

To the Graduate Council:

I am submitting herewith a dissertation written by Casimir Zyss entitled "The Concerns Based Adoption Model Applied To School Principals." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Educational Administration and Supervision.

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THE CONCERNS BASED ADOPTION MODEL APPLIED  
TO SCHOOL PRINCIPALS

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Presented for the  
Doctor of Education  
Degree  
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Casimir Zyss  
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## DEDICATION

This dissertation is dedicated to  
Janette  
who gave her support and encouragement  
and the love needed to  
complete this task, and who  
kept saying  
"You Can."

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## ABSTRACT

The Concerns Based Adoption Model (CBAM) using Change Facilitator Stages of Concern (CFSoc), Levels of Use (LoU) and Innovation Configuration instruments and procedures was applied to school principals as they were faced with facilitating the implementation of the non-instructional innovation of self-service in their food service operation. The principals were in centrally organized systems that had School Food Service Supervisors and were located in rural areas of Tennessee with populations less than 50,000.

It was found that principals could be categorized according to data generated by the CFSoc and LoU instruments and procedures. An index and a matrix were developed for grouping principals according to similar concerns and behavioral levels so that appropriate strategies could be identified to help them in their role as change facilitators. Field generated data strengthened theoretical constructs showing a dividing point where principals shifted their focus from program management to student outcome. Both theoretically and by practical application of the two CBAM instruments, forecasts can be made relative to developmental trends of innovators (principals). It was shown that by forecasting developmental trends, a predictive value as to the degree of innovation implementation was implied.

Results generated by this ex post facto study of principals using a non-instructional innovation were compared to results obtained from studies done by the CBAM developers who used instructional

innovations. Comparison of results showed similarity regardless of the instructional or non-instructional nature of the innovation.

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## CHAPTER I

### INTRODUCTION

This research into planned educational change considers human behavior. If the thesis that educational change occurs with and through people is accepted, then the dynamics of human behavior become important for the understanding of change in the educational environment. Models and theories of change have focused on various topics involved in change, i.e., communication, organization, processes, strategies, etc., but often only touch on or hint at the human behavior involved.

Once the developmental stages of childhood have been completed and adulthood achieved, human behavior becomes more predictable and more resistant to external influences of change. As external pressure to change increases, adults experience concern. These concerns have been developed into what is known as Concerns Theory (Fuller, 1969; Fuller and Manning, 1972; Fuller, Parsons and Watkins, 1973; Fuller and Brown, 1975). Change involving humans must be considered as a process rather than an event, and so, during this change process individuals experience different concerns at different times. Concerns theory reflects these stages and postulates that they follow a developmental pattern. The meaning here is that those involved in changing must go through a learning process concurrently (which could imply unlearning and relearning). This relearning could be extremely difficult if not

impossible for those whose propensity to learn stopped when their developmental growth stopped.

In the generation just passed, educational improvement efforts centered around innovations. Concerns theory led to the development of a model of change which considers concerns and behavior of individuals as they adopt an innovation. The model also takes into consideration differing configurations of the same innovation. Individuals are seen as progressing through differing developmental stages of concern. At the same time, these same individuals may actually be using or working with the innovation. It has been shown that use of an innovation occurs at predictable levels (Rogers, 1965; Havelock, 1969; Herriott and Gross, 1979; Hall, Wallace and Dossett, 1974; Hall, 1980). An investigator or evaluator must be cognizant of different configurations of the same innovation and must know the limits of those configurations. The theory underpinning this study addresses these issues through the three components of the Concerns Based Adoption Model (CBAM); Stages of Concern (SoC), Levels of Use (LoU), and Innovation Configuration (IC).

CBAM concepts have recently (1982) been expanded to the consideration of change agents (change facilitators). The definitions for stages of concern have been changed to accommodate concerns of change facilitators (change agents). The instrument for assessing the concerns of change facilitators (change agents) is called the Change Facilitator Stages of Concern Questionnaire (CFSocQ).

Two instruments of the CBAM, the Change Facilitator Stages of Concern Questionnaire (CFSocQ) and the Level of Use (LoU) interview

and rating, serve as a means of providing information to help program administrators manage the adoption implementation process of an innovation and assess the change agent's role. The development and use of the instruments have been directed toward the study of change, and particularly innovation implementation, in order to help change agents (usually external to the school system) determine where teachers are in the implementation process. Once the level of implementation is known, the idea is to offer help as needed in order to bring about the complete implementation stage known as institutionalization. From the beginning (Fuller, 1969), the focus has always been on the teacher rather than the administrator who functions as a facilitator, linking agent or change agent. The CFSocQ was designed from the original Stages of Concern Questionnaire (SoCQ) by Hall (Rutherford, Hall and George, 1982) and the research group at the University of Texas Research and Development Center for Teacher Education at Austin (R&DCTE) when they realized the importance of the principal in relation to facilitating or frustrating change in the school building.

Social change often occurs because someone acts as a catalyst. The name given to this catalyst is "change agent." It is useful to think of the change agent as a concept rather than to personify the role. The function of the change agent is to facilitate change. Usually, the change agent is external to the system she/he is working with and acts as a consultant to that system. The relationship is that of consultant and client. However, change agents may very well be in the same organization but belong to a different work group, e.g., supervisors (change agents) and teachers (client group). Supervisors,

for instance, may help teachers identify a schedule which would allow for an individualized reading program. The teacher would implement the schedule and work with it so that students could be involved in individualized reading. At the same time, the supervisor, acting as change agent, would be monitoring what the teacher is doing and offering suggestions when things do not go according to plan. The supervisor would offer support to the teacher and perhaps explain to others what is happening, as well as "running interference" at the administrative level for the teacher. The change agent would take appropriate steps to insure implementation but would not become involved in the teaching act other than perhaps for demonstration purposes. As soon as the teacher was working smoothly with the individualized schedule, the change agent would remove her/himself from the situation.

In education, one of the least understood roles is that of the school principal. Historically, the master teacher, or the one with the most experience, or the one who stayed in the community the longest, became the principal teacher. Today, only the smallest schools have teaching principals.

A practicing principal, like a practicing teacher, has learned a great deal about how to do her/his job (the principalship) from on-the-job training. To ensure that more formalized and accountable professional growth takes place, State Departments of Education have established recertification requirements and developed salary schedules to encourage practitioners to engage in formal professional development activities. Typically, professional development is recognized and

approved for recertification or advancement on the salary schedule by completion of courses at institutions of higher education, or in some cases by approved inservice or continuing education activities. For instance, if a school system needed to instruct a group of its employees in a subject not offered at a college or university, then that system might develop a program or design activities on its own. Inservice activities designed for principals are rare, while inservice activities for teachers are so common as to be taken for granted. What is needed is a process that can generate data and information so that professional development programs can be designed and made available to principals in their role as change facilitators.

Role ambiguity in the principalship makes the job difficult. To illustrate the difficult role of the principal, consider the arena of collective bargaining. A controversy exists as to whether the principal belongs to management or labor. If the principal is management, then there is no problem in her/his enforcing the negotiated contract, but if the principal is considered labor, does she/he have the power, credibility or status to enforce the contract, and if not the principal, then who? Regardless of the controversies in respect to the principalship, the principal is considered as the "gatekeeper" of her/his school (Berman and McLaughlin, 1978). Supposedly, nothing goes on in the school that the principal has not sanctioned. Beyond that, it is not known if this sanction ensures anything other than permission.

Research on the principalship has led to the generalization that the school reflects the personality of the principal. In that context, and in order to be sensitive to the predictability of individual behavior, it becomes important to consider the management/leadership dimensions of the principal's behavior. Management for purposes of this study is defined as those acts of a principal which are required to operate the school without consideration for student outcome. As soon as the acts of the principal go beyond the operations of the school and demonstrate an involvement in student outcome, the principal's role shifts to one of leadership. The rationale for these definitions stems from considering the major goal of the school system: to educate students. It is both conceivable and possible to have a school operate flawlessly and yet graduate, after 12 years of such schooling, students who cannot pass a state-mandated minimum competency test. In fact, it was just such concern that prompted many states to require proficiency scores on competency tests before granting state diplomas.

The leadership dimension goes beyond the management functions of a school, but a question arises as to who should provide that leadership. This study makes the assumption that leadership at the building level is the responsibility of the building principal. No relative value is placed on either management or leadership; both are seen as equal in the context of managing change. It is important, however, to know who is a manager and who a leader (or when the same person is providing one or the other behavior). Administrative

behavior of those who are managers is different from that of those who are leaders. Managers can be characterized as dogmatic, while leaders have a tendency to be creative (Rogers, 1965; Bennis, 1976; Mintzberg, 1976; Zaleznik, 1977). The behavior of managers is more predictable than that of leaders. Consequently, professional development programs for managers must be different from those of leaders if the programs are to be effective, and effective programs depend upon different strategies and methods in order to address the needs of participants (principals).

#### I. STATEMENT OF THE PROBLEM

Planned educational change must be managed from the time a decision is made to begin the process until the innovation has become institutionalized. Just to adopt an innovation is not enough to insure its implementation and successful institutionalization. The problem in attempting to manage change is that no single best method or procedure exists. The development of such a procedure is needed in order to provide a structured method for managing the change process, and the procedure would add to the general knowledge of the dynamics involved.

It is known that social change can occur only if those in power give their sanction, and that formal and informal power structures have different sanctioning powers. However, it is also well documented that the principal of a school is the most powerful influence in that school (Roe and Drake, 1974; McCleary and Thompson, 1979; Hughes and Ubben, 1978; Blumberg and Greenfield, 1980; Shoun, Lintz and Achilles, 1981).

Therefore, the principal's sanction, even if it is not the most important, is still vital. While it is true that the principal must answer to the superintendent, board of education, and parents, one should keep in mind that nothing goes on in the school without permission from the principal. Any attempt at school improvement then would logically include the principal; and therein lies a problem of the role of the principal in the change process. As leader of the school, the principal would need to function as a change agent. If the principal were not involved in the change effort, then some external influence could abrogate her/his power and authority. Although this could happen, eventually power and authority would return to the principal and thereby pose a threat to the institutionalization of the change. To ensure complete implementation, the principal must be involved.

Educational change efforts are planned and centered around implementation of an innovation. Little attention or energy is expended by administrators during the later phases of the change process as it moves from implementation to institutionalization (Harris, 1975:35). The human behavior involved in this phase of the change process has had little attention from researchers. The problem of this study of the change process is to use the CBAM to provide information to help change agents manage the adoption and implementation process of an innovation, and to measure and predict administrator behavior. Although any innovation could have been used to study

principals as change agents in the change process, this study focused on self-service in the school food service operation as the innovation to be implemented by principals. Components of the innovation require classroom instruction in nutrition requirements and the process and procedures of cafeteria self-service. Therefore, principals must work through their classroom teachers in order to instruct students in the requirements of self-service.

## II. PURPOSE

The primary purpose of this study was to use elements of the Concerns Based Adoption Model to determine if the concerns dynamic and the behavioral level of principals faced with the implementation of a non-instructional innovation (student self-service in the school food service operation) could be used for the following purposes: (1) to provide information for selecting appropriate strategies to help principals in their roles as change facilitators; (2) to group principals with similar concerns and behavioral levels so that developemental programs such as inservice could be designed to be more target specific, effective, and efficient; and (3) to use data generated by the study to predict trends for the future course of the innovation. A secondary purpose was to compare the results from this study of selected Tennessee principals, involved with a non-instructional innovation, to results of studies by Hall and the R&DCTE group (the conceptualizers and developers of the CBAM) done with innovations that were instructional in nature.

### III. QUESTIONS

The following questions were formulated to guide this study:

1. How do the CBAM instruments, Change Facilitator Stages of Concern (CFSocQ) and Level of Use (LoU) rating, categorize stages of development of principals involved with an innovation?
2. Theoretically, and as a construct, a division point occurs in both measures (CFSoc and LoU) where the focus shifts from program management to student outcome; when applied in the field, how sensitive are the measuring instruments (CFSoc and LoU) to this phenomenon, and what relationships exist between the measures in the context of this shift in focus?
3. What relationship exists between Stages of Concern (SoC) and Levels of Use (LoU) when a shift in focus occurs from program management to student outcome? That is, how do a principal's concerns (SoC) reflect her/his current behavioral level regarding the innovation?
4. How can Change Facilitator Stages of Concern (CFSoc) and Level of Use (LoU) data be used to develop and plan helping strategies, such as inservice training, for principals in their role as change facilitators?
5. How do Change Facilitator Stages of Concern (CFSoc) and Levels of Use (LoU) data forecast trends in the implementation of an innovation?
6. What comparison can be made between results from this study of principals working with a non-instructional innovation (self-service

in the school's food service operation) and results from other change facilitators working with instructional innovations (i.e., results obtained by the R&DCTE where the CBAM originated)?

#### IV. SIGNIFICANCE

A dichotomy is seen between management and leadership behavior of school principals. The CBAM can be used to establish this dichotomy and to forecast future events related to the process of adoption through institutionalization of an innovation. It is important to know what administrative style (i.e., manager, leader) each principal is using at a particular point in the change process. The knowledge gained through use of the CBAM products and processes can be used to develop strategies to consider when helping principals fully implement an innovation and stabilize its institutionalization. Such strategies might be to group principals for inservice instruction, to provide them with more information, to organize a demonstration site visit, to visit with them in their schools, or to suggest procedures for better management of the change process.

The CBAM is still in its developmental stage, particularly with its application to school principals. Very little literature has been published on the CBAM outside of the R&DCTE, although that work has been presented at various national meetings. This study contributes to the CBAM literature extramural to the R&DCTE.

Although the CBAM theoretically accommodates any innovation, the R&DCTE has applied it, and reported results in, educational settings with innovations in areas of instruction, classroom configuration and instructional administration to name only a few. The current study enters the school via Pupil Personnel Services and considers an innovation in school food service. That innovation is student self-service. This research studies the principal in the role of change facilitator (change agent) in implementing self-service in her/his cafeteria. Application of the CBAM in this context shows its broader applicability, especially to non-instructional innovations.

Since it was not possible to replicate studies of reliability and validity from published data on the CBAM and the SoC and LoU instruments and procedures, it was necessary to check reliability and validity in this investigation by comparing results with studies conducted by the R&DCTE. Comparison, analysis and discussion of results from the R&DCTE and this current study add to the confidence of using the CBAM instruments. Significance of this study rests on the following factors:

1. Conducting a CBAM study outside of the R&DCTE.
2. Applying the model to principals as change agents (change facilitators) of an innovation, thereby adding to the literature.
3. Using a non-instructional innovation, thus showing wider applicability of the CBAM.

The method developed in this study provides a quick, effective means of determining the kind of change agent the principal is in terms of management/leadership. The study relates the concerns a principal has about an innovation to what that principal is doing about managing the adoption process or providing leadership for implementation. It shows, by using the CFSocQ and LoU rating procedures of CBAM, that the following can be accomplished: forecasts can be made relative to the life span of an innovation, and a determination can be made as to when to expect major changes or adjustments, if or when abandonment might occur, and if there will be a return to the original status quo, or if, indeed, a new status quo will emerge.

## V. DELIMITATIONS

This study has the following delimitations:

1. The sample consisted of principals in three school systems within the geographical region of East Tennessee who agreed to participate in the study.
2. The instrumentation was limited to the use of the Concerns Based Adoption Model (CBAM) instruments; Change Facilitator Stages of Concern Questionnaire (CFSocQ); and the Levels of Use (LoU) interview questions with their concomitant interpretations and rating procedures.
3. All principals in the study came from school systems having a centralized organizational structure and a Certified School Food Service Supervisor.

## VI. THEORETICAL BASIS

### The Theory

This study uses the theoretical foundation of Concerns Theory first described by Fuller (1969) in her work with newly trained teachers. In her pioneering work, and from her training as a counseling psychologist, Fuller proposed a developmental conceptualization of the concerns of teachers. She researched into the dynamics of teachers' concerns (Fuller, Parsons and Watkins, 1973) and the assessment, arousal and resolution of those concerns (Fuller and Manning, 1972; Fuller and Brown, 1975). Fuller's research studies served as the basis for Hall and his group of researchers at the R&DCTE to develop the Concerns Based Adoption Model (CBAM).

### Concerns Based Adoption Model (CBAM)

The CBAM was developed (Hall, Hord and Griffin, 1980) as a means to understand and describe innovation adoption and implementation. The CBAM assumes that change is a process accomplished by individuals. The CBAM makes it possible to pay particular attention to two aspects of the individual's developmental growth in relation to the innovation. These two dimensions are Stages of Concern about the innovation (SoC) (Hall and Rutherford, 1976) and Levels of Use of the innovation (LoU) (Hall, Loucks, Rutherford and Newlove, 1975).

## VII. ASSUMPTIONS

Certain assumptions are a part of this investigation. They are as follows:

1. The principal of a school is the chief administrator of that school.
2. The principal is accountable for all programs operating in her/his school.
3. The principal has the authority and the power to determine the programs in the school.
4. All systems in this study, i.e., organizational, human, social, etc., are healthy and nonpathological.

### VIII. DEFINITIONS

Adoption. The acceptance of a product or process foreign to an ongoing system of products or processes; usually considered as a "new" product or process.

Average daily attendance (ADA). The monthly total daily attendance of students in a school divided by the number of school days that month.

Average daily participation (ADP). The monthly total of students purchasing a reimbursable meal divided by the number of school days that month.

Change. A disruption of the status quo in a social system caused by a variety of events such as development of new paradigms, incorporation of alternative products, processes, or strategies or the creation of different intrinsic or extrinsic relationships.

Change agent. A conceptualization of a person who acts as a catalyst in social change; a facilitator of change; a change facilitator.

Change facilitator. See change agent.

Choice. The offering of two or more of the same meal component: i.e., protein: roast beef, fried chicken, broiled fish; fruit or vegetable: peaches, french fries, green beans.

Concerns. A concept developed by Hall and George (1978:8) who stated: "The composite representation of the feelings, pre-occupation, thought and consideration given to a particular issue or task. . . . the mental activity composed of questioning, analyzing and anticipating consequences. . . . an aroused state of personal feelings and thought."

Concerns Based Adoption Model (CBAM). A model of change developed by Hall and the group of researchers at the R&DCTE. It is based on the premise that individuals' concerns follow a developmental sequence as they work with adopted products or processes. The model takes into account product or process fidelity and validity by measuring adoption configuration through key elements and level of use by an interview procedure.

Garbage (plate waste). Term used to identify meal components of a reimbursable meal which were purchased but not eaten. This excludes waste from preparation, spoilage or other production loss. It refers only to food purchased as a reimbursable meal but not eaten.

Implementation. The incorporation of all components of a product or process in a system's ongoing activities.

Innovation. A product or process which is unique compared to what was known before.

Institutionalization. The process whereby an innovation becomes the standard of a social system and establishes a "new" status quo or is incorporated in the "old" one.

Key elements. Those basic elements of an innovative product or process which insure fidelity and can be identified in adoptions.

Leader. A principal whose acts result in, focus on, or otherwise consider student outcome.

Level of Use (LoU). A term coined by Hall and his group of researchers at the R&DCTE to describe the behavior of an individual during the awareness, trial, adoption, implementation and institutionalization of an innovation or other change effort. The LoU instrument uses eight levels to describe characteristic innovation user behaviors at particular stages of development.

Manager. A principal whose acts focus on school operation and control without consideration for student outcome.

Meal pattern. A pattern composed of four food components (five food items) called "type A" giving one-third the minimum Recommended Dietary Allowances (RDA) required for 10 to 12 year olds.

Offer vs. Serve. The act of offering a meal component to a student with that student having the option to reject it as opposed to serving a meal component (as placing it on a tray or dish) with no right of refusal by the student.

Plate Waste (garbage). See garbage, page 16.

Regular service. That food service known as "offer vs. serve" mandated by Public Law 94-105 (enacted October 7, 1975) to be implemented at the high school level and the amendments to the law in

1978 and 1980 making it optional at all other levels if approved by action of the Local Board of Education.

Self-service. The food service configuration whereby clients (students) manipulate serving utensils and serve themselves food that is displayed for the meal.

Stages of Concern (SoC). A developmental scale developed by Hall and researchers at the R&DCTE representing seven developmental levels individuals experience as they move from awareness through institutionalization of adopting an innovation.

## IX. ORGANIZATION OF THE STUDY

Essentially the study is organized into five chapters. Chapter I introduces the problem of change as it impacts on school principals and the relationship of change to the educational environment in the context of food service. Chapter II reviews related literature on change, the principalship in relation to leadership/management of the change process, concerns theory, and school food service. The methodology used to study change and its impact on principals are described in Chapter III. Data and analysis are presented and discussed in Chapter IV.

The concluding Chapter V draws from the other four chapters to answer the stated research questions, to present and discuss results, and finally to draw conclusions based on the findings and to make recommendations for further research studies.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### I. CHANGE

In an important sense this world of ours is a new world in which the unity of knowledge, the nature of human communities, the order of society, the order of ideas, the very notions of society and culture have changed and will not return to what they have been in the past. What is new is new not because it has never been before, but because it has changed in quality. One thing that is new is the prevalence of newness, the changing scale and scope of change itself, so that the world alters as we walk in it, so that the years of man's life measure not some small growth or rearrangement or moderation of what he learned in childhood, but a great upheaval. (Robert Oppenheimer, 1955:10)

Change is not a new condition. As Oppenheimer (1955) pointed out, what is new are the scale and scope of change. To comprehend changes in knowledge in any field of human endeavor since 1955 is probably beyond one's ability. All of this new and changing knowledge constitutes a quantum leap resulting in a new era (Kuhn, 1970; Calhoun, 1971; Von Foerster, 1960).

Von Foerster (1960) developed an equation for population growth as he analyzed the global problem of growth over the preceding 2,000 years. Calculations using the Von Foerster equation show that each doubling of population requires shorter and shorter time spans. A point is reached, called time zero ( $t_0$ ), which is infinitely short. The day in which  $t_0$  occurs has been named "doomsday" and placed at Friday, November 13, 2026, or roughly 42 years from now. However, the reality of that event depends upon conditions of growth remaining as

they have been for the last 2,000 years. Calhoun (1971:371) described seven "pivotal eras" in human history which he called "conceptual revolutions." Each involves a complete reorientation in the manner in which life and the forces of nature are perceived. "Each also involves elaboration of a new strategy for coping with this life and these forces (p. 371)."

Hamblin, Jacobsen and Miller (1973) developed data-based mathematical theories describing social adaptation, diffusion and innovation processes of change occurring through time. They made a case for the two "traditions" of social change theories--verbal and mathematical. Their contention was that early verbal theories were based on an organic analogy of society as an organism and that change was a natural process of growth and decay of that organism. A claim was made that significant social changes have always occurred abruptly and caused catastrophic discontinuities. The authors found that both exogenous and endogenous variables were the causative factors in bringing about change by modifying contingencies for reinforcement.

