
1. Knows time requirements for training; knows general logistics and requirements for use of innovation.
2. Knows components of innovation and its general characteristics.
3. Knows content of innovation for learners and general instructional and logistical requirements for professionals.

Action
1. Examines materials in terms of training mode and duration.
2. Studies actual materials for learners and instructors to acquire knowledge and skills.
3. Prepares to initiate pilot project and engages in tryout of innovation.

III. Mechanical: A stage of innovation implementation where users are engaged in pilot use of the innovation. The user is engaged in a step-wise attempt to master the tasks required by the innovation, often
resulting in disjointed and superficial use.

Knowledge

1. Knows only on a day-to-day basis what the innovation demands.

2. Has sufficient knowledge to cope with the minimal daily requirements of the innovation.

3. Knows detailed information about the innovation, its content, and its potential.

Action

1. Implementation demonstrates lack of effective management and lack of anticipation of immediate/intermediate consequences.

2. Demonstrates control over day-to-day use of innovation but lacks ability to plan beyond that.

3. Handles well the mechanical aspects of the innovation, yet fails to attend to impact of the innovation on learners.

IV. Independent: A state of innovation usage where the user handles the innovation well as an individual with quality impact on learners in his immediate sphere of influence, yet fails to integrate his work with the total system's effort.

Knowledge

1. Knows the cognitive effects of the innovation on the learner and the relative effectiveness of alternative practices.

2. Recognizes affective responses of learners as a result of his manipulation of methods with the innovation.

3. Knows cognitive and affective effects of innovation on his learners and how he can get the most out of the innovation for learners.

Action

1. Explores and experiments with alternate combinations of innovations with existing practices.

2. Examines impact of various combinations of existing methods and innovation elements on his students.

3. Maximizes learner involvement with innovation by adopting flexible elements of the innovation.

V. Integrated: Stage in which the user is actively seeking ways to combine his efforts in using the innovation with colleagues to achieve a collective impact on all learners within an institution.

Knowledge

1. Has minimal knowledge of how others are using the innovation.

2. Has good understanding of what colleagues are doing.

Action

1. Seeks out information from colleagues about what they are doing and develops tentative plans for coordination with them.

2. Experiments with alternate patterns of use of the innovation based on collaboration with colleagues.
3. Knows how his use of the innovation and others' work can provide maximum impact for learners.

3. Implements most effective system for the innovation, which employs successful collaborative efforts and yields a high degree of impact on learners.

VI. Renewing: The stage of use of an innovation in which the user re-evaluates the quality of use of the innovation, seeks new alternatives to achieve impact on learners, examines new developments in the field, and identifies new goals for himself and the institution.

Knowledge

1. Has experiential knowledge of other innovations and their potential use in his situation.

2. Has knowledge of innovations in his own and related fields and their implications for improving the quality of learning within his institution.

3. Has broad knowledge of emerging alternative goals and means for education and the culture and perceives the dynamic role of his work and his institution as a vital part of the social system.

Action

1. Begins to experiment with sophisticated adaptations of the innovation in order to achieve more effective impact on learners.

2. Seeks out new alternatives to enhance or replace the innovation.

3. Systematically evaluates effectiveness of innovation and re-appraises goals while seeking more effective means and perhaps new goals in the pursuit of optimal learner impact.