Hamblin et al., (1973) described the basis of their mathematical theories as originating from behavioral sociology. Behavioral sociology is based on experimental evidence which provides the data base for the Hamblin, Jacobsen, Miller theories.

Hamblin et al., (1973) considered innovations as exogenous variables that are created by genius. They believe that intelligence itself does not account for the contrast between invention of the dugout canoe and the nuclear-powered submarine. What does account for

the difference is the combining of modifications of the following differential equation known as the "Logistic Process" equation (p. 121):

$$\frac{dM}{dt} = kM (N-M)$$

Where M = modifications

t = time

k = given rate of combining modifications

d = differential

Social conflict is explained by Hamblin, et al. as a complex interaction between a group of innovators and counter innovators. As innovators try innovations, counter innovators block the attempt by using counter innovations. This conflict results in modifications on both sides and is quantified in the "cross fertilization equation for imperfect innovations" where the number of feasible modifications is limited (p. 137):

$$\frac{dI}{dt} = kI$$

Where k = compound rate constant

I = number of innovations at time t

dI = limiting increment in innovations

dt = limiting increment in time

Compounded through time, innovations accumulate as an exponential process and are expressed by the integrated form of the "cross fertilization" differential equation (page 138 and page 199)

$$I = ae^{kt}$$

Where  $I$  = number of innovations occurring during time  $t$

$a$  = scaling constant

$e = 2.72.....$ , the base of Napierian logarithms

$k$  = compound rate constant

$t$  = time period

These conceptions of Hamblin, Jacobsen and Miller illuminate the dimensions of time, modifications or reinventions, and the importance of social conflict in bringing about change. However, with knowledge from the past and present, and consideration of future alternatives for social growth and development, the scale, scope, and rate of change can be predicted. In this context then, the planning of, and for, change is vital if one is to minimize the discontinuities brought on by past abrupt, violent upheavals.

## II. PLANNED CHANGE

Bennis, Benne, and Chin (1969) published several editions of readings which focused on conscious, deliberate and collaborative efforts to improve the operations of human systems by the use of scientific knowledge. Consequently, as the body of scientific knowledge grew, so grew the propensity to apply that knowledge to social systems. Nowhere is this application of knowledge from one field of social science to another more prevalent than in the field of education. The Industrial Revolution had an important influence on the organization, structure and operation of the contemporary educational system. The "stove pipe" organizational chart with its rigid lines of

authority, the graded, lock-step advancement of students, the prolonging of childhood and the institutionalization of adolescence until youngsters are old enough for industrial work, and emphasis on "vocational education" rather than intellectual growth or competence are just a few of the results of the industrial era. The concepts developed for making "smokestack" industries more productive, more efficient and more profitable permeate the history of the change literature in education. This is to be expected, for as Sarason (1971:7) pointed out, "the school is a reflection of our society as well as the principal vehicle by which its young are socialized or prepared for life in adult society." For reflections on an agricultural society (circa 19th century) and a way of life that have persisted and resisted pressures for change, particularly in the 20th century, one need only study the Amish society as still found in various parts of this country (Hostetler and Huntington, 1971). The Amish stress social responsibility and cohesiveness and preparation for home and farm life, rather than intellectual creativity and critical analysis in the education of young people. To contrast a preindustrial society with an industrial one is a retrospective exercise. What is more exciting is to "look" into the future.

Futures studies and futures thinking probably emerged in the mid-1940's as exemplified by Flechtheim (1966, 1972) and popularized by Alvin Toffler's Future Shock (1970). Toffler coined the term "future shock" and defined it as the disorientation produced in people and

society by the arrival of the future before they are ready for it. This "super-change" occurs so rapidly and pervasively that people and their institutions have no time to adjust to one change before another is upon them. The exponential rate of knowledge acquisition predicted by the Hamblin, Jacobsen and Miller cross-fertilization equation causes this accelerating tempo of change.

Mead (1970) postulated three cultural stances: "post-figurative" where the young learn from the old, "configurative" whereby both the young and old learn from their peers, and "prefigurative" wherein the old learn from the young as the future explodes into the present. To illustrate the point, Mead (1972) considered the New Guinea native who only yesterday experienced the modern world through a knife he traded for and which was passed from hand to hand. Today, as he walks into a frontier settlement, he experiences distant places via the transistor radio or a television picture. How does he enter the present with his cultural traditions? How does he walk out of the unexplored jungles of interior New Guinea and comprehend cities like Tokyo, London or New York? Mead labels those born before World War II as "immigrants in time" who have arrived into a new era just as the immigrants of old arrived in a new land which brought new problems requiring unique solutions not in the old repertory. The salvation was, and has always been, the children who understood the new land and became a part of it. To preserve the past, immigrants imposed traditions on their children (preservation of the past is one function

of tradition). To understand change, futurists write and think of the future in terms of alternatives called "scenarios." These scenarios give direction to planning for the envisioned future.

Erickson (1963) discussed the implication of the developmental nature of the human condition in his "Eight Ages of Man" which listed ego qualities from eight critical periods of human development which must occur in sequence and from birth through death. In Erickson's (1963:273) age seven, Maturity, the ego qualities are "generativity vs. stagnation." Generativity "encompasses the evolutionary development which has made man the teaching and instituting as well as the learning animal" that he is, while stagnation is the antithesis of establishing and guiding the next generation (children) resulting in regression to pseudo-intimacy and personal impoverishment. Erickson made the point in discussing age seven (Maturity) that the popular belief of the young depending on the mature as caretakers negates the developmental ego-need of the mature adult; i.e., to be needed in return and with guidance and encouragement from what was produced and taken care of (i.e., children).

Planned social change consciously and deliberately considers the accumulated knowledge of man and his dynamically changing social system. It attempts to develop an orderly scenario for the gradual, easily assimilated discontinuities that are produced in changing. The educational system reflects society and culture and, therefore, educational change can reasonably be expected to parallel social and cultural change. Sarason (1971, 1982), however, noted that the school

has its own unique culture; consequently educational change occurs within a more complex social structure than in some other sectors of society.

### III. EDUCATIONAL CHANGE

Change in education is shaped by the unique nature of educational systems and by the organizations involved in those systems (Zaltman, Florio and Sikorski, 1977). Three factors make change in educational systems different from change in other fields: (1) "the nature of the teaching profession, (2) the configuration of the system's constituencies, and (3) the influence system (governance and control)" (Zaltman, et al., 1977:3).

Since schools reflect societal values, schools change as the values change. Those charged with changing the school to conform to the dictates of society look to whatever resources are available. During the Industrial Revolution, educators looked to industry and agriculture for models of change. As knowledge of social systems theory and behavioral sciences increased, so did their application to solve organizational problems. From the beginning, then, educational change has had a tendency to be reactive rather than proactive.

The status quo references by various authors in the literature of educational change prompt the question, "What is the status quo in an educational setting?" Without considering the antecedents of the status quo many educators embrace the philosophy of change in the hope

that anything "new" or "innovative" would be a panacea for educational improvement. However, as Sarason (1972) cautioned,

Those who create new settings always want to do something new, usually unaware that they are armed with, and will subsequently be disarmed by, categories of thought which help produce the conditions the new setting hopes to remedy (p. 26).

Sarason noted that what seems "natural" in a society is so a part of those in the society that it is inconceivable for them to think that things could be otherwise. Thus, for an analysis of change it is important to understand the status quo.

The most violent and disruptive strategy for change is revolution. Revolutions occur because serious problems exist that cannot be ameliorated by the present system and thereby cause dissatisfaction with the status quo. Revolutions are characterized by rising expectations that range from despair to hope. However, both Sarason (1972) and Kuhn (1970) noted that new settings and revolutions fail because those who are involved do not develop a new way of thinking or develop a new paradigm that is unrelated to the past.

Calhoun's Conceptual Revolution (1968) shed some light on the kind of change needed. There is evidence that the complete reorientation which occurs in a conceptual revolution has taken place during the developmental history of man in what Calhoun called the Conceptual Homuculus. This is the process of progressive transformations in which the body of man remains as its earlier biological self while the degree of effective use of man's cortex is continually increasing, and this concept is further verified by the cross fertilization equation of Hamblin, et al., as discussed previously.

Education, however, has not been characterized by any dramatic revolution, either political, economic or conceptual, but has been the testing ground for change. As Fege (1980) wrote,

The tragedy [of the cult of innovation] was not that we attempted to change. The real tragedy was that we erroneously applied innovation as a sole means and measure for change, thereby corrupting the improvement process and creating our own failures (p. 17).

Fege charged that the basic structure of American public education has remained unchanged for nearly a century in spite of such innovations as kindergarten, vocational education, guidance, etc.

#### Goodlad's Study of Schooling

A Study of Schooling was motivated in part by my belief that most efforts to improve schools founder on reefs of ignorance--ignorance of the ways schools function in general and ignorance of the inner workings of selected schools in particular. Few reformers of the 1960s regarded such knowledge as relevant to their intentions. Their mission was to bring new ideas and materials to the teachers who were their targets.

.....  
 Principals and teachers who do not want what others seek to impose upon them often are extraordinarily adept at nullifying or defusing practices perceived to be in conflict with prevailing ways of doing things. The result may be the appearance of change but no change (Goodlad, 1983:16).

Although Goodlad presented a negative aspect of past change efforts in education, he went on to set parameters of thought for the future. He wrote that schools must restate their mission in light of what is known about knowledge, information, and society and to develop a scenario for the future and then plan for it. Goodlad (1983:32) commented about what schools must do in the future: "Schools must do the educating not consciously done elsewhere in society." Goodlad and his coworkers found that parents were not really dissatisfied with schools; they

wanted more than just academics and basic skills taught. Parents wanted a reasonable balance between intellectual, social, vocational and personal development studies, and they wanted schools to be nurturing and caring: a place where their children were considered individuals and where their children could feel secure and be safe from any kind of harm.

Goodlad (1983) saw change as coming from within the school in a process he called self-renewal. He felt that the school should become self-directing and develop mechanisms for self-renewal. Goodlad's concept differs from change theories based on adoption of innovations originating outside the school.

#### Problems in Effecting Change

Goodlad (1975:39), writing about educational change, quoted Ingle: "There are two kinds of fools: those who say, 'this is new and therefore better' and those who say 'this is old and therefore good'" (William Ralph Ingle). Goodlad (1975) claimed that institutions change slowly in order to maintain societal order and that no assessment is ever made of where the trouble lies. When schools are criticized, no assessment is made to determine if the problem is outside of the school, is the school itself, or is within the school, i.e., in its workings and relationships. Goodlad stated that there is just simply a perception that something is wrong and that therefore it must be with schools, so the knee-jerk response is to "fix" (change) the schools. When that does not work, then the perception is that the trouble must

be in the teachers. The sentiment ensues that we must change all of the teachers and thereby solve all our problems--or, as Pogo said, "We have seen the enemy and he is us."

Sarason (1982:142) argued that to effect change in what children experience in classrooms "we begin with the principal because any kind of system change puts him or her in the role of implementing the change in one's school." Sarason (1982) continued:

Although the principal and the teacher are acutely aware that their relationship takes place in the context of power and evaluation, neither of them knows how to minimize the negative consequences of such a context except by minimizing contact (p. 142).

#### IV. CHANGE MODELS

The biopsychosocial model developed by Engle (1980) and others (Kimbal, 1981; Granger, 1984) allows a visualization of the dynamics involved in behavior. Granger (1984) developed a chemical-like formula to illustrate that model:

$$B \rightleftharpoons t (I_s + F_s + S_s)$$

Where B = behavior

t = time

$I_s$  = Individual (person) system (biological and psychic self

$F_s$  = Family system (extended family, intimate friends)

$S_s$  = Suprasocial systems (industrial society, religious, political, economic health delivery, educational, etc.)

Engle's model and Granger's formula are referenced here to note the tremendous complexity of the human organism and the institutions of its existence. As Calhoun (1968) explained in his Conceptual Homuculus, the human organism has continually expanded the use of its cortex and consequently added to the complexity of the driving forces of its own human behavior. Granger's formula shows that individual behavior is influenced by the systems of its own biological, individual self, its family, and its greater suprasocial systems, and that it operates through the function of time. The formula also shows that all of the systems are in turn influenced by behavior of the individual.

Social change literature reflects the argument of whether social change is a function of individuals within the system or a function of system dynamics. Zaltman, et al., (1977:51-90) categorized change models as organizational, authoritative/participative, environmental, and individual-oriented. Models that do not fall into the four categories were discussed separately and include the research, development, diffusion models and a problem solving model. The authors noted the need for a single model to synthesize change approaches.

A review of the variety of models presented makes evident the need for a synthesis model, one that addresses the various levels involved in change and that accounts for both externally and internally initiated change processes (p. 90).

Zaltman et al., (1977:125-181) discussed such a model called a "Proactive/Interactive Change Model" (P/ICM), which synthesizes organizational and individual change models and incorporates systems theory. A systems perspective takes into consideration the

organizational unit, its subunits, environment, and control mechanism, and highlights the fact that a change in any one dimension or the relationships involved has a profound effect on the others. At this point, one is reminded of Granger's biopsychosocial formula. The Zaltman, et al., book summarized points made in each of the chapters by way of listing 313 principles (guidelines) which should be addressed in educational change efforts.

One popular individual-oriented model is that of Rogers (1962). His model came from rural sociology and was based on the adoption of new farm practices. The appeal of the model is its simplicity, and therein lies its fault. Although the model enumerates the essential steps for the adoption of an innovation, it leaves out much between those steps. Consequently, others (Robertson, 1971; Klonglam and Coward, 1970; Rogers and Shoemaker, 1971) developed models that attempted to fill in those gaps. The Rogers' (1962) model remains the dominant framework for conceptualizations of educational change and gave the basis for the implementation of innovations throughout the 1960's and 1970's. The Rogers' (1965) model posits five change stages: Awareness, Interest, Evaluation, Trial, and Adoption. Each of the five change stages can be expanded to include substages. For example, under adoption one could list adaptation (minor adjustments) and institutionalization as substages.

Other change models include: Chin and Benne's three step model (rational-empirical, normative-re-educative, power-coercive) in Bennis, Benne, and Chin (1969:32-58), Guba-Clark (1975), Clark-Guba

(1965), Achilles-Norman (1974), and Wolf (1979). One often-used educational change model is the Concerns Based Adoption Model (CBAM) which is used in the current study. The CBAM measures the individual concerns of the actors involved in the innovation adoption process at each of the five change stages of Rogers' model (or any other change model) and quantifies on a relative basis the intensity of those concerns. As the individual actor moves through the Rogers' model, the relative intensity of the concern quantities changes. The CBAM model calls the concern quantities Stages of Concern (SoC). If Rogers' change stages (CS) are combined with the CBAM SoC in rank order from highest to lowest, Figure 1 shows an individual moving from CS Awareness to CS Trial.

Conversely, if one knows the rank order of an individual's SoC, then it is possible to assess where that individual fits on a change model. This suggests a new model relating CBAM and steps in Rogers' (1965) time-proven change model. The similarity is shown in Figure 2.

## V. THE CONCERNS BASED ADOPTION MODEL

### Introduction

The National Institute of Education (NIE) funded the Research and Development Center for Teacher Education (R&DCTE) at the University of Texas, Austin to conduct an extensive study of individuals involved with the adoption of innovations in schools and universities. The R&DCTE, under the direction of Gene E. Hall, developed the Concerns Based Adoption Model (CBAM). The CBAM consists of two basic dimensions

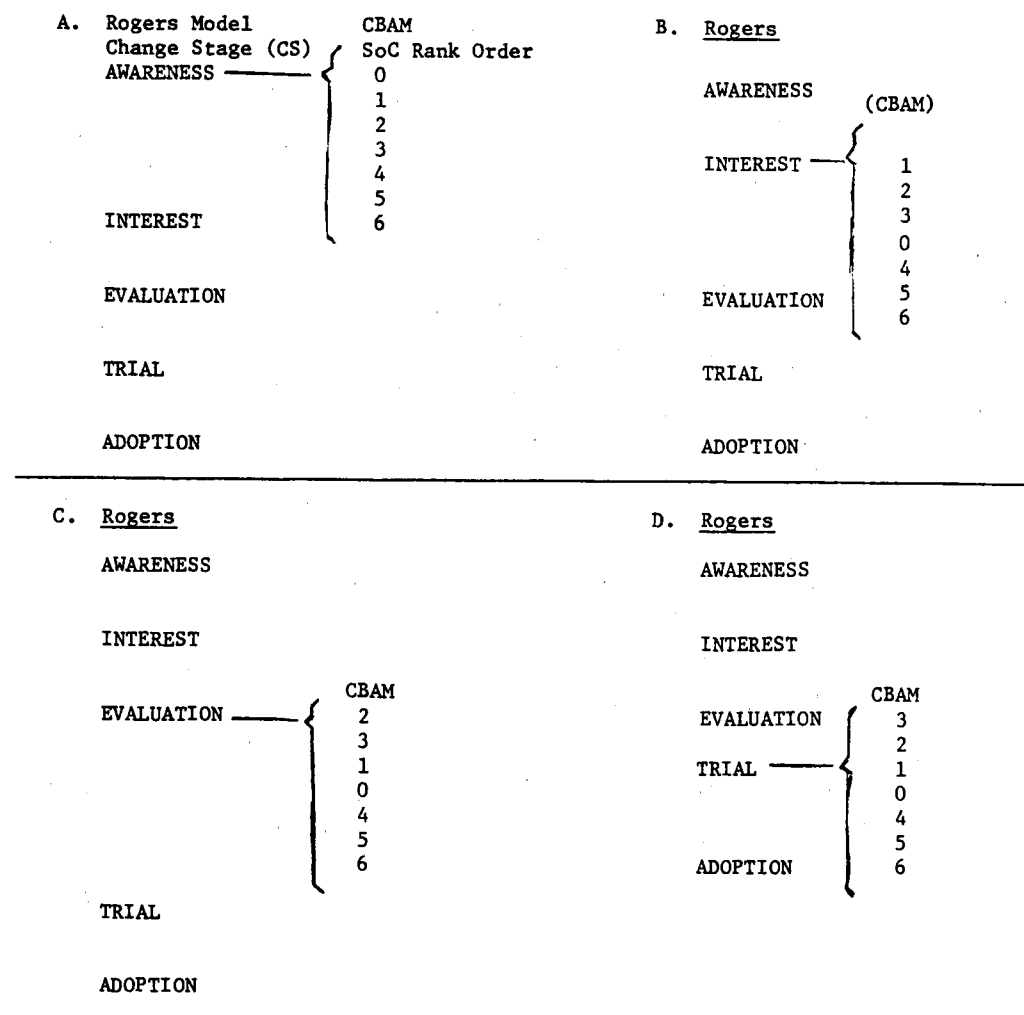


Figure 1. A Change Model Showing Concerns Based Adoption Model (CBAM) Stages of Concern (SoC) Rank Order Moving Through Rogers' Change Model.

| <u>CBAM</u>             |           | <u>ROGERS' CHANGE CONCEPTS</u> |
|-------------------------|-----------|--------------------------------|
| STAGES OF CONCERN (SoC) |           | CHANGE STAGES (CS)             |
| 0 - AWARENESS           | - - - - - | PROBLEM PERCEPTION             |
| 1 - INFORMATIONAL       | - - - - - | KNOWLEDGE                      |
| 2 - PERSONAL            | - - - - - | INTEREST                       |
| 3 - MANAGEMENT          | - - - - - | TRIAL                          |
| 4 - CONSEQUENCE         | - - - - - | EVALUATION                     |
| 5 - COLLABORATION       | - - - - - | ADOPTION                       |
| 6 - REFOCUSING          | - - - - - | RENEWAL                        |

Figure 2. Relationship of the Concerns Based Adoption Model (CBAM) Stages of Concern (SoC) to Rogers' (1965) and Rogers and Shoemaker (1971) Change Models.

for describing the dynamics an individual experiences during the adoption process of an innovation. The two dimensions are Stages of Concern (SoC) and Levels of Use (LoU). Another dimension of the model is the Innovation Configuration (IC) which describes operational patterns of an innovation resulting from implementation of the innovation by different individuals and in different contexts. In another sense, it measures the fidelity of the newly implemented innovation to the original "model" of the innovation.

The CBAM has within it a partial answer for the persistence of the status quo in education and for the failure of educational innovations. The concept involved in the CBAM is that change is a developmental process, accomplished through and by individuals, and occurs in stages. Relative to this developmental process are concerns that individuals experience, and these concerns change as the individual moves through the stages of development. Associated with these concerns is the individual's overt behavior in the context of the change effort. Fuller's Concerns Theory (1969) and its application to the innovation/adoption process gives insight into what an individual experiences during change and is the theoretical basis for the CBAM. By determining the concerns of those involved in a change effort, change agents can develop appropriate strategies to deal with those concerns that are most threatening and help facilitate the transition from the status quo to the innovation.

Instruments have been developed to measure the three dimensions of the CBAM: Stages of Concern About the Innovation or SoC (Hall and Rutherford, 1976), Levels of Use of the Innovation or LoU (Hall,

Loucks, Rutherford and Newlove, 1975), and Measuring Innovation Configurations: or IC (Heck, Stiegelbauer, Hall and Loucks, 1981). SoC is determined by a profile developed from the responses on a 35-item, Likert-type questionnaire; the LoU is a rating based on responses to a focused interview; and IC is a checklist with rating scale. Hall, and others at the R&DCTE, caution that these measures describe an individual at a point in time during a developmental process and should be used only in the context of helping individuals adopt innovations.

### Theoretical Basis

Fuller (1969) categorized teachers' concerns into three phases: preteaching, early teaching, and late concerns. Preteaching concerns had little or nothing to do with the act of teaching and characterized low involvement in the act of teaching. Consequently this phase was labeled non-concern. Early Teaching concerns centered on the self and were appropriately labeled concern with self and included concern about support systems of peers, supervisors, principals or other educators and concerns about expectations of others in terms of classroom management and control. Late concerns, although categorized by concern for student outcome as well as professional development and growth, were labeled concern with pupils. Thus, Fuller's Concerns Theory essentially had three stages of concern: non-concern, concern with self, and concern with pupils. Using this theoretical framework, and seeing a similar pattern when working with teachers and professors

involved in adopting innovations, the R&DCTE began to document and gather qualitative data from field work. As a result, Hall, Wallace and Dossett (1973) presented their conceptualizations of stages of concern. Newlove and Hall (1976) developed a manual for assessing open-ended statements of concern about an innovation and Hall, George and Rutherford (1977) developed a user's manual for the SoC Questionnaire (SoCQ). Development and validation studies of the SoCQ were discussed by George (1977).

#### Stages of Concern, Development

In order to verify the existence of Stages of Concern (SoC) about an innovation and test some of the hypotheses formulated about change in concerns, the R&DCTE staff conducted instrument development procedures. Several different formats and methodologies were explored. The instruments consisted of open-ended questionnaires, Likert-type scales, checklists, and interview procedures. Two successful methods were identified. The first was the SoC Questionnaire (SoCQ), (George, 1977), and the second was a clinical instrument using open-ended questions (Newlove and Hall, 1976).

#### SoC Questionnaire (SoCQ) Development

A 195-item prototype questionnaire was developed and tried with teachers engaged in team teaching. From the analysis of data, project researchers inferred that the seven scales of the questionnaire

tapped distinct constructs that could be identified as the seven Stages of Concern. A shorter 35-item questionnaire was constructed.

### The Stages of Concern Questionnaire (SoCQ)

The SoC questionnaire evolved into a 35 question (item) instrument with five items assigned to each of seven SoC scales. Respondents use a Likert-type seven point scale (Figure 3) for marking how they assess themselves for each item (Figure 4).

### Processing the SoCQ

The SoCQ is scored by summing the Likert-type responses to the five items identified for each scale (Figure 5) and referring the totals to a percentile table (Figure 6). SoC percentile profiles can then be plotted on a graph from the generated scores (Figure 7). Each profile reflects the relative intensity of each SoC and presents a general picture of the concerns of an individual (Figure 8). A group profile can also be plotted to describe the average intensity of each concerns stage. For large-sample studies, computer software programs have been developed to perform the necessary tasks (R&DCTE, Fortran Program; Project RISE, Research and Information Services for Education; Apple II Program).

### Interpretation of SoC Profiles

Procedures for clinical interpretation of these SoC profiles have been established (Hall, George and Rutherford, 1977). Several levels of interpretation are given: Peak Stage Score using only the highest stage score; First and Second High Stage Score; and a complete profile analysis called Profile Interpretation.

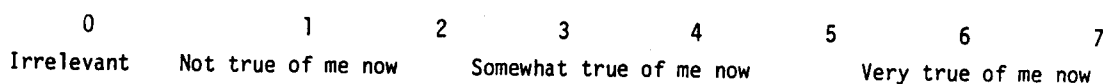


Figure 3. SoC Likert-Type Scale.

Source: Gene E. Hall, Archie A. George and William L. Rutherford, Measuring Stages of Concern About the Innovation: A Manual for Use of the SoC Questionnaire. Procedures for Adopting Educational Innovations/CBAM Project R&D Center for Teacher Education, The University of Texas at Austin, 1979.

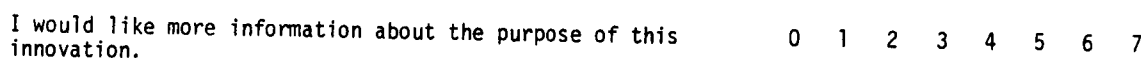


Figure 4. Item and Response Format.

Source: Gene E. Hall, Archie A. George and William L. Rutherford, Measuring Stages of Concern About the Innovation: A Manual for Use of the SoC Questionnaire. Procedures for Adopting Educational Innovations/CBAM Project R&D Center for Teacher Education, The University of Texas at Austin, 1979.

|                                            |  | Stages of Concern Scales                                                                                |    |    |    |    |    |    |
|--------------------------------------------|--|---------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|
|                                            |  | <div> <div>0</div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> </div> |    |    |    |    |    |    |
| Item<br>(Question) Numbers<br>For Each SoC |  | 2                                                                                                       | 1  | 8  | 4  | 6  | 3  | 13 |
|                                            |  | 5                                                                                                       | 7  | 11 | 14 | 18 | 9  | 19 |
|                                            |  | 10                                                                                                      | 12 | 17 | 23 | 21 | 15 | 26 |
|                                            |  | 22                                                                                                      | 16 | 24 | 28 | 27 | 20 | 32 |
|                                            |  | 25                                                                                                      | 30 | 29 | 34 | 31 | 33 | 35 |
| Total Raw Scale Scores                     |  | —                                                                                                       | —  | —  | —  | —  | —  | —  |
| Percentile Scores                          |  | —                                                                                                       | —  | —  | —  | —  | —  | —  |

Figure 5. SoC Raw and Percentile Scores.

Source: Gene E. Hall, Archie A. George and William L. Rutherford, Measuring Stages of Concern About the Innovation: A Manual for Use of the SoC Questionnaire. Procedures for Adopting Educational Innovations/CBAM Project, R&D Center for Teacher Education, The University of Texas at Austin, 1981.

| Five Item<br>Raw Scale<br>Score Total | Norms for CFSoc (35-item) |            |            |            |            |            |            |
|---------------------------------------|---------------------------|------------|------------|------------|------------|------------|------------|
|                                       | Stage<br>0                | Stage<br>1 | Stage<br>2 | Stage<br>3 | Stage<br>4 | Stage<br>5 | Stage<br>6 |
| 0                                     | 0                         | 1          | 0          | 0          | 0          | 0          | 0          |
| 1                                     | 1                         | 2          | 1          | 1          | 0          | 0          | 1          |
| 2                                     | 2                         | 3          | 2          | 1          | 0          | 0          | 3          |
| 3                                     | 4                         | 5          | 4          | 2          | 1          | 0          | 5          |
| 4                                     | 7                         | 8          | 7          | 2          | 1          | 0          | 8          |
| 5                                     | 14                        | 13         | 12         | 5          | 1          | 0          | 13         |
| 6                                     | 22                        | 18         | 18         | 8          | 1          | 1          | 18         |
| 7                                     | 31                        | 21         | 24         | 11         | 1          | 1          | 23         |
| 8                                     | 40                        | 26         | 30         | 15         | 2          | 2          | 31         |
| 9                                     | 48                        | 30         | 34         | 19         | 2          | 3          | 39         |
| 10                                    | 55                        | 34         | 39         | 22         | 2          | 3          | 47         |
| 11                                    | 61                        | 37         | 43         | 26         | 2          | 4          | 55         |
| 12                                    | 69                        | 40         | 49         | 30         | 2          | 5          | 63         |
| 13                                    | 75                        | 43         | 56         | 35         | 3          | 7          | 66         |
| 14                                    | 81                        | 46         | 62         | 40         | 3          | 8          | 75         |
| 15                                    | 87                        | 49         | 68         | 44         | 4          | 9          | 81         |
| 16                                    | 91                        | 53         | 73         | 50         | 5          | 12         | 86         |
| 17                                    | 94                        | 56         | 77         | 55         | 6          | 15         | 89         |
| 18                                    | 96                        | 59         | 79         | 60         | 7          | 18         | 90         |
| 19                                    | 97                        | 61         | 81         | 66         | 9          | 21         | 92         |
| 20                                    | 98                        | 64         | 84         | 71         | 11         | 24         | 95         |
| 21                                    | 99                        | 66         | 87         | 74         | 13         | 28         | 96         |
| 22                                    | 99                        | 69         | 89         | 78         | 16         | 32         | 97         |
| 23                                    | 99                        | 72         | 91         | 82         | 20         | 36         | 97         |
| 24                                    | 99                        | 76         | 93         | 86         | 27         | 40         | 98         |
| 25                                    | 99                        | 79         | 95         | 89         | 33         | 43         | 98         |
| 26                                    | 99                        | 81         | 97         | 91         | 39         | 48         | 99         |
| 27                                    | 99                        | 84         | 98         | 93         | 46         | 54         | 99         |
| 28                                    | 99                        | 87         | 99         | 94         | 54         | 60         | 99         |
| 29                                    | 99                        | 89         | 99         | 94         | 62         | 67         | 99         |
| 30                                    | 99                        | 92         | 99         | 95         | 68         | 72         | 99         |
| 31                                    | 99                        | 94         | 99         | 96         | 74         | 77         | 99         |
| 32                                    | 99                        | 96         | 99         | 97         | 82         | 82         | 99         |
| 33                                    | 99                        | 98         | 99         | 98         | 87         | 85         | 99         |
| 34                                    | 99                        | 99         | 99         | 99         | 91         | 91         | 99         |
| 35                                    | 99                        | 99         | 99         | 99         | 97         | 97         | 99         |

Figure 6. CFSoc Percentile Table.

Source: Procedures for Adopting Educational Innovations/CBAM Project R&D Center for Teacher Education, CFSocQ Quick Scoring Device, The University of Texas at Austin, 1981.

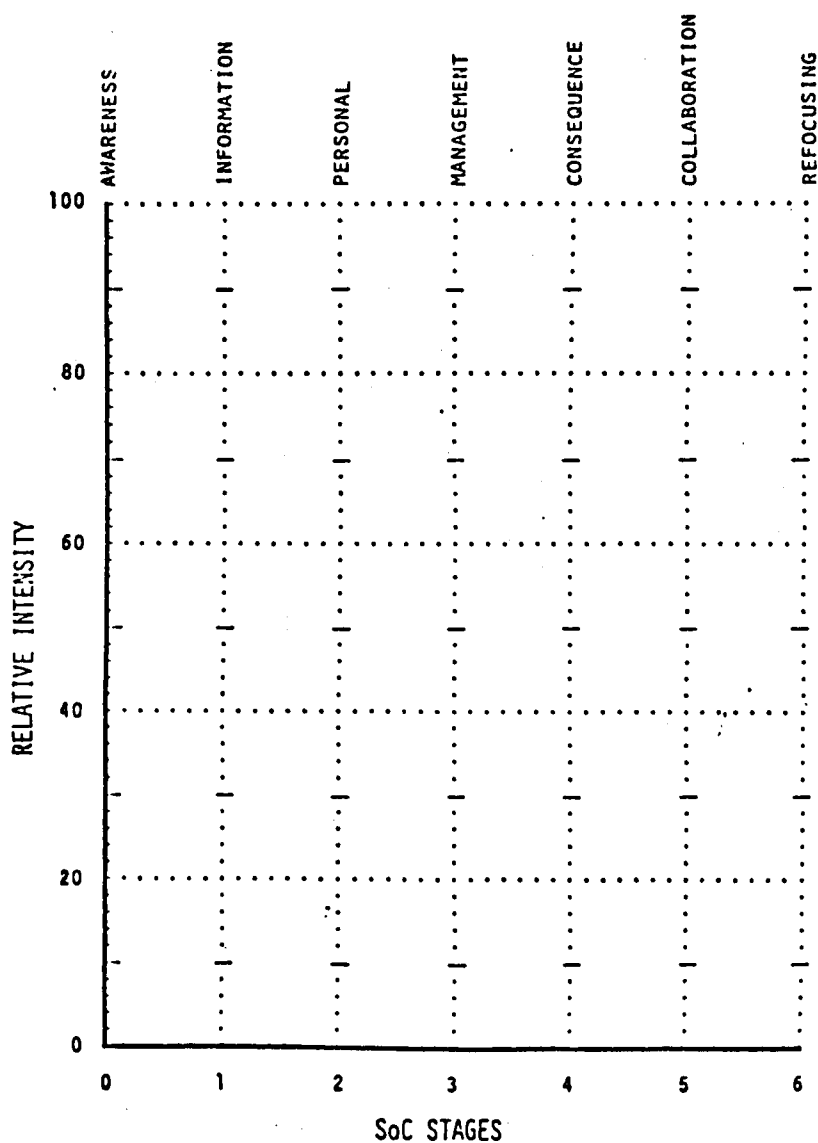


Figure 7. Stages of Concern (SoC) Profile Chart.

Source: Gene E. Hall, Archie A. George, and William L. Rutherford, Measuring Stages of Concern About the Innovation: A Manual for Use of the SoC Questionnaire. Procedures for Adopting Educational Innovations/CBAM Project R&D Center for Teacher Education, The University of Texas at Austin, 1979, p. 107.

|                      | 0        | 1         | 2         | 3         | 4         | 5         | 6        |
|----------------------|----------|-----------|-----------|-----------|-----------|-----------|----------|
| 2                    | <u>1</u> | 1         | <u>7</u>  | 8         | <u>6</u>  | 4         | <u>5</u> |
| 5                    | <u>0</u> | 7         | <u>7</u>  | 11        | <u>5</u>  | 14        | <u>6</u> |
| 10                   | <u>2</u> | 12        | <u>7</u>  | 17        | <u>6</u>  | 23        | <u>7</u> |
| 22                   | <u>0</u> | 16        | <u>6</u>  | 24        | <u>7</u>  | 28        | <u>6</u> |
| 25                   | <u>1</u> | 30        | <u>5</u>  | 29        | <u>7</u>  | 34        | <u>5</u> |
| Total                | <u>4</u> | <u>32</u> | <u>31</u> | <u>29</u> | <u>16</u> | <u>10</u> | <u>1</u> |
| B. Percentile Scores | <u>7</u> | <u>96</u> | <u>99</u> | <u>94</u> | <u>5</u>  | <u>3</u>  | <u>1</u> |

C. Graph

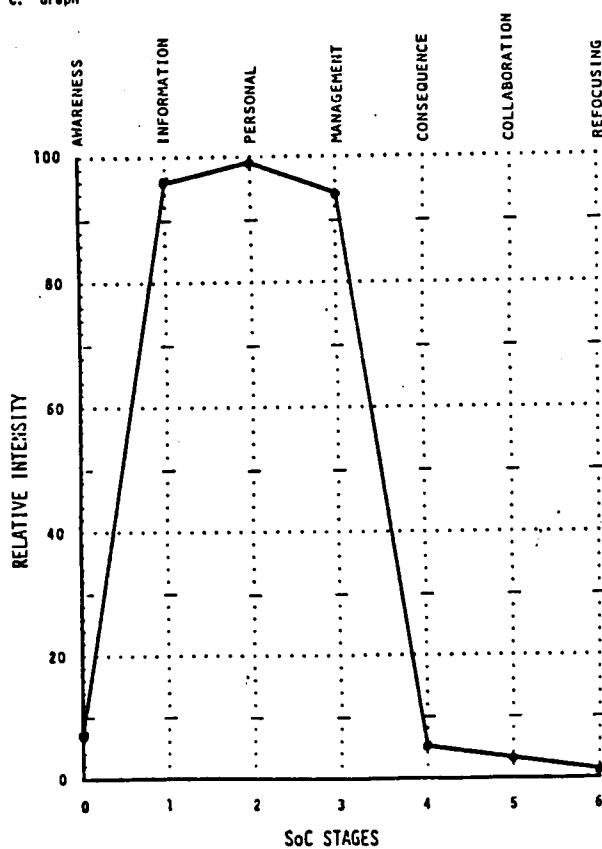


Figure 8. Hypothetical Case 1, Profile Chart and Profile.

A table was developed for comparing second highest to highest SoC (Figure 9). Four hypothetical profiles were developed and show profile configurations for Nonuser, Inexperienced User, Experienced User and Renewing User (Figure 10).

Several other profiles were developed by the R&DCTE to illustrate aspects of interpretation. Profiles are called Negative One/Two Split, Negative One/Two Split with Tailing-Up 6, Intense Management, Consequence, High Collaboration and Consequence, Single High Collaboration, High Refocusing, High Management with Ideas, Impact-Concerned User and Coordinator, and Unconcerned Innovation User.

| Highest Stage of Concern | Second Highest Stage of Concern |      |      |      |      |      |      | Row Total Percent | Row Total N |
|--------------------------|---------------------------------|------|------|------|------|------|------|-------------------|-------------|
|                          | 0                               | 1    | 2    | 3    | 4    | 5    | 6    |                   |             |
| 0 Awareness              | 0                               | 9.4  | 21.9 | 28.1 | 15.6 | 3.1  | 21.9 | 19.8              | 32          |
| 1 Informational          | 0                               | 0    | 50.0 | 0    | 0    | 0    | 50.0 | 1.2               | 2           |
| 2 Personal               | 27.8                            | 27.8 | 0    | 5.6  | 11.1 | 0    | 27.8 | 11.1              | 18          |
| 3 Management             | 6.7                             | 3.3  | 20.0 | 0    | 10.0 | 0    | 56.7 | 18.5              | 30          |
| 4 Consequence            | 10.0                            | 5.0  | 35.0 | 10.0 | 0    | 30.0 | 10.0 | 12.3              | 20          |
| 5 Collaboration          | 9.1                             | 0    | 36.4 | 0    | 36.4 | 0    | 18.2 | 6.8               | 11          |
| 6 Refocusing             | 6.1                             | 6.1  | 24.5 | 20.4 | 40.8 | 2.0  | 0    | 30.2              | 49          |
| Total                    |                                 |      |      |      |      |      |      |                   | 162         |

Figure 9. Percent Distribution of Second Highest Stage of Concern in Relation to First Highest State of Concern.

Source: Gene E. Hall, Archie A. George and William L. Rutherford, Measuring Stages of Concern About the Innovation: A Manual for Use of the SoC Questionnaire. Procedures for Adopting Educational Innovations/CBAM Project R&D Center for Teacher Education, The University of Texas at Austin, 1979, p. 34.

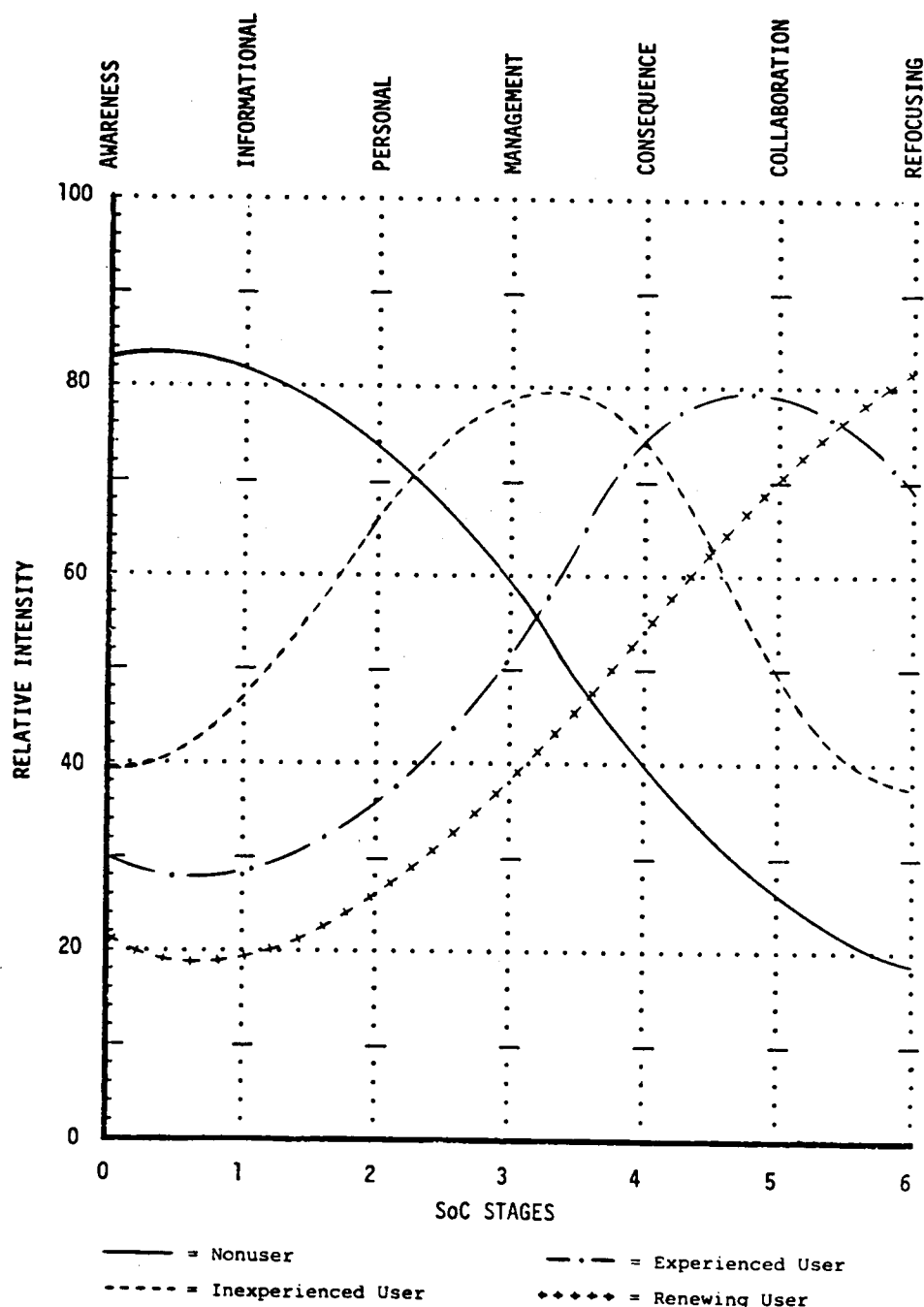


Figure 10. Hypothesized Development of Stages of Concern.

Source: Gene E. Hall, Archie A. George and William L. Rutherford, Measuring Stages of Concern About the Innovation: A Manual for Use of the SoC Questionnaire. Procedures for Adopting Educational Innovations/CBAM Project R&D Center for Teacher Education, The University of Texas at Austin, 1977, p. 35.

### Reliability of the SoC Questionnaire

The following is adapted from Hall, George and Rutherford (1979:10-11) in which reliability studies are discussed. The items representing each stage on the questionnaire were selected in such a manner that high internal reliability was likely. One of the necessary conditions for an item to be included was that responses to it correlated highly with responses to other items measuring the same stage. Figure 11 shows the alpha coefficients of internal consistency for each of the seven Stages of Concern.

A sample of 171 individuals completed the SoCQ a second time, two weeks after their initial completion of the instrument. Of those 171, 132 returned the completed questionnaire. Test-retest correlations are shown in Figure 12.

### Validity of the SoC Questionnaire (SoCQ)

A series of validity studies was conducted by Hall, et al., at the R&DCTE. The series of studies provided increased confidence for the developers that the SoCQ measured the seven hypothesized Stages of Concern. Hall, George and Rutherford (1979) stated that the validity of scores on the SoCQ as measures of the defined Stages of Concern could not be demonstrated as easily as could reliability. As the authors suggested, there did not exist another measure of concern with which the SoCQ could be compared. Figure 13 with an N=832 shows the intercorrelations of the SoC scale scores.

|        |     |     |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|-----|-----|
| Stage  | 0   | 1   | 2   | 3   | 4   | 5   | 6   |
| Alphas | .64 | .78 | .83 | .75 | .76 | .82 | .71 |

---

Figure 11. Coefficients of Internal Reliability for the Stages of Concern Questionnaire, N=830.

Source: Archie George, Development and Validation of Concerns Questionnaire, Research and Development Center for Teacher Education, The University of Texas at Austin, 1977, p. 7.

|           |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|
| Stage     | 0   | 1   | 2   | 3   | 4   | 5   | 6   |
| Pearson-r | .65 | .86 | .82 | .81 | .76 | .84 | .71 |

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Figure 12. Test-Retest Correlations on the Stage of Concern Questionnaire, N=132.

Source: Archie George, Development and Validation of Concerns Questionnaire, Research and Development Center for Teacher Education, The University of Texas at Austin, 1977, p. 7.

|        |   | Stages |     |     |      |      |      |
|--------|---|--------|-----|-----|------|------|------|
|        |   | 1      | 2   | 3   | 4    | 5    | 6    |
| Stages | 0 | .48    | .39 | .13 | -.27 | -.30 | -.16 |
|        | 1 |        | .81 | .32 | .19  | .18  | .17  |
|        | 2 |        |     | .47 | .23  | .18  | .25  |
|        | 3 |        |     |     | .24  | .12  | .37  |
|        | 4 |        |     |     |      | .58  | .57  |
|        | 5 |        |     |     |      |      | .49  |

---

Figure 13. Intercorrelation of 35-Item Stages of Concern Questionnaire Scale Scores, N=832.

Source: Gene E. Hall and Archie A. George, Stages of Concern About the Innovation: The Concept, Initial Verification and Some Implications. Research and Development Center for Teacher Education, The University of Texas at Austin, 1978, p. 15.

A validity study was conducted with a sample of 65 selected at random from a group of several hundred individuals who completed the SoCQ. Staff members first assessed the concerns of these sample educators by listening to taped interviews. Intra-class correlation coefficients of "highest" and "also high" concerns had reported reliabilities between 0.42 and 0.85, with six above 0.58 ( $p < 0.01$ ) and with one at the management stage (stage 3) with a reliability coefficient of 0.42 ( $p = .06$ ). Further, SoC percentile scores were rank ordered and correlated with the investigators' ratings.

Loucks and Hall (1979) and Hall (1979) have reported other demonstrations of SoCQ validity. The R&DCTE claimed that use of SoC over the period of years since its inception has demonstrated its validity in measuring seven distinct Stages of Concern as defined.

#### Development of the Change Facilitator Stages of Concern Questionnaire (CFSocQ)

Rutherford, Hall and George (1982) described the developmental efforts which produced the CFSocQ. Using the first-developed 35-item SoC showed that items were inappropriate for change facilitators and that developed norms gave exceptionally high stage five (Collaboration) values. Keeping the same stage names as in the SoC, developers sought a balance between innovation-related and change-facilitator role concerns.

After several pilot studies, factor and item analyses of CFSocQ (N=288) responses were used to select five items for each stage of the

final questionnaire. These same data were used to develop temporary percentile norms for each scale until a larger sample of questionnaires could be collected. A manual for use is under development.

### Reliability and Validity Study of the CFSocQ

Figures 14 and 15 present values determined in 1981 when developers processed 589 questionnaires for reliability and validity studies. The means range from 9.07 (SoC 6) to 25.88 (SoC 4). A normal distribution would find the means at 17.5 for each scale (5 items for each scale SoC score at a maximum value of 7 gives a total of 35 possible. The mid-point of 35 is 17.5). Therefore, SoC 4 and 5 show a high level of concern while SoC 6 is at a low level. Standard deviations show values from 5.94 to 9.49, and a three standard deviation value would be 28.47 or within 81 percent of the normal curve. Alpha is an estimate of the variance ratios of each item in a test. It is a variation of the Kuder-Richardson Reliability Coefficient as developed by Cronbach (1951). Alpha is "the mean of all split-half coefficients resulting from different splittings of a test" (Anastasi, 1961:123). There is a direct relationship between values of Alpha and reliability; the closer Alpha is to 1.0000, the higher is the reliability.

### Interpretation of CFSocQ

Rutherford, et al. (1982) stated that, essentially, interpretation of CFSocQ data is the same as for SoCQ except for stage 0, Awareness. A relatively high score on stage 0 indicates concerns other than the innovation, and a low score indicates other tasks or

|         |       |       |       |       |       |       |      |
|---------|-------|-------|-------|-------|-------|-------|------|
| Stage:  | 0     | 1     | 2     | 3     | 4     | 5     | 6    |
| Means:  | 11.99 | 16.91 | 13.04 | 17.90 | 25.88 | 25.86 | 9.07 |
| SDS:    | 5.94  | 9.49  | 6.32  | 7.30  | 6.34  | 6.99  | 6.52 |
| Alphas: | .61   | .85   | .62   | .72   | .70   | .77   | .81  |

Figure 14. Means, Standard Deviations and Alpha Coefficients for the CFSocQ Based on 589 Respondents

Source: William L. Rutherford, Gene E. Hall and Archie A. George, An Instrument for Measuring Concerns Change Facilitators Have About Their Role in Facilitating Change, R&D Report No. 3144, Research and Development Center for Teacher Education, The University of Texas at Austin, 1982, p. 13.

|        |   |     |     |     |      |      |      |
|--------|---|-----|-----|-----|------|------|------|
| Scale: | 0 | 1   | 2   | 3   | 4    | 5    | 6    |
| 0      |   | .15 | .19 | .23 | -.15 | -.21 | .22  |
| 1      |   |     | .24 | .09 | .23  | .18  | .05  |
| 2      |   |     |     | .37 | .19  | .05  | .34  |
| 3      |   |     |     |     | .32  | .20  | .09  |
| 4      |   |     |     |     |      | .67  | -.06 |
| 5      |   |     |     |     |      |      | -.15 |

Figure 15. Intercorrelations of the Scale Scores on the CFSocQ Based on 589 Respondents.

Source: William L. Rutherford, Gene E. Hall and Archie A. George, An Instrument for Measuring Concerns Change Facilitators Have About Their Role in Facilitating Change, R&D Report No. 3144, Research and Development Center for Teacher Education, The University of Texas at Austin, 1982, p. 17.

innovations do not have a higher priority of concern. Innovation concerns are assessed on responses and interpretation of stages 1-6. Multiple peak scores indicate multiple intense concerns and are interpreted by combining definitions of the represented stages.

#### Levels of Use (LoU) of the Innovation

Hall, Loucks, Rutherford and Newlove (1975) described the behavior of individuals as they implemented an innovation and called the process Levels of Use (LoU). The investigators noted that as innovation users became familiar and skilled with using the innovation, a pattern of developmental phases paralleled Fuller's Concerns Theory. As a consequence, the researchers identified eight "levels" characteristic of innovation-user behavior at particular stages of development.

The authors noted that implementation of the innovation is cursorily attended to once the adoption decision is made. The LoU procedure establishes a method of assessing implementation from the adoption decision point through institutionalization and finally to the renewal decision point. With this "firsthand information," outcome and consequence data can be generated and a historic perspective developed to explain implementation dynamics of any innovation adoption.

#### Measuring Levels of Use (LoU)

Loucks, Newlove and Hall (1975) developed a LoU interview procedure using a branching format. This entailed specific questions

and follow-up probing questions to clarify or interpret answers to the specific questions. Interviews are designed to be in the mode of casual conversation and are tape recorded and rated later using a rating sheet (Appendix A). The tapes are the raw data source and are used to rerate or check interrater reliability. The LoU procedure is generic so that it can be used with different innovations.

Interviewers are trained for the focused procedure of the LoU interview and in techniques of using probing questions and keeping a casual conversational tone. Certification of interviewers is based on interrater reliability of practice/training taped interviews.

#### Reliability of LoU

According to Loucks, et al., (1975), the procedure for rating LoU interview tapes evolved as the measure was developed and refined. In the first year of a 1974-76 longitudinal study of innovations at elementary school and college levels, two raters independently listened to each tape and gave ratings for overall LoU and to the seven LoU 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 percent of the 1,381 interview tapes. Another 26 percent were resolved by a third rater. The remaining 8 percent were rated collectively by staff members and a consensus rating was made. Traditional reliability coefficients obtained for the first two raters indicated interrater reliabilities of 0.87 to 0.96. As the interview procedure was refined, it was found

that a trained interviewer could often rate the individual immediately after the interview. Using this procedure, interrater reliability on overall LoU rating was 0.96, with 73 percent agreement between the two raters. Those tapes that were not agreed upon were discussed by the two raters and a consensus rating was reached.

Finally, the researchers discovered that ratings given by interviewers had a high percent agreement (87 percent) with final ratings. It was therefore decided that future tapes would be rated by the interviewer only, but with a periodic reliability check by a panel of certified, experienced raters.

#### Validity of the LoU

When the Lou interview was developed, tentative validity was established by developing interview questions to probe independent yet related behaviors with respect to an individual's Level of Use; a high correlation was found between responses to these questions. However adequate this justification of validity, there remained the question of whether or not an individual's "self-report" of his/her behavior in a focused interview corresponded with actual performance.

First the investigators had to determine an appropriate strategy for validating the LoU interview. They recognized that use of an innovation cannot be assessed solely by observing classroom behavior. The search for an alternative methodology resulted in the use of ethnography, an approach derived from social anthropology which gathers qualitative data by direct observation of activity and interactions in an ongoing and natural manner.

Forty-five junior high school teachers were interviewed; 17 teachers were chosen for intense ethnographic study. Ethnographers spent an entire day with a teacher and were not informed of the teacher's LoU interview rating. An ethnographic protocol described (1) the classroom in detail, (2) the activities, interactions, behaviors of teacher and students during one complete class period, and (3) a summary of other interactions, activities, and behaviors of the teacher during the day.

Independent LoU 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 were made to determine validity: (1) between the ethnographer's rating and the consensus interview rating and (2) between the consensus reader rating and the consensus interview rating. The correlation coefficient for the first comparison was 0.98; for the second comparison 0.65.

#### Summary of LoU Reliability and Validity (Loucks et al., 1975) Studies

LoU reliability was determined by interrater reliability studies. Reliability coefficients indicate interrater reliabilities of 0.87 to 0.96 with agreements between two raters of 66 percent (when a third rater was used agreement increased to 92 percent), 73 percent and 87 percent. LoU validity was measured by using ethnographic methodology. Correlation coefficients of 0.98 and 0.65 were obtained.

Hall, Hord and Griffin (1980:20-27) discussed the role of the principal and her/his effect on the implementation of an innovative

elementary science curriculum. The importance of the Hall, Hord and Griffin study to this current study is their use of all three components of the CBAM. Hall, et al., measured SoC and LoU, but they also looked for evidence of institutionalization which they

. . . Defined as having all users: (a) at LoU IVA routine use, or higher, (b) with Stage 1, 2, and 3 concerns low and (c) using acceptable innovation configurations (p. 8).

## VI. THE PRINCIPALSHIP CONSIDERED

Hall and Wallace (1974) conceptualized the CBAM which has within it a partial answer for the persistence of the status quo and for the failure of educational innovations. By determining the concerns of those involved in a change effort, change agents (principals) can develop appropriate strategies to deal with those concerns that are most threatening and help facilitate the transition from the status quo to the innovation.

### Rand Studies and the Principalship

Berman and McLaughlin (1978) saw the principal's role in change as multifaceted. Principals must create an organizational climate that gives the project a legitimate status. Principals must give moral support to staff and teachers and they must continually give support to and maintain high interest in the innovation. Principals must carefully monitor teachers to ensure that teachers do not drop, ignore, or otherwise fail to use key elements of the innovation. Principals

need to respond positively to the perception of being the "gatekeeper of change" in the school (related to the principals' sanctioning power). The researchers also listed elements which affected project success: a working relationship among teachers, active support by the principal of the school, and the effectiveness of the project director.

Shoun, Lintz and Achilles (1981) referenced Berman and Pauly (1975) and called attention to organizational climate and the importance of principals' support as a variable in that climate. Berman and Pauly (1975:58) showed regression coefficients for support from the principal to be .13 for Percentage of Goals Achieved and -.14 for Difficulty of Implementation with both measures being significant at the .10 level. Berman and Pauly (1975:59) noted that the most important effects of principal support occurred in elementary schools. Where principals supported an innovation, "they facilitated its implementation." The authors concluded that the role of the elementary principal was either to facilitate or inhibit change.

What Berman and his coworkers found confirmed what other researchers had tacitly felt, predicted or agreed with but had not articulated or published. In that respect, the Rand Studies are important as the first to raise consciousness and give impetus to other research efforts on the principalship in relation to the innovation adoption process.

### Studies of the Principalship

McCleary and Thompson (1979), in their national study of secondary school principals, listed nine areas of responsibility and

asked "effective" principals and "random" principals to rank the time they should spend and the time they do spend on each of the areas. Time management was seen as most essential to effectiveness in contrast to task importance.

In other studies on principals' time management, Howell (1981), Peterson (1978), Wolcott (1973), Morris, et al., (1981), Alkire and Dorin (1979) and Porter-Gehrie, et al., (1978) discussed how principals used their time, how much time was used and who initiated the action. The two highest priorities were discipline of students and supervision of teachers. In a study by the State of New York Office of Education (1974:14-40), the greatest disparity (42.6 percent) between actual and ideal work time, as reported by principals, was in the category "discipline and building control." The categories ranked next were "curriculum and program development" (30.8 percent) and "instructional supervision" (27.4 percent). "Ideal" time was defined as that time principals would like to spend in the various categories. With a 42.6 percent disparity between what principals want to do versus what they have to or must do, one can only draw the conclusion that the job is a frustrating one.

Bennis (1976) wrote of the pressures and frustration that leaders were experiencing and would continue to feel given the climate of understanding of leadership and human organizations. He went on to write that the problem is primarily due to ignorance of the concept of leadership and the confusion of the concepts: management and leadership. Bennis's remarks underline one of the aspects of this

current study: how to measure the leadership/management dimension of what the principal is doing.

Myers (1974) in The Declining Power of the Principal noted that principals: (1) are constrained in their authority because schools are mainly socializing institutions under control of "lay" citizens, (2) are not competent enough in administrative or instructional theory or practice to effect important changes or even to offer significant leadership, (3) must maintain a relatively uniform and stable educational program necessitated by high teacher and administrator turnover, (4) have no funds to bring about or finance change efforts, (5) have no power to alter physical facilities, and (6) are virtually helpless to alter the rigid curriculum with learning opportunities that have a continuity of scope and sequence. Myers also noted that much of a principal's time is spent on routine tasks required by both supervisors and subordinates. Myers' indictment is that the principal is no more than a functionary and that even significant decisions concerning her/his role are made for her/him. The role can be modified or abandoned without the principal's approval or even knowledge.

Goodlad (1983:xvi) commented on school improvement by referring to simplistic statements such as "everything depends upon the teacher" which in the current educational vernacular becomes "everything depends upon the principal." He cautioned reformers about "tinkering" with educational issues rather than adopting a holistic perspective and thereby bringing about significant improvement.

In the past, research tended to focus on "characteristics" of whatever was to be studied. These characteristics tended to identify personal attributes with the idea that if these personal characteristics could be found to exist "naturally" or if they could be somehow instilled into people, then improvement would automatically follow. Rogers (1965) listed six general characteristics of adopters: they are young; they have relatively high social status in terms of amount of education, prestige ratings, and income: they place importance on impersonal and informed sources of information; they are cosmopolitan rather than provincial; they exert opinion leadership; and they are likely to be viewed as deviants by their peers and themselves. Rogers claims that only about 2.5 percent of educational administrators are innovators.

Goldhammer (1971) looked at good schools (Beacons of Brilliance) and bad schools (Potholes of Pestilence). He found, as Rogers did, that principals of good schools were often considered "troublemakers" by their superiors and peers.

Coupling studies of "characteristics" and "effectiveness" of schools is a promising trend which grew out of the 1966 Coleman study on the equality of educational opportunity. Coleman concluded that schools had little influence on changing the attitudes and characteristics students brought to school. The current "effective schools" movement resulted from antipathetic feelings of educators toward this alleged impotency of the educational system. However, if

one can identify what is effective (and that is a point of debate and criticism of this current trend) then one is able to compare and contrast effective versus ineffective and identify what does and does not make a difference. The Educational Research Service (Block, 1983) searched the effective schools literature and found consistently that principals were cited as the key administrator providing leadership to the school. The Research Brief (Block, 1983:94) reported on a study by Vallina (1978) who studied 20 innercity Chicago schools in relation to high and low reading achievement test scores in grades K-8 with 99 percent black student populations whose primary language was English. Vallina found that the principal had the primary, fundamental role for school improvement and that school problems were related to the performance of the principal in the delivery of services rather than in curriculum or program selection.

Hall and the R&DCTE group found that in their studies the usual demographics of age, sex, number of years in an administrative position, amount of education, etc., were not significantly important. What did influence the results was the extent of involvement with innovations and how many innovations the adopter had experienced.

#### R&DCTE Studies of the Principalship

In 1982, the R&DCTE presented four papers reporting the major findings of a study which looked at two aspects of improvement efforts: (1) the day-to-day behaviors of principals as they facilitated change efforts, and (2) the effects of these principals' behaviors on teachers who, at the same time, were working with new procedures of the innovation.

The paper by Hord and Goldstein (1982) discussed a taxonomy of interventions using the "incident level," which is the smallest increment and the lowest level of taxonomy, but which involves interaction between individuals. In this case the focus was on interactions between principal and teacher(s). Two findings directly relate to this current investigation: (1) "A large proportion of principals' interventions are managerial, i.e., . . . developing supportive and organizational arrangements" and (2) "principals tend to act more in their traditional role as 'manager' than in an instructional leadership role (p. 46)." The authors went on to state that the instructional leadership functions of training and consultation accounted for only 20-25 percent of principals' behavior indicating the dichotomy of what "should be" and "what is" in reality.

Rutherford, Hall, and Newlove (1972) described the concerns principals had about facilitating a change. It was found that although the concerns dynamic was similar for principals as it was for teachers, the context of concerns was different for principals. They cautioned, "Decision makers should not assume that principals can treat change as an event, it is a process for them, just as it is for their teachers" (p. 54). Concerns theory, according to Rutherford, et al., has significant implications for staff development activities for change facilitators based on two premises: skills training is necessary to develop effective facilitators, and effective training takes into account the individual concerns of each facilitator.

Huling, Hall and Hord (1982) studied the effects of principal interventions on teachers during the change process by analyzing

selected interventions from the Principal-Teacher Interaction Study (PTI) that was underway at the R&DCTE. The PTI data base consisted of more than 2,000 interventions by principals. The authors concluded:

Principals can and do make a difference with the interventions that they make. Those who focus on matters other than instruction no doubt affect the areas in which they concentrate; those who focus on instructional leadership make a difference in the teaching and learning that occurs in classrooms (p. 85).

Hall, Rutherford and Griffin (1982) analyzed change facilitator styles of nine principals and developed indicators and proposed a framework that relates three facilitator styles to each other and to facilitating change. Although more research and conceptualization are admittedly needed, the authors concluded that principals need training programs if they are to be effective change facilitators.

Rutherford, Hall and George (1982) concluded that an understanding of the etiology of principal behaviors makes it possible to develop and design training programs or other strategies to assist individual principals in becoming effective change facilitators.

#### Discontinuation After Adoption

Parish and Arends (1982) report on discontinuation of innovative programs in five mid-western school districts. They conceptualized an "informal covenant" which they defined as an "informal agreement created to deal with instances when external solutions are used to solve problems of local schools" (p. 5). In effect the covenant exists between the teacher and the principal and

casts the principal in the role of spokesman for the school whose perceived power is to negotiate and make decisions in the name of the school. Teachers support the principals' decisions and attend meetings and inservice, but maintain final authority over what goes on behind the door of their own classrooms. Teachers also expect the principal to support their decisions and not to interfere with any instructional decision they, as teachers, make. To counter this informal covenant, Parish and Arends addressed the following issues: understanding and attending to the culture of the school; longer training time and greater scope and other strategies to help teachers define the meaning of the implementation in terms of their own experience; develop and follow an implementation plan (one level for administrators and one for classroom teachers who will use the innovation); expect to continue to work with adopters and allow adaptations.

### Program Implementation

Harris (1975:34-36) defined leadership in the context of change as the "active, purposeful, skilled influencing of people to facilitate change" (p. 37) and explains that the application of this type of leadership in formal organizations is "change agentry." Harris conceptualized five phases of program implementation: planning and initiation, momentum, problems, turning point, and termination. Using these phases, Harris developed a diagram which showed two critical points for program implementation in terms of group interest (teachers), leadership (administrators) and progress of program implementation.

According to Harris's diagram, leadership investment must remain relatively high throughout all implementation phases. As leadership reaches a crucial point a decision must be made as whether to invest more leadership or not. Administrators switch their interest and invest leadership in other issues at a critical point, but expect those involved in working with the innovation to continue with high interest. When the innovation fails, many reasons are given, none of which is lack of leadership. Harris's diagram confirms the thesis that administrative leadership must remain high throughout the implementation process. The CBAM can measure how leaders are developing as they work with implementing the innovation.

#### VII. MANAGEMENT: A PROBLEM IN IMPLEMENTATION OF EDUCATIONAL CHANGE EFFORTS

As already documented, problems exist with the management of change. One problem is in assessing not only the status of the change or the change process, but in determining how the people involved are doing. If one accepts the thesis that educational change occurs with and through people, some means is needed to monitor those changes in people. To monitor change is not enough to ensure change; consequently some vehicle is necessary to remediate problems that the monitoring uncovers. That vehicle is usually characterized by "inservice." Inservice for principals was studied by Davis and Frank (1977:23) who developed a model for inservice programs and cautioned

that ". . . programs should be designed in accordance to the preferences of the program participants."

The current study was conducted in the field to study the use of SoC and LoU processes and procedures for developing strategies to help principals and other implementers make the transition from the status quo to the institutionalization of an innovation.

### School Food Service

VanEgmond-Pannell (1981) is the authoritative source on school food service other than the United States Department of Agriculture (USDA). School food service differs from other food services in that it operates on a nonprofit basis and at the same time has the ability to pay its own way. VanEgmond-Pannell noted that there are many changes facing those responsible for school food service, and her book extracts and consolidates timely, pertinent information so that those changes can be addressed. Literature dealing with school food service is found in School Food Service Journal, Journal of American Dietetic Association, American Journal of Public Health, School Lunch Journal, and food service trade magazines. Education literature is basically devoid of articles on school food service: its operation, management, financial aspects of purchasing, investing funds, capital outlay, energy usage, nutrition education potential, and many other facets. The perception that school food service is a "stepchild" of the educational system is accurate no matter what methodology is used to measure its contribution or potential for teaching nutrition or other food related life skills.

American school food service is the largest food service operation in the world. According to VanEgmond-Pannell, in 1980, five billion meals were served to and consumed by 27.4 million students daily in 90 percent of all schools (public and private) in the nation. The average lunch cost in 1980 was \$1.25 which paid for food, labor, indirect and other costs with 15 cents of income coming from United States Department of Agriculture (USDA) donated (commodity) foods.

According to State Department of Education data, in the State of Tennessee 91,199,023 meals were served in the 1981-1982 school year to 527,104 students daily in 1,678 schools (96.8 percent). The average lunch cost in the state was \$1.36 with 11.5 cents of income coming from USDA donated foods.

The three systems selected for this study had data to show that they served 2,730,652 meals in the 1981-1982 school year to 15,631 students daily in 56 schools (98.25 percent). Total food service expenditures were \$2,976,598.02. The student population for the three districts totaled 25,446 for the 1981-1982 school year.

Plate waste in school lunch became a popular issue during the mid-seventies when television and newspaper headlines focused on lunch in the schools. USDA studies found that high plate waste occurred among elementary students and where schools served lunches made from frozen preplated meals. The studies resulted in essentially four major changes: the presentation of choices and variety; improvement of food quality by better procedures in purchasing and preparation; taking into consideration the age and size of the child when considering portion

sizes and meal patterns; and the new attitude which requires that each child be considered as a "customer."

In 1980 the term "type A lunch" was dropped in light of more sophisticated nutrition knowledge. The new designation was simply "school lunch meal patterns" with the plural implying that there was no longer just one pattern. At the same time, USDA issued two guides: Food Buying Guide for School Food Service and Menu Planning Guide. These guides provided technical assistance to the new requirements.

The new regulations allowed flexibility by the "offer versus serve" requirement. Consequently some school food service people saw the possibility of going to "self-service" just as in the commercial fast food operations with their "salad bars" and smorgasbord buffets. It was observed that people of all ages and sizes served themselves at the commercial establishments and so there was no reason to anticipate problems with this type of service in school lunch. This field study will discuss some perceptions of problems as principals of schools were faced with implementing self-service in their schools.

The book by Sublette (1976) is a personal account of food service in Tennessee up to the early 1970's, and gives a background against which very rapid and fundamental changes in school food service have and will continue to take place. VanEgmond-Pannell (1981:27) stated "school food service has become as much a part of a school day as English and will stay in one form or another." Two fundamental changes seen by practitioners in the field are: the move to "universal feeding" where all students are provided with free meals just as they are with "free" textbooks; and the operation and management of school

food services as a self-supporting business run by professionals as knowledgeable as any in other food service enterprises, commercial or not. The days that Sublette wrote about, where teachers, administrators, and parents prepared soup or brought in produce and prepared "lunch" in some dark back room of a school, are gone.

### Nutrition Education

VanEgmond-Pannell (1981) devoted a chapter to nutrition as it relates to school food service. Many school systems hire at least one registered dietitian and some even require those in food service administration to be certified and registered dietitians. The job of the school food service dietitian is primarily to conduct nutrition education either directly or through teachers. The difficulty in that mandate can be appreciated by considering aspects of territoriality, sanction, collegiality, legitimacy, power and status of the dietitian who comes from other than the instructional staff of the school system and who must integrate nutrition education into the traditional school subjects. Lewis (1984) wrote about how this is done in some selected school systems. As VanEgmond-Pannell (1981:122) claimed, the last 20 years saw an abysmal void in nutrition education and an unprecedented growth in snack "junk" foods devoid of any substantive nutrition. "The school food service program should provide a model laboratory-classroom for nutrition education in the years ahead" (p. 114). The current study addresses the issue of responsibility for leadership in this direction of nutrition education.

### Self-Service

VanEgmond-Pannell (1981:300) stated that an elementary serving line accommodates 10 to 12 children per minute and in secondary schools 12-14 per minute, and that 150 students per line can be served in 13 minutes. She cautioned that "bottlenecks" need to be anticipated and avoided because children do not like to stand in line. Additional lines need to be installed to handle larger numbers of students, but to keep efficiency and cost within reason, other strategies need to be considered to cost-effectively provide service to larger numbers of students. Straight-line counters have given way to other configurations such as the scramble system, island center, hollow square, and carousel.

Once the institutional and military concept of straight line serving counters was changed, school food service innovators experimented with other configurations and possibilities. The "offer vs. serve" mandate opened the way to consider choices within the offerings. To make choice work within the offer vs. serve configuration, self-service was a logical solution to the serving problem. Rather than have students moving down one side of a serving line and either requesting or rejecting items from a whole staff of servers on the other side, children would manipulate serving utensils and take whatever was offered and in whatever quantities they wanted. This conceptualization led to the installation of various self-serve islands or "bars," i.e., salad, build-your-own-sandwich, soup, potato, taco, pasta, etc. With this configuration, school food service personnel devote more time to timely preparation and to replenishing

fast moving items. A greater burden is placed on the cashiers as they must enforce the United States Department of Agriculture (USDA) requirements of a complete reimbursable meal consisting of three out of five food components. Self-service places the burden of proper nutrition on each student, and therein lies the opportunity for nutrition education. Self-service is successfully used in all kinds of school settings from grades K-12.

No research studies were found that addressed self-service in school food service. Articles from trade journals are recent in dealing with the self-service concept. Reedy (1981:43), in writing about strategies to build up the level-to-stagnant restaurant business, discussed the "old" concept of self-service "creatively applied in new and exciting ways." Reedy reported that a Gallup Poll showed 46 percent of patrons who dined out would like a choice in portion sizes, a self-service salad bar, and a wide variety of menu selections. A National Restaurant Association study showed 47 percent of patrons preferred a choice in portion sizes. Reedy's article reported on restaurant operations that range from the Hyatt Regency Dearborn to a spaghetti bar at Joe Rigatoni's in Atlanta and Houston.

Reymonenq (1982) wrote about self-service food bars as a solution to the dilemma of cost versus patrons' demands for variety. Cummings (1982) credited the school lunch explosion in the late 1970's with creating a new era in food service cafeteria equipment which was mass produced and came ready to use after uncrating. These units could be brought into the school, uncrated, and wheeled to the gym in time to serve lunch the same day. As the menu changed, the modular units

were rearranged. When lunch was over, the units could be wheeled out of the way so that the space could be used for other functions. These modular units are now of such asthetic design that they can grace the most sophisticated restaurant.

Campbell Soup Company (1982:76) appropriately developed a soup bar and reported on successful school food service operations using them. The article quoted a food service director as saying "youngsters want some control over what they eat," and he saw the soup bar as a means to allow that control.

#### VIII. SUMMARY

The purpose for selecting the particular literature for this chapter was to present a holistic perspective for the concept of change in relation to its generic antecedents, mechanisms, driving forces, assessment, strategies and management. The literature points out that no really new theories, processes or procedures are needed to manage change. What is necessary is that attention be given to what has already been developed and tried (i.e., the Concerns Based Adoption Model [CBAM]). In the context of rapidly developing knowledge and the rush to utilize that knowledge, combinations and permutations between concepts may not occur accidentally. Therefore, this chapter of related literature serves the function of linking different conceptual bases in order to look at the problem of change and its management in schools as experienced by principals. The literature dealing with the role of the principal in the contexts of management and leadership was cited to focus on that important dual role of principals. The

literature on the adoption of innovations as a change strategy was discussed as well as the innovation of self-service in the school food service operation.

Thinking superficially, student self-service in the cafeteria seems like a relatively simple, uncomplicated innovation. To implement and operationalize this seemingly easy change, however, presents upheavals and discontinuities of major proportions, not only to food service and cafeteria personnel, but to the principal and teaching staff. As an illustration, self-service gives control to the student, perhaps for the only time in the school day. Both the principal and teachers must allow students to select or reject portion sizes and the food that is offered.

The cited food service literature claimed that restaurant patrons preferred to select what, and how much, they wanted to eat. School age children go to restaurants with their parents and experience self-service as a result. If that is true, and if students have had experience with self-service outside of school, why did it take a mandate from USDA to force schools to adopt a program which allowed students to either accept or reject meal components and which reduced plate waste? The answer involves the dynamics involved in the management/leadership dichotomy as cited in the literature. The innovation of self-service was chosen for several reasons, but the most important is that food service is one of the most pervasive

programs in the schools (90 percent of all schools both private and public in the nation have food service) and self-service is an innovation that can be adopted to meet the USDA mandate.

This chapter cited literature dealing with change and creating new settings. A new setting in school food service is being created by the innovation of self-service in the school cafeteria.

## CHAPTER III

### METHODOLOGY

#### I. INTRODUCTION AND QUESTIONS

##### Introduction

The problem of managing planned educational change is that an effective process must be sensitive to human cognitive and affective elements as people became involved in the change process. Educational change takes place with and through people, consequently their concerns and overt behavior related to change must be monitored throughout the process and assistance rendered as needed. Change is difficult for most people, and those involved in changing need help during the transition. Existing relationships are disrupted and new ones must be established to provide some degree of comfort in the new setting produced by the change. Old habits and behavioral conditioning must be altered and new paradigms developed so that a new status quo can emerge. The complex set of biopsychosocial factors must be accounted for and taken into consideration. All of this must be accomplished in a short time span and with cost effectiveness if education is to respond positively to current criticism. Concerns theory addresses the aforementioned issues, and the Concerns Based Adoption Model (CBAM) provides one process to assess the adoption and implementation status of an innovation.

As the "gatekeeper" of school improvement efforts, the principal exerts influence over what does or does not take place. As

the Chief Executive Officer (CEO), the principal is responsible for whatever occurs in the school. The original purpose of schooling was "the three R's"; the purpose now is much more complex. Faced with this complexity, the principal is besieged with problems requiring almost instantaneous decision making. Although some school people would like to eliminate all programs and operations not related to classroom instruction in the three R's, going-to-school involves much more, and consequently, the quality of school life depends much on these other than instruction programs.

#### Practical Research Problem for this Study

The basic concept to be examined in this study is change. Change is considered to be a process in social settings and, as such, occurs with and through people. The social setting for this study is the individual school unit, and the person in focus is the principal. The principal is assessed in the role of change agent for the school. As such, the principal is the facilitator of change.

One strategy to bring about change is the implementation of an innovative practice. The chosen innovation for this study is students' self-service in the school food service operation. The innovation of self-service for students at meal times presents the principal with administrative, management, and leadership problems. These problems arise from innovation implementation and control issues not only at lunch time, but also during the instructional day in the context of nutrition education. In terms of change agency, the principal has several options, one of which is the choice of being proactive or

reactive to the mandates and requirements of new concepts in school food service.

As the principal becomes involved, concerns relative to implementing the innovation become aroused. This arousal of concerns forms the theoretical basis for the CBAM. Two instruments from that model are used to assess change facilitators (principals) in terms of their concerns (Stages of Concern [SoC]) and their use of the innovation (Levels of Use [LoU]). The fidelity of innovation use is assessed by determining key elements according to the Innovation Configuration (IC).

Student outcome is a measure of leadership for the principal cast in the role of change facilitator (change agent). That outcome is measured in food service terms as student Participation, Total Sales and Plate Waste in the lunch program.

The traditional, straightforward approach to studying school improvement has been to walk through the "front door." School people soon learn the importance and social desirability of student-oriented concerns and may give responses which seem appropriate to ensure a socially desirable outcome. This study views a school principal through the "window" of the food service operation and provides insight as to how the principal operates her/his school.

### Research Purpose

The methodology of this study is based on observing the principal from the vantage point of school food service and assessing her/his behavior in relation to a change in that service. By looking

at the concerns a principal expresses and coupling this with what the principal is doing, a program administrator can determine which, if any, strategies to employ in helping the principal implement and finally institutionalize the innovative program.

During the first year of implementation, School Food Service Supervisors (SFSS) needed to know how principals felt about a change in food service and what, if anything, they were doing about it. By making this determination, supervisors could develop strategies of intervention to help principals, in their role as change facilitators, to implement the change from traditional to self service.

### Research Questions

This descriptive field study surveyed principals through their responses to a questionnaire and an interview process. It was designed to answer the following questions.

1. How do the CBAM instruments, Change Facilitator Stages of Concern (CFSocQ) and Level of Use (LoU) rating, categorize stages of development of principals involved with an innovation?

2. Theoretically, and as a construct, a division point occurs in both measures (CFSoc and LoU) where the focus shifts from program management to student outcome; when applied in the field, how sensitive are the measuring instruments (CFSoc and LoU) to this phenomenon, and what relationships exist between the measures in the context of this shift in focus?

3. What relationship exists between Stages of Concern (SoC) and Levels of Use (LoU) when a shift in focus occurs from program

management to student outcome? That is, how do a principal's concerns (SoC) reflect her/his current behavioral level regarding the innovation?

4. How can Change Facilitator Stages of Concern (CFSoc) and Level of Use (LoU) data be used to develop and plan helping strategies, such as inservice training, for principals in their role as change facilitators?

5. How do Change Facilitator Stages of Concern (CFSoc) and Levels of Use (LoU) data forecast trends in the implementation of an innovation?

6. What comparison can be made between results from this study of principals working with a non-instructional innovation (self-service in the school's food service operation) and results from other change facilitators working with instructional innovations (i.e., results obtained by the R&DCTE where the CBAM originated)?

## I. METHODOLOGY AND DESIGN

In order to determine where principals are in the change process, descriptive methodology is employed in this ex post facto field study. The study is ex post facto because the innovation of self-service had already been adopted and approved for implementation by each of the three school boards, and self-service was in operation in at least one school of each school system. The School Food Service Supervisor (SFSS) in each system knew which schools were using self-service and which ones planned on starting to use it the following

year. What SFSSs did not know about their principals and schools regarding concerns about the change is the objective of this study.

"Field study" refers to work done "in the field" as opposed to work done in an office or laboratory by analyzing reports, statistical data, and other static information. Although school and student data are part of local district reporting data on file with the State Department of Education Food Service Division in state and/or regional/district offices, these data are checked periodically in the field (in each kitchen) for reasonable accuracy (as opposed to exact, scientifically measured, statistical accuracy) by the local School Food Service Supervisor (SFSS) and the regional/district State Child Nutrition Specialist.

All Level of Use (LoU) interviews, except three ( $n=21-3=18$ ), were conducted in the field (principal's school) rather than at the district office or by means of the telephone. However, the three principals who were not available at their schools (due to vacations) were interviewed by telephone, a procedure approved by the instrument developers. The Concerns Based Adoption Model (CBAM) requires measurement of (1) Stages of Concern (SoC) by the questionnaire method, (2) the Level of Use (LoU) by a focused interview and rating procedure, and (3) assurance of the presence of key elements in the usage configuration of the Innovation Configuration (IC).

School principals ( $N=55$ ) responded to the Change Facilitators Stage of Concern Questionnaire (CFSocQ) in terms of the self-service innovation in their cafeterias. Their responses were assessed and a sample ( $n=21$ ) was selected for the Level of Use (LoU) interview.

During the LoU interview, questions were asked and responses noted relative to use of the innovation. The responses indicated Innovation Configuration (IC). Food service data were extracted from school system and state reports. After reviewing responses for thoroughness, it was necessary to reject three respondents from the total population ( $N=55-3=52$ ) and one from the sample population ( $n=21-1=20$ ) because of insufficient or incomplete response.

Since a search of the literature failed to yield any reliability or validity studies of the SoC or LoU outside of the University of Texas Research and Development Center for Teacher Education (R&DCTE), it was reasonable to study the reliability and validity of the CFSocQ and the LoU. Results from this study are compared with those published by the R&DCTE in their various monographs.

Integrity of the Change Facilitators Stage of Concern Questionnaire (CFSocQ) depends upon the degree of separation of the seven stages and the correlations of responses to the five questions which relate to each stage. The Percentile Table (page 42) developed by the R&DCTE in 1981 was used in this study.

Statistics for the CFSoc are based on the nominal level of measurement where subjects are measured within each stage but not across stages or from one stage to the next. At the same time, an ordinal level of measurement exists because each stage has a particular rank order from awareness through refocusing. Interpretation of the CFSoc profile, either from the questionnaire scores or the graphic profile, requires training and experience.

LoU has ordinal properties (but only when reported as an overall rating) as the rank order progresses through the levels from non-use to renewal. To describe a respondent's change orientation quantitatively, an index number was developed during the course of this study which would more easily interpret the data. The index is the result of placing the stage of concern, from the CFSoc, with the highest percentile score over the overall level of use rating. E.g., if the highest CFSoc percentile score occurred in the Management stage (SoC 3), and the overall LoU rating was at Routine (LoU IVA), the resulting index would be 3/IVA.

### III. POPULATION

Three school systems in upper East Tennessee were identified as having the following mutual characteristics: centralized food service system directed by a certified School Food Service Supervisor (SFSS); in the first year of implementation of self-service in the cafeteria; in the same State and Federal districts; and had the same State Child Nutrition Consultant. The population was all elementary and secondary principals in the three districts. One district was a county district and two were special city districts. Both city districts were classified as "rural" according to the federal guidelines with populations under 50,000. The 55 principals in the three districts became the population for the study. Fifty-two, or 95 percent, provided sufficient data to be used in the study.

#### IV. ADMINISTRATION OF THE CFSocQ

The questionnaire was distributed to all principals during a weekly meeting with their superintendent and with the SFSS present. Principals were told to respond to and return the questionnaire by the next weekly principals' meeting. The SFSS collected the completed questionnaires, posted their "subject identifying" (SID) number on the list of schools in their district, kept a list for future reference, and mailed a list and the questionnaires to a disinterested third party. The third-party separated the three pages of questions from the rest of the packet and entered only the Subject Identifying (SID) number on each principal's set of questions, filed the list of schools with the separated packets, and delivered the questionnaires to the investigator for processing. At this point, only two people knew which SID belonged to which school or district: the School Food Service Supervisor (SFSS) in each school district (but only for principals in their own district) and the disinterested third party. This effort protected the integrity of the investigation by reducing the chance of investigator bias during this phase.

#### V. QUESTIONNAIRE PROCESSING

Questionnaires were processed by hand (as specified in the SoC manual) and by Research and Information Services for Education, Project RISE, on their Apple II computer with software they developed. Processing of the Change Facilitator Stage of Concern (CFSocQ) required

summing of responses according to their assigned Stages of Concern (SoC), converting these summed raw scores to percentile scores from a percentile table, and plotting the scores on a grid which yields a graphic profile (pages 41-45). It is important to note that the SoC manual, and the Fortran program therein, must be updated for the CFSOCQ Percentile Table which is available from the Research and Development Center for Teacher Education (R&DCTE) and reproduced on page 42. Following instructions from the SoC manual, SoC profiles were generated and categorized according to their profile configurations.

## VI. SAMPLE POPULATION

Stratified Accidental Sampling (Gay, 1976:71-73; Kerlinger, 1973:129-130) was used to select subjects for the LoU interview. Gay (1976:71) defined stratified sampling as "the process of selecting a sample in such a way that identified subgroups in the population are represented in the sample" and qualifies the definition by stating that the subgroups must exist in the sample in the same proportion as in the population. Kerlinger (1973:130), in discussing stratified sampling, said "the population is divided into strata, such as men and women, black and white, and the like, from which random samples are drawn." However, if random sampling is not used, then the sampling technique falls into the class of Nonprobability Samples ("Probability samples use some form of random sampling in one or more of their stages," Kerlinger, 1973:129.) Accidental sampling is a form of nonprobability sampling, according to Kerlinger (1973:129), who wrote that although accidental sampling is the weakest form of sampling, it is probably

most frequently used. Kerlinger (1973:129) continued by stating that if accidental sampling is "used with reasonable knowledge and care, it is not as bad as it has been said to be" and if it is used, the investigator is cautioned to "use extreme circumspection in analysis and interpretation of data" (underline used for emphasis).

Initial sample selection was determined from SoC data by using the five highest peak Stage of Concern (SoC) percentile scores on stages 2 to 6 (stage 0--Awareness, stage 1--Information, stage 2--Personal, stage 3--Management, stage 4--Consequence, stage 5--Collaboration, and stage 6--Refocusing), the hypothesis being that if a shift did occur from program concerns to student outcome, it would occur between Management and Consequence (stages 3 and 4). Consequently, stages further removed from Management or Consequence (3 or 4) would have less effect on this shift in focus.

Subject profiles were not removed from the population as each highest profile peak was identified; therefore, all subjects in the population (N=52) had the same chance of being selected for the sample according to their highest Stage of Concern (SoC) peak score in each of the seven stages. The process was accomplished by generating a list of Subject Identifying (SID) numbers with their percentile scores for each SoC and then assigning numbers 1-5 to the first through the fifth highest in each of the stages from Personal to Refocusing (stages 2 to 6). This process yielded 17 subjects. Three subjects were removed because their total profiles indicated contrary and confusing concerns (selection on high consequence and refocusing but management concerns higher; unacceptable double splits, etc.) which left 14 subjects.

Seven other subjects were selected based on atypical overall profile configuration giving a sample size of 21 to interview.

After selection of the sample group of 21 subjects, it became necessary to identify the school sites which corresponded with the SID numbers in the sample group only. A list of the 21 SID numbers was given to the disinterested third party who developed a list of school sites without identifying which SID belonged to which school site and scrambled the order of schools so that a comparison of one list with the other would not give the correct SID for any school site. The investigator then used this list of school sites to plan and set up the CFSoc retesting and LoU interviews with each of the principals at the 21 school sites in the sample.

Retesting consisted of asking principals to respond to the Change Facilitator Stage of Concern Questionnaire (CFSocQ) a second time. Since the purpose of the interview was to do the Level of Use (LoU) rating and to be certain that the cassette tapes from these interviews were of acceptable quality, there was not time to process the CFSocQ until all 21 interviews were completed. Unfortunately, at this point, one of the interviewees was not available to complete the second response to the CFSocQ. Consequently, the sample size was reduced to 20 ( $n=20$ ) resulting in a 95.2 percent response rate. Upon completion of interviewing, all 20 questionnaires were processed by hand as per the Stage of Concern (SoC) manual and the CFSocQ Quick Scoring Device. At this point, SoC profiles of principals were identified by Subject Identifying (SID) number and LoU interviews by school name. After processing the LoU interviews into LoU ratings, it

became necessary to integrate SID numbers of SoC profiles with school names from LoU ratings. Therefore, only after all data gathering, SID numbers and school names were matched.

## VII. ADMINISTRATION OF THE LoU INTERVIEW

As discussed above, a field check was made by conducting a focused LoU interview with each school principal. Twenty interviews were conducted and ratings established by the investigator (who is a certified LoU interviewer). To check reliability of ratings, 30 percent of the interview tapes (6 tapes) were sent to the Research and Development Center for Teacher Education (R&DCTE) for rating. Systematic sampling (Kerlinger, 1973:130) was used for selection of tapes. The list of subjects generated for the LoU interviews was used to select every third subject. Entry to the list was accomplished by a blind method (closing eyes and moving a finger to a point on the list). If results from the R&DCTE showed that interrater reliabilities of certified, experienced raters were less than 70 percent, further reratings would be necessary. (The purpose of a third rerating cycle is to reach consensus, but obviously only if there is significant disagreement between the first and second ratings, Loucks, Newlove and Hall, 1975:45-46.)

## VIII. STUDENT OUTCOME

Objective measures of student outcome were collected by the School Food Service Supervisor (SFSS). The selected measures are part of routine school system and state reporting data. The following

measures were abstracted: Participation, Total Income from all sales (this accounts for a la carte items), and total Plate Waste. Participation is a measure of how well students like what school food service has to offer and indicates their degree of satisfaction. Total income per Average Daily Participation (ADP) is reported as the number of free, reduced, paid adult, and a la carte sales (by categories and as total sales) divided by ADP. (Adult sales are included in a la carte sales on reports to USDA because these two categories are not reimbursable from the United States Department of Agriculture (USDA) and as such need not be reported by separate categories.) Plate Waste (Garbage) is that waste which is not a part of production and is generated from what is left on the child's plate or tray. Plate waste has always been considered a measure of food preference used to guide menu development. A standard accepted by USDA is one (1) gallon of waste per 100 meals served. More than one gallon of plate waste per 100 meals is excessive. Student outcome is compared by these objective measures: Participation, Total Income, and Plate Waste.

## IX. DATA TREATMENT

Upon completion of data gathering (SoC profiles, LoU ratings, and student outcome data), all files from the third party were obtained in order to match the above three data components for each principal in the sample.

Statistical treatment of the data consisted of using selected components of the following computer packages: Statistical Analysis

System (SAS), Statistical Package for the Social Sciences (SPSS), and Change Facilitator Stage of Concern Questionnaire (CFSocQ) Fortran program. Statistical analysis guided the use of package components in the search to find proper procedures and sequences (Figure 16).

### Test-Retest Study

Two effects bearing on the CFSocQ process concerned the investigator: (1) did respondents seriously and honestly answer the items on the questionnaire or did they mark it "any old way" just to appease the superintendent, School Food Service Supervisor (SFSS), or the investigator? and (2) did the passage of time without any "treatment" alter responses? Retesting of principals selected for the Level of Use (LoU) interview provided the data for the test-retest study. A t-test procedure was used to determine if there was a significant difference between the means from the two testings (test-retest). A standard error of the mean procedure was used to find the standard deviation of the means of responses between the test (pre-test) sample of principals and the retest (post-test) sample of the same principals.

Item Analyses. Item analysis was performed to determine which item responses were missing and in which Stage of Concern (SoC) they occurred, and to determine the greatest frequency of response to measure responses of the most common concerns.

Comparison Measures. Statistical measures from this study are compared with those from the original data of the Concerns Based Adoption Model (CBAM) developers at the Research and Development Center

| PROCEDURE                                | STATISTICAL MEASURE                                                                                                               |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1. SoC Data                              |                                                                                                                                   |
| A. Item Analysis                         | Missing Responses<br>Frequency of Response                                                                                        |
| B. Comparison Measures                   | Means<br>Standard Deviations<br>Cronbach's Alpha                                                                                  |
| (1) Intercorrelations<br>of Scale Scores | Cronbach's Alpha                                                                                                                  |
| C. Test-Retest                           | t Test                                                                                                                            |
| D. SoC Data (Fortran)                    | Raw Scores<br>Percentile Scores<br>Means<br>Standard Deviations<br>High SoC<br>(a) Frequency<br>(b) Percent<br>Profiles (Graphic) |
| 2. LoU Data                              |                                                                                                                                   |
| A. Rating                                | Rerating by Second Party                                                                                                          |

Figure 16. Procedures and Statistical Measures,  
School Principal Concerns Study, Tennessee, May, 1982.

for Teacher Education (R&DCTE). The comparison statistical measures are Means, Standard Deviations, and Cronbach's Alpha for both SoC scale intercorrelations and for interitem correlations.

#### SoC Data

The Fortran program yielded raw and percentile scores for each respondent and for the group under study. The program also provided group means, standard deviations, high SoC frequency and percent, and plotted a graphic profile for each respondent and for the total group. Software developed by Project RISE was used to develop percentile scores and individual graphs.

### X. SUMMARY

This methodology chapter described what was done and how data were accumulated. It remains that the data must be presented, analyzed, and the results discussed. Chapter IV presents the data and analysis.

## CHAPTER IV

### DATA AND ANALYSIS

#### I. INTRODUCTION

This ex post facto field study used concerns theory to assess concerns and behavior of principals in the role of change facilitators. Concerns theory provides the foundation for the Concerns Based Adoption Model (CBAM). The CBAM provides a method of assessing individuals as they become increasingly involved with the implementation of an innovation. The innovation chosen for this study was self-service in the school food service operation. The purpose for assessing principals in their role as change facilitators was to develop a rapid, effective procedure to determine where principals are in the process of facilitating change. In order to develop strategies for helping, school food service supervisors (SFSS) needed to know what concerns principals had and what principals were doing to implement the innovation. Two instruments of the CBAM, Change Facilitator Stage of Concern Questionnaire (CFSocQ) and Level of Use (LoU) developed by the University of Texas Research and Development Center for Teacher Education (R&DCTE) were used to make those determinations.

The purpose of implementing an innovation is to bring about a positive change; a change that improves an outcome. The outcomes for the implementation of self-service are to increase student participation, increase food service sales, and reduce plate waste;

these three components are reported as student outcome data. School data indicate student population age ranges, type of food service serving configuration, and average daily attendance (indicator of school size). The integration of Stages of Concern (SoC), Levels of Use (LoU), school data, and student outcome data provides a basis for SFSS to develop strategies for helping principals in their role as change facilitators.

## II. THE CBAM INSTRUMENTS

### Change Facilitator Stage of Concern Questionnaire (CFSocQ)

A Likert-type scale (with values from 0-7) was used by principals to indicate the intensity of their concerns (Appendix B) about items presented in a 35-item questionnaire (Appendix C). Five items relating to each particular Stage of Concern (SoC) are interspersed throughout the questionnaire. The summation of responses for each group of the five items determined the raw SoC score. Raw scores, used for statistical and other computations, were converted to percentile scores by using a percentile table. Percentile scores were used to draw profiles and to compare the intensity of concerns on one stage with the intensity of concerns on other stages.

### Level of Use (LoU) Interview and Rating

A focused interview with a branching format (Appendix D) was used to assess what change facilitators were doing in relation to implementing an innovation. The 10-15 minute interview was tape-recorded for rating later. Ratings were entered on a rating sheet

(Appendix A) giving eight levels of use in seven behavioral categories and an overall category. The overall (dominant) category rating was used for reporting LoU. Categories not at the dominant, overall category were used to indicate movement either toward the dominant category or away from it. For instance, subject (SID) 3729 in Appendix E shows a predominance of Level of Use IVA (Routine), as seen in the behavioral categories of Knowledge, Sharing and Assessing with Acquiring Information and Planning marked IVA-B (at Routine and with elements of Refinement). Status Reporting and Refocusing were marked at III-IVA (at Mechanical Use but not quite at Routine). Therefore, the overall rating would be dominated by Routine (IVA). Although the behavioral categories of Status Reporting and Refocusing are at the lower level of Mechanical Use (III), the Acquiring Information and Planning categories offset that by having some elements of Refinement (IVB). Therefore, the dominant Level of Use is Refinement, but having two categories moving toward Refinement and two categories moving away. As this principal continues to work with the innovation, it can be predicted that she/he will solve the Mechanical Use problems and have a future Level of Use rating of Routine or better at the categories of Status Reporting and Refocusing while the categories of Acquiring Information and Planning will move to Level of Use Refinement (LoU IVB).

### III. RESPONSE DATA AND ANALYSIS

#### Change Facilitator Stage of Concern Questionnaire (CFSocQ) Data

Principals' responses to the CFSocQ (Appendix B) were marked with values from 0-7. Missing values were not assigned any values if the missing response occurred only once in the five-item group. When two or more responses were missing for the same group of items, the percentile score was compromised. Three principals of the 55 had two or more missing responses and therefore were removed from the study. Responses which were omitted (or missed) by respondents are shown in Table I. Analysis of the missing responses (not more than one in each group of questions) does not compromise the determination of SoC values.

The greatest frequency of responses occurred in Stage of Concern (SoC) Personal and in SoC Refocusing indicating that the same degree of intensity for these concerns was the most frequently marked on a group basis (Table II). Both sets of responses (total population and retest sample population) to the CFSocQ were used giving an  $N=72$  ( $N=52 + 20$ ) yields  $N=72$ . Interpretation of these frequencies indicates that as a group, the principals had low Personal and Refocusing concerns as indicated by the scale values of 0 and 1. The value 0 means "Does not apply to me now" and the value 1 means "Applies to me very little."

#### Level of Use (LoU)

The Levels of Use (LoU) are Nonuse, Orientation, Preparation, Mechanical Use, Routine, Refinement, and Integration. Ratings ( $N=20$ )

TABLE I  
CHANGE FACILITATOR STAGE OF CONCERN QUESTIONNAIRE  
(CFSocQ) MISSING RESPONSES, N=72

| Question Number | Quantity of<br>Missing Responses |
|-----------------|----------------------------------|
| 1               | 1                                |
| 6               | 4                                |
| 10              | 1                                |
| 11              | 1                                |
| 14              | 1                                |
| 18              | 1                                |
| 23              | 1                                |
| 35              | 1                                |
| Total 8         | 11                               |

TABLE II  
 PRINCIPALS HIGHEST FREQUENCY OF RESPONSE ON THE  
 STAGE OF CONCERN QUESTIONNAIRE (30 PERCENT  
 FREQUENCY OR MORE), N=72

| Question Number | Linkert Scale Value | Frequency** | Percent** | SoC |
|-----------------|---------------------|-------------|-----------|-----|
| 2               | 1                   | 24          | 33.33     | 0   |
| 5               | 1                   | 23          | 31.94     | 0   |
| 8               | 0                   | 23          | 31.94     | 2   |
| 8               | 1                   | 26          | 36.11     | 2   |
| 11              | 0                   | 24          | 33.80     | 2   |
| 11              | 1                   | 22          | 30.99     | 2   |
| 19              | 1                   | 35          | 48.61     | 6   |
| 20              | 1                   | 27          | 37.50     | 5   |
| 24              | 1                   | 31          | 43.06     | 2   |
| 26              | 1                   | 39          | 54.17     | 6   |
| 29              | 0                   | 41          | 56.94     | 2   |
| 32              | 1                   | 34          | 47.22     | 6   |
| 33              | 1                   | 24          | 33.33     | 5   |
| 35              | 1                   | 38          | 53.52     | 6   |

\*Low is 0 to 7 High.

\*\*Number of Principals Responding.

of LoU interview tapes are summarized in Appendix E, for the seven behavioral categories (Knowledge, Acquiring Information, Sharing, Assessing, Planning, Status Reporting, Performing). Levels of Use ranged from Nonuse to Routine with five principals having two ratings indicating the direction of developmental movement in some of the behavioral categories. Overall ratings show 13 principals at Nonuse (with two principals moving toward Orientation, one principal at Orientation, one principal at Preparation and five at Routine, with two principals moving toward Refinement). The general impression generated by this group of data is that these principals are in the early phases of implementing an innovation, and that a few principals already have had enough experience with the innovation to be at the Routine stage. The Routine stage signifies the earliest stage of the establishment of the innovation to the point of becoming institutionalized.

### Test-Retest Study

This reliability procedure was initiated for the purpose of determining if the passing of time (three to four weeks) without any new or different treatment would affect principals' responses.

With a sample of 20 principals, the critical  $t$  value at the .95 percent confidence level and 18 degrees of freedom (df) is 2.10. Only two questions (6 percent) had higher  $t$  values (Table III). The  $t$  values ranged from .14 to 2.40 with five questions having  $t$  values above 2.0. These questions came from those grouped for Refocusing (SoC 6) and Consequence (SoC 4) concerns.

Additional  $t$  test analysis was conducted for each SoC. The range was from .39 to 2.97 with only two values greater than 1.00. The

TABLE III

STAGES OF CONCERN (SoC) TEST-RETEST STUDY t-TEST VALUES, n=20,  
SCHOOL PRINCIPAL CONCERNS STUDY, TENNESSEE, MAY, 1982

| SoC | t Value | Question | SoC Group t Value |
|-----|---------|----------|-------------------|
| 0   | .80     | 2        | .84               |
|     | 1.30    | 5        |                   |
|     | .56     | 10       |                   |
|     | .62     | 22       |                   |
|     | 1.33    | 25       |                   |
| 1   | .67     | 1        | .95               |
|     | 1.19    | 7        |                   |
|     | .27     | 12       |                   |
|     | .24     | 16       |                   |
|     | 1.22    | 30       |                   |
| 2   | 1.03    | 8        | .39               |
|     | .33     | 11       |                   |
|     | .59     | 17       |                   |
|     | 1.37    | 24       |                   |
|     | 1.66    | 29       |                   |
| 3   | .65     | 4        | .94               |
|     | .42     | 14       |                   |
|     | 1.66    | 23       |                   |
|     | .32     | 28       |                   |
|     | 1.21    | 34       |                   |
| 4   | .42     | 6        | 1.49              |
|     | -2.01   | 18       |                   |
|     | .90     | 21       |                   |
|     | .37     | 27       |                   |
|     | 2.18    | 31       |                   |
| 5   | 1.65    | 3        | .70               |
|     | .17     | 9        |                   |
|     | .65     | 15       |                   |
|     | .65     | 20       |                   |
|     | .14     | 33       |                   |

TABLE III (Continued)

| SoC | t Value | Question | SoC Group t Value |
|-----|---------|----------|-------------------|
| 6   | 2.40    | 13       | 2.97              |
|     | 2.12    | 19       |                   |
|     | .74     | 26       |                   |
|     | 2.03    | 32       |                   |
|     | .38     | 35       |                   |

NOTE: .95 Confidence Level, 18 Degrees of Freedom (df),  
Critical Value = 2.10.

two highest values occurred in Refocusing (SoC 6) followed by Consequence (SoC 4) concerns. Analysis of percentile scores and SoC group profiles confirm this difference which is most noticeable in the Refocusing stage (SoC 6).

Another confirmation of data which indicates that the group of 55 principals were nonusers of the innovation of self-service in their cafeterias is that only 10 of the 55 principals (18 percent) had self-service. Of those 10 principals who had self-service, four (40 percent) were selected for the sample of principals to be interviewed for their Level of Use of self-service. This means that 40 percent of the principals who had self-service were selected on the basis of their SoC percentile (or profile) scores. The determination of the difference between means ( $t$  test value) provides a measure of stability of scores over time. A low  $t$  value (coefficient of stability) indicates good test-retest reliability and adds to the total reliability of a measure.

Percentile scores show higher values for Consequence and Collaboration of the retest and lower values for Refocusing than for the first test. SoC profiles confirm the differences graphically and statistically. A summary of statistical measures (Table IV) provides data indicating that the sample population represents the total population in approximation of values.

TABLE IV

SUMMARY OF STAGE OF CONCERN (SoC) STATISTICAL MEASURES: MEANS,  
STANDARD DEVIATIONS, FREQUENCY OF HIGHEST RESPONSE AND  
ITS PERCENTAGE BASED ON FORTRAN PROGRAM RUN

| Group                      | Stages of Concern |    |    |    |    |    |    |
|----------------------------|-------------------|----|----|----|----|----|----|
|                            | 0                 | 1  | 2  | 3  | 4  | 5  | 6  |
| <u>Means</u>               |                   |    |    |    |    |    |    |
| Group 0                    | 81                | 58 | 36 | 39 | 13 | 14 | 37 |
| Group 1                    | 77                | 65 | 37 | 42 | 35 | 28 | 26 |
| Group Pre                  | 77                | 59 | 41 | 45 | 23 | 25 | 48 |
| <u>Standard Deviation</u>  |                   |    |    |    |    |    |    |
| Group 0                    | 25                | 31 | 26 | 30 | 21 | 22 | 30 |
| Group 1                    | 30                | 35 | 27 | 32 | 31 | 32 | 32 |
| Group Pre                  | 27                | 34 | 27 | 34 | 30 | 30 | 30 |
| <u>High SoC Frequency</u>  |                   |    |    |    |    |    |    |
| Group 0                    | 32                | 12 | 1  | 2  | 0  | 1  | 4  |
| Group 1                    | 11                | 7  | 0  | 0  | 0  | 1  | 1  |
| Group Pre                  | 8                 | 4  | 1  | 2  | 0  | 1  | 4  |
| <u>Percentage High SoC</u> |                   |    |    |    |    |    |    |
| Group 0                    | 62                | 23 | 2  | 4  | 0  | 2  | 8  |
| Group 1                    | 55                | 35 | 0  | 0  | 0  | 5  | 5  |
| Group Pre                  | 40                | 20 | 5  | 10 | 0  | 5  | 20 |

Group: 0 = All 52 Principals (The Total Population Who Took the CFSocQ.

1 = The 20 Sample Principals Who Took the CFSocQ the Second Time.

Pre = The 20 Principals in the Sample Taken from the Total Population (Their First CFSocQ Scores).

#### IV. CATEGORIZING PRINCIPALS ACCORDING TO THEIR SoC AND LoU

##### Using Principals' SoC Data

Percentile scores for all principals (N=52) are presented in Appendix E. These scores can be converted into individual principal profiles to give a graphic representation of concerns intensity. However, a cursory examination of each SoC column provides an estimate of high and low concerns for the entire population. Appendix G illustrates the group profile for this group of 52 pre-test cases.

The percentile scores can be used to rank order the five highest percentile scores in each SoC column. This procedure was used to categorize subjects for this study's sample group.

The percent of high SoC percentiles show that these principals have intense concerns of Awareness (SoC 0) and Information (SoC 1).

##### Using LoU Ratings of Principals

The richness of information captured on tape recordings of LoU interviews cannot be reflected in the LoU rating process. Listening to a principal respond to fixed-focus interview questions succinctly provides insight into the principal's behavior relative to implementing and working with an innovation. A more laborious process involves transcribing the interview into a hard copy for reading. The LoU rating only provides a quantifiable figure representing a much more complex universe. Listening to a tape recording, or reading a

transcript of the LoU interview, provides insight into the total universe of principal behavior.

An example of important data gleaned from an interview was the consistent response to the LoU question, "Are you considering changing or modifying this innovation." All five principals using the self-service innovation responded similarly in saying that whatever the School Food Service Supervisor (SFSS) wanted to do or change was agreeable with them. Of the principals who were nonusers of the innovation, the question, "Have you ever considered use of self-service" elicited responses which referred to working with the SFSS and her/his people in the cafeteria. Responses from both users and nonusers indicated that in the area of food service, the principal did not exercise unilateral authority and shared responsibility with the SFSS.

However, in working with groups of principals an effective method is to categorize principals according to their LoU overall rating. Table V shows categories of principals arranged according to their LoU rating. The Nonuse (LoU 0) category contains 65 percent of the principals while 25 percent are at Routine (LoU IVA). These two categories of principals could form separate groups for inservice or other similar strategies used to help principals advance the change process.

TABLE V  
CATEGORIES OF PRINCIPALS BY LEVEL OF USE (LoU) RATINGS,  
n=20,\* SCHOOL PRINCIPAL CONCERNS STUDY,  
TENNESSEE, 1982

| LoU                | 0<br>Nonuse | I<br>Orientation | II<br>Preparation | IVA<br>Routine |
|--------------------|-------------|------------------|-------------------|----------------|
|                    | SID* 0005   | SID* 0090        | SID* 0075         | SID* 0040      |
|                    | 0025        |                  |                   | 2261           |
|                    | 0035        |                  |                   | 3651           |
|                    | 0055        |                  |                   | 3729           |
|                    | 0095        |                  |                   | 5601           |
|                    | 0115        |                  |                   |                |
|                    | 0150        |                  |                   |                |
|                    | 0155        |                  |                   |                |
|                    | 0175        |                  |                   |                |
|                    | 0205        |                  |                   |                |
|                    | 0820        |                  |                   |                |
|                    | 4031        |                  |                   |                |
|                    | 4852        |                  |                   |                |
| Total              | 13          | 1                | 1                 | 5              |
| Percent of Total** | 65          | 5                | 5                 | 25             |

\*SID = Subject Identifying Number

\*\*Sample (n=20)

V. THE DETERMINATION AND VERIFICATION OF A POINT IN STAGE  
OF CONCERN (SoC) AND LEVEL OF USE (LoU) WHERE PRINCIPALS  
SHIFT FOCUS FROM PROGRAM MANAGEMENT TO STUDENT OUTCOME

The theoretical constructs of both measures, Stage of Concern (SoC) and Level of Use (LoU), provide the basis for a focal point separating program management considerations from emphasis on student outcome (Figure 17 for SoC and Figure 18 for LoU).

Selection of the sample of principals to be used for LoU ratings was accomplished by hypothesizing that the point of separation in SoC data from management to student outcome occurred between Management (SoC 3) and Consequence (SoC 4). A difference in percentile scores was evident when principals were divided to show principals acting as managers (concerned about program) and principals acting as leaders (concerned with student outcome) (Table VI).

All manager scores were lower at Consequence (SoC 4) than at Management (SoC 3) while 60 percent of leader scores were higher at Consequence (SoC 4) than at Management (SoC 3). The average percentile score (Table VI) for the manager group is 7.25 at Consequence (SoC 4) while the leader score is 38.6. At the management stage (SoC 3), the manager group had a score of 56.88 while the leader group had a score of 30.9. This same pattern exists throughout the scale scores except at the Information stage (SoC 1) where the average scores were 64.38 for managers and 64.5 for leaders. However, the greatest change in scores between managers and leaders occurs between the stages of Management (SoC 3) and Consequence (SoC 4).

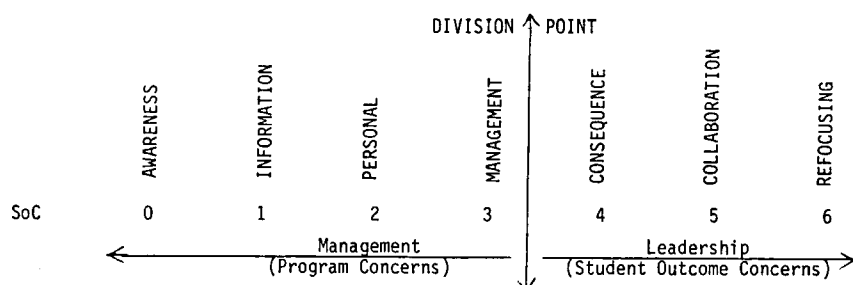


Figure 17. Division Point in Stages of Concern (SoC) Separating Management (Program Concerns) from Leadership (Student Outcome Concerns).

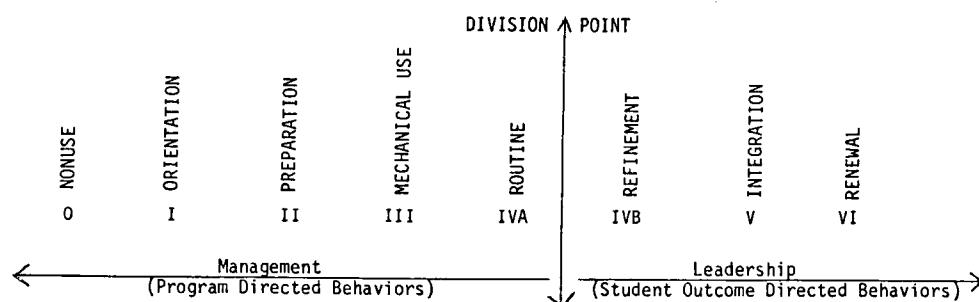


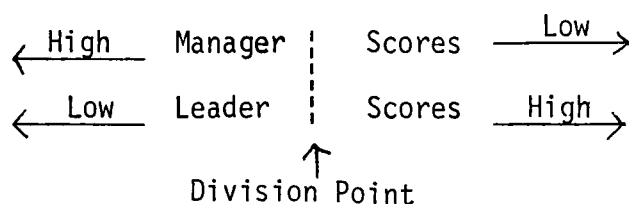
Figure 18. Division Point in Level of Use (LoU) Separating Management (Program Directed) Behaviors from Leadership (Student Outcome Directed) Behaviors

TABLE VI  
USING PERCENTILE SCORES TO CATEGORIZE PRINCIPALS

|                       |      | SoC Percentiles |    |    |    |    |    |    |  |
|-----------------------|------|-----------------|----|----|----|----|----|----|--|
|                       |      | 0               | 1  | 2  | 3  | 4  | 5  | 6  |  |
| Manager Profiles<br>↑ | SID* |                 |    |    |    |    |    |    |  |
|                       | 0005 | 87              | 89 | 43 | 44 | 5  | 4  | 31 |  |
|                       | 90   | 97              | 87 | 56 | 86 | 16 | 32 | 18 |  |
|                       | 150  | 69              | 40 | 39 | 26 | 2  | 7  | 23 |  |
|                       | 3651 | 87              | 46 | 62 | 8  | 6  | 0  | 3  |  |
|                       | 4852 | 99              | 8  | 0  | 26 | 6  | 0  | 55 |  |
|                       | 25   | 87              | 92 | 39 | 96 | 3  | 0  | 47 |  |
|                       | 0095 | 99              | 69 | 89 | 91 | 7  | 5  | 47 |  |
|                       | 115  | 96              | 84 | 89 | 78 | 13 | 24 | 86 |  |
| Leader Profiles<br>↓  | 0175 | 97              | 87 | 62 | 55 | 68 | 21 | 90 |  |
|                       | 0035 | 97              | 81 | 24 | 94 | 3  | 8  | 98 |  |
|                       | 205  | 31              | 5  | 7  | 11 | 39 | 3  | 55 |  |
|                       | 820  | 2               | 3  | 0  | 2  | 1  | 0  | 13 |  |
|                       | 3729 | 81              | 46 | 62 | 11 | 97 | 97 | 23 |  |
|                       | 4031 | 81              | 76 | 18 | 55 | 4  | 3  | 96 |  |
|                       | 2261 | 87              | 87 | 73 | 60 | 82 | 82 | 55 |  |
|                       | 5601 | 31              | 92 | 4  | 5  | 68 | 54 | 13 |  |
|                       | 55   | 75              | 69 | 18 | 11 | 4  | 67 | 55 |  |
|                       | 75   | 98              | 99 | 43 | 5  | 20 | 67 | 13 |  |

Division Point

KEY:



By linking LoU ratings, food service type, and plate waste (Table VII), it becomes evident that there is a dramatic shift at Routine (LoU IVA) in terms of type of service and plate waste. Principals (SID) 820 at Nonuse (LoU 0) had Offer versus Serve as a food service type and had the third highest plate waste in the sample population. However, all subjects at Routine (LoU IV A) had lower plate waste values. SID 2261 (Table VII) had Offer versus Serve (as did SID 820) but in addition, has the second lowest plate waste value.

#### VI. USING STUDENT OUTCOME TO ASSESS THE RELATIONSHIP BETWEEN STAGE OF CONCERN (SoC) AND LEVEL OF USE (LoU)

The LoU ratings and SoC percentile scores for this study, Table VII show a slight pattern. The group of subjects with a LoU rating at Nonuse Level (SoC 0) had lower average SoC percentile scores at the Consequence Level (SoC 4) and Collaboration stages (SoC 5) (12.08 and 10.92 respectively) than did the group at LoU Routine Level (LoU IVA) with average scores of 53.0 respectively. Confirmation of this tendency would require a sample to rate at the higher LoUs of Refinement, Integration and Renewal (IV B, V, VI) and with highest peak SoC percentile scores at Consequence (SoC 4) and Collaboration (SoC 5) stages. However, group average percentile scores (Table VIII), for principals grouped according to their Level of Use rating, show that the group at the Nonuse level (LoU 0) had a peak score of 52.54 at Management (SoC 3) while the group of principals at the Routine Level (LoU IV A) had a low score of 23.8 at the Management stage (SoC 3). This means that principals at the Nonuse Level were more concerned

TABLE VII  
STUDENT OUTCOME MEASURES, LEVEL OF USE (LoU),  
AND STAGE OF CONCERN (SoC) PERCENTILES OF  
PRINCIPALS BY FOOD SERVICE TYPE, n=20,  
SCHOOL PRINCIPAL CONCERNS STUDY,  
TENNESSEE, MAY, 1982

| SID                | Food Service Type | Percent Participation | Percent All Other Lunch Sales | Plate Waste (Cups) | LoU | 0     | 1     | 2     | 3     | 4     | 5     | 6     |
|--------------------|-------------------|-----------------------|-------------------------------|--------------------|-----|-------|-------|-------|-------|-------|-------|-------|
| 0005               | R                 | 70.73                 | 5.02                          | .384               | 0   | 87    | 89    | 43    | 44    | 5     | 4     | 31    |
| 0090               | R                 | 85.67                 | 17.37                         | .226               | I   | 97    | 87    | 56    | 86    | 16    | 32    | 18    |
| 0150               | R                 | 70.88                 | 8.37                          | .190               | 0   | 69    | 40    | 39    | 26    | 2     | 7     | 23    |
| 4852               | R                 | 76.14                 | 31.59                         | .147               | 0   | 99    | 8     | 0     | 26    | 6     | 0     | 55    |
| 0025               | R                 | 67.6                  | 7.02                          | .523               | 0   | 87    | 92    | 39    | 96    | 3     | 0     | 47    |
| 0095               | R                 | 68.05                 | 23.05                         | .387               | 0   | 99    | 69    | 89    | 91    | 7     | 5     | 47    |
| 0115               | R                 | 61.94                 | 4.80                          | .288               | 0   | 96    | 84    | 89    | 78    | 13    | 24    | 86    |
| 0175               | R                 | 77.55                 | 7.03                          | .150               | 0   | 97    | 87    | 62    | 55    | 68    | 21    | 90    |
| 0035               | R                 | 87.21                 | 7.36                          | .136               | 0   | 97    | 81    | 24    | 94    | 3     | 8     | 98    |
| 0205               | R                 | 83.48                 | 5.90                          | .100               | 0   | 31    | 5     | 7     | 11    | 39    | 3     | 55    |
| 4031               | R                 | 62.69                 | 142.11                        | .162               | 0   | 81    | 76    | 18    | 55    | 4     | 3     | 96    |
| 0055               | R                 | 69.90                 | 7.59                          | .272               | 0   | 75    | 69    | 18    | 11    | 4     | 67    | 55    |
| 0075               | R                 | 69.90                 | 9.10                          | .579               | II  | 98    | 99    | 43    | 5     | 20    | 67    | 13    |
| 0155               | R                 | 64.59                 | 11.81                         | .160               | 0   | 81    | 5     | 30    | 94    | 2     | 0     | 86    |
| Group 'R' Average  |                   | 72.60                 | 20.53                         | .265               |     | 85.29 | 63.64 | 39.79 | 55.14 | 13.71 | 17.21 | 57.14 |
| 0820               | OS                | 39.31                 | 63.12                         | .466               | 0   | 2     | 3     | 0     | 2     | 1     | 0     | 13    |
| 2261               | OS                | 27.44                 | 14.01                         | .022               | IYA | 87    | 87    | 73    | 60    | 82    | 82    | 55    |
| Group 'OS' Average |                   | 33.88                 | 38.57                         | .244               |     | 44.50 | 45    | 36.50 | 31    | 41.50 | 41    | 34    |
| 3729               | SS                | 91.63                 | 21.58                         | .053               | IYA | 81    | 46    | 62    | 11    | 97    | 97    | 23    |
| 5601               |                   | 78.88                 | 4.15                          | .043               | IYA | 31    | 92    | 4     | 5     | 68    | 54    | 13    |
| 0040               | SS                | 63.27                 | 20.08                         | .043               | IYA | 48    | 13    | 56    | 35    | 16    | 32    | 47    |
| 3651               | SS                | 92.14                 | 11.60                         | .016               | IYA | 87    | 46    | 62    | 8     | 6     | 0     | 3     |
| Group 'SS' Average |                   | 81.48                 | 14.35                         | .039               |     | 61.75 | 49.25 | 46    | 14.75 | 46.75 | 45.75 | 21.50 |

KEY: R = Regular United States Department of Agriculture (USDA)  
OS = Offer vs. Serve (May or May Not Be Choice Within USDA)  
SS = Self-Service (May or May Not Be Choice)

PERCENT PARTICIPATION = Percent Participation or ADP/ADA

PERCENT LUNCH SALES = (Average Daily All Other/ADP)

LoU: 0 = Nonuse  
I = Orientation  
II = Preparation  
IYA = Routine

TABLE VIII  
 PRINCIPALS LEVEL OF USE (LoU) RATING AND STAGE OF  
 CONCERN (SoC) PERCENTILE SCORES, n=20,  
 SCHOOL PRINCIPAL CONCERNS STUDY,  
 TENNESSEE, May, 1982

| LoU               | SID* | SoC Percentile Scores |       |       |       |       |       |       |
|-------------------|------|-----------------------|-------|-------|-------|-------|-------|-------|
|                   |      | 0                     | 1     | 2     | 3     | 4     | 5     | 6     |
| 0                 | 0005 | 87                    | 89    | 43    | 44    | 5     | 4     | 31    |
|                   | 0025 | 87                    | 92    | 39    | 96    | 3     | 0     | 47    |
|                   | 0035 | 97                    | 81    | 24    | 94    | 3     | 8     | 98    |
|                   | 0055 | 75                    | 69    | 18    | 11    | 4     | 67    | 55    |
|                   | 0095 | 99                    | 69    | 89    | 91    | 7     | 5     | 47    |
|                   | 0115 | 96                    | 84    | 89    | 78    | 13    | 24    | 86    |
|                   | 0150 | 69                    | 40    | 39    | 26    | 2     | 7     | 23    |
|                   | 0155 | 81                    | 5     | 30    | 94    | 2     | 0     | 86    |
|                   | 0175 | 97                    | 87    | 62    | 55    | 68    | 21    | 90    |
|                   | 0205 | 31                    | 5     | 7     | 11    | 39    | 3     | 55    |
|                   | 0820 | 2                     | 3     | 0     | 2     | 1     | 0     | 13    |
|                   | 4031 | 81                    | 76    | 18    | 55    | 4     | 3     | 96    |
|                   | 4852 | 99                    | 8     | 0     | 26    | 6     | 0     | 55    |
| 0 Average Score   |      | 77                    | 54.46 | 35.23 | 32.54 | 12.08 | 10.92 | 60.15 |
| I                 | 0090 | 97                    | 87    | 56    | 86    | 16    | 32    | 18    |
|                   | 0075 | 98                    | 99    | 43    | 5     | 20    | 67    | 13    |
| IVA               | 0040 | 48                    | 13    | 56    | 35    | 16    | 32    | 47    |
|                   | 2261 | 87                    | 87    | 73    | 60    | 82    | 82    | 55    |
|                   | 3651 | 87                    | 46    | 62    | 8     | 6     | 0     | 3     |
|                   | 3729 | 81                    | 46    | 62    | 11    | 97    | 97    | 23    |
|                   | 5601 | 31                    | 92    | 4     | 5     | 68    | 54    | 13    |
| IVA Average Score |      | 66.8                  | 56.8  | 51.4  | 23.8  | 53.8  | 53    | 28.2  |

\*SID = Subject Identification Number

LOU: = 0 = Nonuse  
 I = Orientation  
 II = Preparation  
 III = Mechanical Use  
 IVA = Routine

about how to facilitate the management of self-service than they were about student outcome concerns. Conversely, principals using self-service on a routine basis were minimally concerned with facilitating management of self-service but were concerned with student outcomes of Consequence and Collaboration.

Coupling student outcome measures (participation, lunch sales, and plate waste) with both Levels of Use (LoU) ratings and Stages of Concern (SoC) percentile scores according to type of food service is shown in Table VIII. Group averages are used for comparisons between groups. Fourteen schools (70 percent) had regular United States Department of Agriculture (USDA) service (R), two schools (10 percent) had the "offer versus serve" type of service (OS), and four schools (20 percent) used the self-service (SS) innovation.

Participation showed 72.6 percent for the regular service (R) group, 81.48 percent for the self-service (SS) group, and 33.88 percent for the offer versus serve (OS) group. The two schools in the OS group were high schools (Appendix H) with different lunch options for students. Those options were open and closed campuses. An open campus for lunch means that students can leave school during the lunch period while a closed campus means students must remain on the school grounds. Principal 0820 had the closed campus, while Principal 2261 had an open campus with school food service competing with lunch at home or fast food operations, restaurants and other commercial food establishments. The meaning for open and closed campus in terms of participation is that school food service in a open campus school must offer much more to students than in a closed campus school where all students are

"captive" customers. However, participation for this OS group is the lowest of the three groups.

Percent All Other Lunch Sales show group averages for the R group to be 20.53, for the OS group 38.57 and the SS group 14.35. The data indicate that self-service does not generate as much "All Other" sales as regular service, and that offer versus serve generates the greatest amount.

Plate waste data show group averages of .265 cup for group R, .244 cup for the OS group, and .039 cup for the SS group. The USDA accepted standard for plate waste is .160 cup per participant (1 gallon per 100 participants). The SS group exceeded the USDA standard.

Level of Use (LoU) ratings for the R group ranged from Nonuse (LoU 0) to Preparation (LoU II). Twelve principals (60 percent) were at the Nonuse Level (LoU I) and Preparation (LoU II). The two principals of the OS group were at the Nonuse Level (LoU I) and the Routine Level (LoU IV A). School data (Appendix H) showed principal 2261 as having offer versus serve, but the Level of Use interview revealed that in practice, self-service was more in evidence than strictly offer versus serve. A salad bar was in use, students had many choices within meal groups, but other than the salad bar, all items were preplated so that portion size did not vary. This high school was the only one in the study that had an open campus. However, plate waste was lower than the closed campus high school and the principal was at the Routine Level of Use.

Stages of Concern group average data (Table VIII) showed the R group of principals being highest at stages Awareness (SoC 0),

Information (SoC 1), Management (SoC 3), and Refocusing (SoC 6). The group's lowest concerns were in the student outcome concerns of Consequence (SoC 4) and Collaboration (SoC 5). Group OS average percentile scores were in a narrow range of 31 to 45 for 11 stages. The lowest concern occurred at Management (SoC 3) with a reversal at Consequence (SoC 4) and Collaboration (SoC 5) being the third and fourth highest concerns. The self-service group, in contrast to the regular service group, had the lowest average percentile score at the Management (SoC 3) stage and the highest average percentile scores at Consequence (SoC 4) and Collaboration (SoC 5).

In summary, the self-service group was the lowest in percent all other sales, plate waste, Management and Refocusing concerns, and was the highest in percent participation, Level of Use (Routine - IVA) Consequence and Collaboration (student outcome concerns). In contrast, the regular service group was the lowest in Level of Use, Consequence and Collaboration concerns (SoCs 4 and 5), and the highest in plate waste, Awareness, Information, Management and Refocusing concerns (SoCs 0, 1, 3, and 6).

#### VIII. USING CBAM DATA TO PLAN INSERVICE TRAINING

##### Change Facilitator Stage of Concern Questionnaire (CFSocQ) Data

SoC data provides percentile values indicating intensity of concern. The highest percentile value indicates the greatest intensity of concern. By dividing the seven stages into two groups, management and leadership, the classification of respondents is simplified. The suggested division point is between Management (SoC 3) and Consequence

(SoC 4). If the highest SoC value occurs in SoC 0, 1, 2, or 3, the respondent is placed in Group A, but if the highest SoC value falls in SoC 4, 5, or 6, the respondent is placed in Group B. Group A includes all program management concerns while Group B represents leader concerns.

#### Level of Use (LoU) Data

LoU data provided overall ratings. In all ratings except Routine (LoU IV A), the theoretical construct is either program oriented or student outcome oriented. Within the Routine level however, the focus shifts. The shift depends upon how long the respondent (principal) has been at the Routine level. The only indication of movement would be the consideration of the assessment of the seven levels of use behavioral categories (Knowledge, Acquiring Information, Sharing, Assessing, Planning, Status Reporting, and Performing). If the assessment showed one out of the seven behavioral categories at Mechanical Use (LoU III) and the other six at Routine, it would mean that the respondent (principal) was not yet at 100 percent Routine in use of the innovation. If however, the assessment showed that six behavioral categories were at Routine (IV A) and one was at Refinement (IV B), then it would mean that the respondent was thinking about student outcome in some respect and wanted to refine or adjust some facet of the self-service innovation to improve student outcome.

Based on the theoretical construct of Levels of Use, the rating scale should be divided between Routine (LoU IV A) and Refinement

(LoU IV B) (Figure 19). However, in this study (Appendix E) only one principal (SID 0040) had all seven behavioral categories at Routine (IV A), one principal (SID 2261) had six categories at Routine (IV A) and one category at Refocusing (IV B), one principal (SID 3651) had five categories at Routine (IV A) and two at Refinement (IV B), and two principals (SIDs 3729 and 5601) had an overall rating of Routine (IV A) but had both Mechanical Use and Refinement ratings in the behavioral categories.

Therefore, the data suggest that the dividing line between program operation and student outcome is actually between Mechanical Use (LoU III) and Routine Use (LoU IV A).

If the LoU rating scale is divided between Mechanical and Routine (LoU IV A), then the ratings of LoU Nonuse through Mechanical (0, I, II and III) are placed in Group A, but if LoU ratings are Routine, Refinement, Integration or Renewal (IV A, IV B, V or VI), respondents are placed in Group B.

A two dimensional grid was developed (Figure 19) for this study which allows plotting of both highest SoC and overall LoU rating. Group A principals are placed in area A and Group B principals in area B. Figure 20 illustrates the result of plotting the highest SoC and the overall LoU rating for the 20 principals of this study. The actual division point for Levels of Use as determined in this study is moved between Mechanical Use (LoU III) and Routine Use (LoU IV A).

|               |                | STAGES OF CONCERN |                                          |               |                      |                                          |                 |             |
|---------------|----------------|-------------------|------------------------------------------|---------------|----------------------|------------------------------------------|-----------------|-------------|
|               |                | 6 REFOCUSING      | 5 COLLABORATION                          | 4 CONSEQUENCE | 3 MANAGEMENT         | 2 PERSONAL                               | 1 INFORMATIONAL | 0 AWARENESS |
| LEVELS OF USE | VI RENEWAL     |                   |                                          |               |                      |                                          |                 |             |
|               | V INTEGRATIVE  |                   | Area B<br>Leadership                     |               |                      | Area Y<br>High Use<br>Low Concern Stages |                 |             |
|               | IVB REFINEMENT |                   |                                          |               |                      |                                          |                 |             |
|               | IVA ROUTINE    |                   |                                          |               |                      |                                          |                 |             |
|               | III MECHANICAL |                   | Area Z<br>High Concern Stages<br>Low Use |               |                      |                                          |                 |             |
|               | II PREPARATION |                   |                                          |               | Area A<br>Management |                                          |                 |             |
|               | I ORIENTATION  |                   |                                          |               |                      |                                          |                 |             |
|               | 0 NONUSE       |                   |                                          |               |                      |                                          |                 |             |

Figure 19. Management/Leadership Areas.

|               |                 | STAGES OF CONCERN |     |                 |     |               |     |              |     |            |     |                 |     |             |     |
|---------------|-----------------|-------------------|-----|-----------------|-----|---------------|-----|--------------|-----|------------|-----|-----------------|-----|-------------|-----|
|               |                 | 6 REFOCUSING      |     | 5 COLLABORATION |     | 4 CONSEQUENCE |     | 3 MANAGEMENT |     | 2 PERSONAL |     | 1 INFORMATIONAL |     | 0 AWARENESS |     |
| LEVELS OF USE | VI RENEWAL      | 6                 | VI  | 5               | VI  | 4             | VI  | 3            | VI  | 2          | VI  | 1               | VI  | 0           | VI  |
|               | V INTEGRATIVE   | 6                 | V   | 5               | V   | 4             | V   | 3            | V   | 2          | V   | 1               | V   | 0           | V   |
|               | IVB REFINEMENT* | 6                 | IVB | 5               | IVB | 4             | IVB | 3            | IVB | 2          | IVB | 1               | IVB | 0           | IVB |
|               | IVA ROUTINE**   | 6                 | IVA | 5               | IVA | 4             | IVA | 3            | IVA | 2          | IVA | 1               | IVA | 0           | IVA |
|               | III MECHANICAL  | 6                 | III | 5               | III | 4             | III | 3            | III | 2          | III | 1               | III | 0           | III |
|               | II PREPARATION  | 6                 | II  | 5               | II  | 4             | II  | 3            | II  | 2          | II  | 1               | II  | 0           | II  |
|               | I ORIENTATION   | 6                 | I   | 5               | I   | 4             | I   | 3            | I   | 2          | I   | 1               | I   | 0           | I   |
|               | 0 NONUSE        | 6                 | 0   | 5               | 0   | 4             | 0   | 3            | 0   | 2          | 0   | 1               | 0   | 0           | 0   |

Figure 20. Management/Leadership Matrix.

\*Hypothetical Division from Theoretical Construct.

\*\*Actual Division as Determined by this Study.

X = Principal

Several options are available to group the principals in Figure 20. One option would be to redraw the dividing lines (as was done for the LoU); another would be to select groups at the same LoU, but with varying SoCs. More complexity could be added to the grouping process by considering the rank order of the SoCs. However, the SoC/LoU grid allows inservice planners to develop a sense of where principals are in the implementation process and what their greatest concern is.

#### VIII. COMPARISON OF STUDIES

The means, standard deviations (SD) and alpha coefficients are presented in Table IX for studies of Stages of Concern. Comparisons can be made between this study and two others conducted by the University of Texas Research and Development Center for Teacher Education (R&DCTE). The two studies by the R&DCTE were the original reliability studies for the first 35 item Stage of Concern Questionnaire (SoCQ) which had a population of 830 teachers and other classroom educators, and the Change Facilitator Stage of Concern Questionnaire (CFSocQ) which had a population of 589 Change Facilitators. Only the alpha coefficient is presented for the SoCQ (N=830) in Table IX.

The mean for the standard curve of each stage of concern is 17.5. The average mean for this study (N=52) is 13.74 while the average mean for the R&DCTE study (N=589) is 17.24. This current study (N=52) had only one mean (SoC 2) above 17.5 while the R&DCTE study had three (SoCs 3, 4, and 5). The lowest mean values occurred at Refocusing for both studies.

TABLE IX  
 STATISTICAL MEASURES FOR THE CFSocQ AND ORIGINAL SoCQ  
 AS DETERMINED BY THIS SCHOOL PRINCIPAL CONCERNS  
 STUDY AND THOSE OF THE UNIVERSITY OF TEXAS  
 RESEARCH AND DEVELOPMENT CENTER FOR  
 TEACHER EDUCATION (R&DCTE)

| *N=  | Stage | 0     | 1     | 2     | 3     | 4     | 5     | 6    |
|------|-------|-------|-------|-------|-------|-------|-------|------|
| 589  | Mean  | 11.99 | 16.91 | 13.04 | 17.90 | 25.88 | 25.86 | 9.07 |
| 52   | Mean  | 16.92 | 18.90 | 9.19  | 13.48 | 16.00 | 13.04 | 8.65 |
| 589  | S.D.  | 5.94  | 9.49  | 6.32  | 7.30  | 6.34  | 6.99  | 6.52 |
| 52   | S.D.  | 6.82  | 10.15 | 5.66  | 7.97  | 7.81  | 8.21  | 5.27 |
| 589  | Alpha | .61   | .85   | .62   | .72   | .70   | .77   | .81  |
| 52   | Alpha | .85   | .57   | .61   | .78   | .79   | .84   | .53  |
| 830* | Alpha | .64   | .78   | .83   | .75   | .76   | .82   | .71  |

\*N = 589 (R&DCTE Reliability and Validity CFSocQ Study).  
 = 52 (Current CFSocQ Study).  
 = 830 (R&DCTE Reliability and Validity Original SoCQ Study).

S.D. = Standard Deviation

The difference in standard deviations ranged from a low of .66 (SoCs 1 and 2) to a high of 1.47 (SoC 4). The smallest differences occur from Awareness to Management (SoCs 0, 1, 2, and 3) and the largest from Consequence to Refocusing (SoCs 4, 5, and 6).

Alpha coefficients are all above .50 with the lowest being .53 at Refocusing (SoC 6) for the current study of 52 principals. The R&DCTE alpha values at SoC 6 are .81 and .71. However, values above .50 give a high degree of reliability. The highest alpha values are .85 at Awareness (SoC 0) for this current study and at Information (SoC 1) for the R&DCTE (N=589) study. The similarity between R&DCTE values and this study's data suggests that reliabilities of the three studies are similar.

The low values for intercorrelations between SoC scale scores (Table X) indicate that each stage was distinct and separate from the others. The only exception is the correlation between Consequence (SoC 4) and Collaboration (SoC 5) where the values are .79, .67, and .58 and therefore indicate a medium positive correlation. Rutherford, Hall, and George, (1982:15) discussed the issue and attributed the high correlation on the basis that if respondents were high on Consequence (SoC 4) they were also high on Collaboration (SoC 5).

### Reliability Ratings

Reliability of LoU rating is accomplished by a trained second party rerating the interview tape. If a rating conflict occurs, a third party rerates the interview tape. All three ratings are compared and discrepancies discussed by the three raters for the purpose of reaching consensus.

TABLE X  
INTERCORRELATIONS OF SCALE SCORES FOR COMPARISONS  
BETWEEN VALUES OBTAINED FOR THIS SCHOOL  
PRINCIPAL CONCERNS STUDY AND STUDIES  
CONDUCTED BY THE UNIVERSITY OF TEXAS  
RESEARCH AND DEVELOPMENT CENTER FOR  
TEACHER EDUCATION (R&DCTE)

| SoC N=* | 1   | 2   | 3   | 4    | 5    | 6    |
|---------|-----|-----|-----|------|------|------|
| 0 52    | .03 | .38 | .36 | .08  | .02  | .14  |
| 589     | .15 | .19 | .23 | -.15 | -.21 | .22  |
| 830     | .48 | .39 | .13 | -.27 | -.30 | -.16 |
| 1 52    |     | .31 | .24 | .33  | .36  | .00  |
| 589     |     | .24 | .09 | .23  | .18  | .05  |
| 830     |     | .81 | .32 | .19  | .18  | .25  |
| 2 52    |     |     | .55 | .48  | .42  | .28  |
| 589     |     |     | .37 | .19  | .05  | .34  |
| 830     |     |     | .24 | .23  | .18  | .25  |
| 3 52    |     |     |     | .29  | .18  | .49  |
| 589     |     |     |     | .32  | .20  | .09  |
| 830     |     |     |     | .24  | .12  | .37  |
| 4 52    |     |     |     |      | .79  | .24  |
| 589     |     |     |     |      | .67  | -.06 |
| 830     |     |     |     |      | .58  | .57  |
| 5 52    |     |     |     |      |      | .17  |
| 589     |     |     |     |      |      | -.15 |
| 830     |     |     |     |      |      | .49  |

\*N = 52 (Current School Principal Concerns Study Using the CFSocQ)

589 (R&DCTE Reliability and Validity CFSocQ Study).

830 (R&DCTE Reliability and Validity Original SocQ Study).

Interview tapes from this study were rerated by trained, certified raters. Agreement on overall LoU rating was 100 percent therefore no further reratings were necessary.

#### Use of SoC Computer Programs

The greatest advantage in using the computer is that many combinations and large numbers of data can be processed in a short time. The CBAM Fortran program processes SoC responses and produces data for the group of principals to be considered. Both individual percentiles and profiles are developed, and a group profile, group percentiles, means, standard deviations, high SoC frequency and percent high SoC frequency are generated. The Apple II computer program from Project RISE also processes SoC responses, and was used in this study to generate individual profiles.

The use of the computer to generate data, particularly SoC data, depends upon what the data will be used for and how many subjects will be processed. The investigator found that for initial percentile score computations and generation of the 55 principal profiles it was relatively easy to do by hand and mental computation. However, when more sophisticated procedures were needed--i.e., rank order of scores, comparisons, statistical computation using raw scale scores, etc.--the use of the computer became increasingly important. The same was true of Level of Use data: as long as procedures were relatively straightforward and limited to the basics, hand processing was adequate; but as soon as comparisons with other data became necessary, the use of the computer became expedient.

A point is reached in computer generated data where the analysis of the data is so complex as to detract from its purpose. Therefore, it is important to seriously consider and weigh the practicality of using hand processing or computer processing of data for each application of the Concerns Based Adoption Model instruments and procedures.

#### IX. SUMMARY

The 52 principals responding to the Change Facilitator Stage of Concern Questionnaire (CFSocQ) showed (on a group basis) highest peak scores in Awareness concerns and had Information concerns as the second highest peak score. Level of Use (LoU) ratings of a representative sample (n=20) indicated that 65 percent of the sample principals were at the level of nonusers of the self-service innovation. School system data showed that 18 percent (10 schools) of 52 schools in three school systems had the self-service innovation. Of that 18 percent, half (7 percent or 5 schools) had principals who responded with the highest percentile scores in Consequence, Collaboration, or Refocusing Stages of Concern (leadership area of concerns) and also had Level of Use ratings at the Routine level. The procedure of selecting principals for the sample group was based on selecting five principals (the maximum number to be selected) with the highest percentile scores. Five principals with high percentile scores in the area of leadership were selected and were found to be using the self-service innovation at the Routine level.

A chart was developed so that Stage of Concern percentile scores and Level of Use ratings could be combined and grouped into similar categories. Nine groups were identified and placed into four Level of Use categories and four Stage of Concern categories. No Level of Use ratings were above the Routine level.

Student outcome data showed that principals of schools using self-service in their food service operation had the lowest plate waste of the sample group.

A test-retest procedure resulted in showing that the Change Facilitator Stage of Concern Questionnaire (CFSocQ) had good stability, as measured by a t-test, in all stages except Refocusing.

In a comparison of values (means, standard deviations, Cronbach's Alpha, inter-item correlations and intercorrelations of scale scores) obtained by the R&DCTE and from this study, the comparisons showed similarity.

## CHAPTER V

### FINDINGS AND DISCUSSION

#### I. INTRODUCTION

This field study applied change theory to school principals. The theoretical constructs of the Concerns Based Adoption Model (CBAM) were used to assess principals in their role of change facilitators as they implemented the non-instructional innovation of self-service in their cafeterias. It was found that instruments of the CBAM can be used to categorize principals so that they can be helped in their role of change facilitator. A division point was found in both measures of the CBAM, Stages of Concern (SoC) and Level of Use (LoU), where principals (change facilitators) changed their focus from program concerns and behavior to student outcome concerns and behavior. The most dramatic student outcome was the reduction in plate waste. The forecasting value of the two measures, SoC and LoU, were demonstrated. As a secondary purpose, reliability and validity data from this study were compared to other studies which were based on instructional innovations.

#### II. HOW THE CBAM INSTRUMENTS, CHANGE FACILITATOR STAGES OF CONCERN (CFSocQ), AND LEVEL OF USE (LoU) RATING CATEGORIZE STAGES OF DEVELOPMENT OF PRINCIPALS INVOLVED WITH AN INNOVATION

The 52 principals who participated in this study were placed into eight categories according to their Change Facilitator Stage of

Concern (CFSoc) percentile scores and profile configurations. In this categorization, a difficulty was encountered with profiles showing several peaks (or several high percentile scores), a configuration that was contrary to the typical hypothesized profiles published by the University of Texas Research and Development Center for Teacher Education at Austin (R&DCTE) (page 46). Profiles with several peak scores were considered as atypical. The R&DCTE manuals discussed the issue of several high peaks occurring on a profile, and concluded that a careful and thoughtful analysis should be made to determine the cause. During the Level of Use (LoU) interview for these atypical profiles, it was discovered that usually a serious event such as a family crisis, a pending school closing, or retirement concerns were of such magnitude that they overshadowed any other concerns.

The eight categories used to place principals included the seven stages of the SoC and an atypical category. The five highest percentile scores in each of the SoC stages of Personal, Management, Consequence, Collaboration, and Refocusing Concerns and the atypical category were used to select 20 principals (n=20) for the LoU interview.

The LoU rating process provided clearer categorizations of school principals than did the CFSoc process. No responses from the interviews caused ratings to vary from the expected developmental pattern. The rules for rating did not allow for marking any variation as only one level could be chosen for the overall rating. The overall rating is used to report LoU. However, the importance of the full

range of categorical ratings provides an indication of the direction of use and therefore has predictive value.

The LoU process found that 13 (65 percent) out of the sample of 20 principals were at the Nonuse level, one principal was at the Orientation level, one at the Preparation level, and five principals (25 percent) were at the Routine level of use.

Therefore, school principals, acting as change facilitators, can be categorized according to their SoC score reported as the highest percentile score or the highest profile peak (except in the Awareness stage) and their LoU rating (reported as the overall rating).

### III. A DIVISION POINT BETWEEN CHANGE FACILITATOR STAGE OF CONCERN (SoC) AND LEVEL OF USE (LoU)

Theoretically, and as a construct, a division point occurs in both measures (CFSoc and LoU) where the focus shifts from program management to student outcome. When applied in the field, the measuring instruments (CFSocQ and LoU) were sensitive to this phenomenon. It was also found that certain relationships existed between the measures in the context of this shift in focus.

Examination of SoC percentile scores and profiles gave the most dramatic indication of a shift in the scores and profiles between Management (SoC 3) and Consequence (SoC 4). The term manager was applied to those principals with high peaks from Management (SoC 3) to Information (SoC 1) and the term leader to those with high peaks from Consequence (SoC 4) through Refocusing (SoC 6). Managers have program

concerns while leaders are concerned with student outcome. High percentile scores in Refocusing (SoC 6), called "tailing up", were caused by principals who had varying ideas about modifying the self-service innovation, using an alternative method, or finding another innovation as determined by the analysis of results of a t-test. The t-test was based on a retest of the 20 principals selected for the sample of principals to be interviewed. If the percentile score or profile is analyzed from the division points of Management (SoC 3) and Consequence (SoC 4), the farthest removed stages (Information and Refocusing) from those points have the least effect in the total analysis. Just as scores on the Awareness stage of nonusers are ignored, a tailing-up at the Refocusing stage might very well be given little attention with nonusers also, because nonusers may not know what the innovation is. If principals did not have information about the innovation of self-service, had not seen it in operation, or had not talked to anyone about it, their responses might indicate that they were not convinced that the change would result in anything positive, or that they were even expected to act as facilitators. Regardless of the scores at the extreme points of Awareness and Refocusing, it was found that no highest percentile scores occurred simultaneously at both stages immediately next to the division point (Management and Consequence). When Management scores were high, Consequence scores were low and vice-versa.

LoU ratings never exceeded the Routine level in this study. This result should be expected with only 18 percent of the principals involved with the self-service innovation, and with the principals

using the innovation for only a year or less. The LoU ratings did find principals at levels of Nonuse, Orientation, Preparation and Routine, but none at the Mechanical Use level or beyond the Routine level. Evidently, principals are not involved in using the innovation of self-service but rather rely on the School Food Service Supervisor (SFSS) or the cafeteria manager to be involved in using the innovation. To facilitate the use of self-service is a different matter. Since no principals were at the Mechanical Use level, the resolution to the use of, or facilitation of using, self-service by principals remains for another study.

The current study found that the most dramatic student outcome measure was plate waste. Principals at the Routine level of use had the lowest plate waste values, and tended to have high leader concerns. The SoC percentile scores were not as easy to interpret as the LoU ratings or student outcome data. On a group basis, percentile scores in the leadership category tended to be higher for principals at the Routine level of use, but on an individual basis that relationship did not exist in every case.

The student outcome measure of participation did not show any effect of increase or decrease as a result of any of the other measures in this study. The only indication that self-service caused an increase in participation came from the LoU interviews. During those interviews, the five principals who had self-service stated that their student participation had increased. The measurement of the magnitude of that increase would have required a different methodology in data

gathering, i.e. a month-by-month or year-by-year analysis of participation with documentation of changes in food serving configuration.

Participation is relative from time to time only within a school rather than from school to school. However, the change in participation would be the measureable variable rather than just total participation.

These same comments hold true for the variable of total sales. Standing by itself, the figure of total sales either per person in participation, percent a la carte sales per participant, or a la carte sales to total lunch sale, failed to show any consistent relationship to either Level of Use or Stages of Concern or to reduced plate waste. As with Participation used as a variable, total sales as a variable needs to be measured in relation to itself as the change in total sales and its component figures of total lunch sales, milk, and a la carte sales. A historic perspective based on total sales might show relationships not found in this current study.

#### IV. THE RELATIONSHIP BETWEEN STAGES OF CONCERN (SoC) AND LEVELS OF USE (LoU) WHEN A SHIFT IN FOCUS OCCURS FROM PROGRAM MANAGEMENT TO STUDENT OUTCOME (HOW A PRINCIPAL'S CONCERNS [SoC] REFLECT HER/HIS CURRENT BEHAVIORAL LEVEL REGARDING THE INNOVATION)

This study found that schools with self-service had principals who were rated at the Routine level (LoU IVA), and had higher percentile scores on Consequence and Collaboration (Soc 4 and 5) than did those principals in schools without self-service.

The relationship between LoU and SoC from the standpoint of student outcome was not clear in this study. The small sample size of

principals and the fact that principals had one year of experience (at the most) with the innovation, did not allow for LoU ratings to exceed Routine (IVA). SoC scores reflected this problem in the great number of high percentile scores in Awareness (SoC 0) indicating nonusers.

This study did not attempt to find a cause and effect relationship between student outcome and SoC or LoU. The study raised the question as to which factor caused the plate waste to drop dramatically, the innovation itself, or the efforts or interventions of the principal.

This study found that principals who rated higher than the nonuse level also tended to have higher percentile scores at Consequence and Collaboration Stages of Concern. Coupled with that finding, comments from LoU interviews indicated that principals were working with the School Food Service Supervisor (SFSS) and cafeteria managers and welcomed their involvement. This study's design controlled for the effect of the SFSS in that the systems were centralized and had SFSSs who worked with cafeteria managers but only consulted with the principals. Although no documentation was presented in this study concerning the relationship of SFSS and principals, the issue of control, power and sanction in school food service could be addressed in another study. Future research might consider studying the effect in school food service by a decentralized configuration of administration. In decentralized school systems, the principal usually has total responsibility for the food service operation in her/his school, and that responsibility includes financial management,

personnel matters including hiring and firing, menu development, purchasing, regulatory compliance, and program configuration to mention only a few. A comparison of data and results from this current study to the proposed study would enhance the knowledge of how principals facilitated an innovation and particularly self-service in the cafeteria.

Nevertheless, this study found that as the level of use increased so did the peak percentile scores. As the developmental pattern suggested from theoretical constructs, both LoU and SoC ratings increased or progressed with usage and time.

#### V. HOW CHANGE FACILITATOR STAGES OF CONCERN (CFSoc) AND LEVELS OF USE (LoU) DATA CAN BE USED TO DEVELOP AND PLAN HELPING STRATEGIES, SUCH AS INSERVICE TRAINING, FOR PRINCIPALS IN THEIR ROLE AS CHANGE FACILITATOR

Supervisors and others who must plan and be concerned about adoption and implementation of innovations as a strategy to bring about change can use the CBAM products and procedures with confidence in planning and monitoring the change process. Change facilitators, such as principals, can be assessed during the course of installing an innovation and helped through the developmental phases as outlined in this study.

Depending upon the degree of sophistication, all parts, or only selected parts, of the CBAM can be used. Each component of the CBAM measures a certain construct, but in the model, all of these constructs are related. However, for planning inservice from a supervisor's standpoint, the Stage of Concern procedure yields the data needed to

categorize principals for inservice activities. Level of Use (LoU) data utilization would depend upon the supervisor's knowledge of individual principals in relation to their degree of use or nonuse of the innovation. The supervisor would probably also know the Innovation Configuration (IC) at a particular school and the principal's relation to that configuration. Therefore, the assessment and address of the principals' concerns becomes the critical task if the innovation is to become institutionalized. Outside consultants, i.e., those external to the school system and unfamiliar with system personnel, innovation status in the system, etc., would need to use all CBAM components to gather as much information as possible and necessary for thoughtful, careful planning.

A word of caution needs to be directed toward consultants working with school principals in a system in the context of this study. One of the delimitations was that this study was conducted in systems where there was a centralization of power, resources and a strong supervisor. Decentralized systems in which principals had control and power over resources were not considered in this study and therefore the findings here might not apply.

A critical part of the self-service innovation was nutrition. All principals who were interviewed were asked to explain what self-service was. None of the principals mentioned nutrition education as a component of self-service in the Innovation Configuration check. Depending upon the extent of instrumentation and procedure, Innovation Configuration must be a part of data gathering, and somewhere, Innovation Configuration must be checked to ensure validity and fidelity.

After gathering all data from the SoC and LoU procedures, the indexing process of describing respondents as Stage of Highest Concern/Overall Level of Use can be used to group respondents into whatever groups are decided upon. For instance, in this study, principals at the Nonuse level may be grouped for site visits to schools using self-service and for a presentation on what self-service is all about and how they, as principals, can function as facilitators. The group of principals at the Routine Level of Use could be grouped to discuss how they might facilitate nutrition education through the instructional program involving their classroom teachers. During this discussion, principals might be helped in developing strategies for coordinating and facilitating nutrition activities.

To help group principals, and to help with planning inservice and other efforts, the Management/Leadership Matrix developed in this study might be used to identify those in the leadership area for use as models and to use their schools as demonstration sites.

#### VI. USING CHANGE FACILITATOR STAGES OF CONCERN (CFSOC) AND LEVELS OF USE (LoU) DATA TO FORECAST TRENDS IN THE IMPLEMENTATION OF AN INNOVATION

Both theoretically and by practical application of the two CBAM instruments, forecasts can be made relative to developmental trends. This study found that as principals scored at higher Stages of Concern their Level of Use also increased. Principals with the highest

percentile scores in the leadership areas of Consequence and Collaboration also had a Level of Use at the Routine level.

Congruence of profile configurations with hypothetical profiles showed how scores at different Stages of Concern changed as the developmental sequence progressed. As one concern is addressed and acted upon, the next concern in the developmental sequence raises in value and produces a higher percentile score. Consider a principal at the Personal Stage of Concern. As soon as that Personal Concern was addressed and satisfied, the next concern would be how to manage the innovation. Consequently, Management would then have the highest score. The intensity of the Management concern could be measured against the other percentile scores of that principal's profile.

Coupling the Level of Use ratings on all of the behavioral categories could verify the concerns scores in relation to what the principal was doing. Suppose the principal in the above example was at the Personal Stage of Concern and also was at the Orientation Overall Level of Use. The next developmental level is Preparation for use. At this point the principal is in the Personal/Orientation category. Suppose that upon checking his Level of Use rating across all of the behavioral categories, it is found that three out of the seven categories are marked "Preparation." Based on the developmental sequence of Stages of Concern and the three Level of Use behavioral categories marked Preparation, it could be estimated that the principal will move into the category of Management/Preparation for Use and that the index number for the Management/Leadership Matrix would move from 2/I to 3/II.

The illustration was used to show the predictive value of the CBAM measures Stages of Concern and Levels of Use. An important use of the predictive value would occur as the measures approached the final developmental stage of Refocusing (SoC) and Renewal (LoU). At that final developmental point, the innovation would be abandoned or replaced by something different. If a different innovation were considered, the same developmental cycle would start all over again. The implication of this cycle is that there is no real beginning or end, but rather a continuation. In the case of Stages of Concern, the cycle continues through Refocusing concerns into Awareness concerns or perhaps a major modification (which would change the key elements of the Innovation Configuration) or perhaps to awareness of a different innovation. The same cyclical nature exists for Levels of Use. Instead of the (LoU) ending with Renewal, the change is developmental and progresses through Renewal and back to the level of Nonuse for a modification of the current innovation or the initiation of a different one.

If abandonment of the innovation occurs, some activity still goes on. In the case of self-service, children would no longer serve themselves, but they would get their food in some manner. The manner in which they obtained their food would be determined by the change in the status quo, if any, or by another innovation.

Conceptualization of the cyclic nature of Stages of Concern and Levels of Use allows integration with the Von Foerster equation for population growth (schools do have finite space and fluctuate in student population) as discussed on page 19, and with the "logistic process" and "cross fertilization differential" equations discussed on

page 21. All of these conceptualizations have predictive value and all can be related to each other.

## VII. COMPARISON OF RESULTS BETWEEN PRINCIPALS FACILITATING A NON-INSTRUCTIONAL INNOVATION AND PRINCIPALS FACILITATING AN INSTRUCTIONAL INNOVATION

Comparison of results between this study and others showed essentially the same pattern and values. The difference in values that exist could be attributed to such differences as small population and sample size, to the implementation status of the innovation, and to the lack of more studies using the change facilitator components of the Concerns Based Adoption Model. The only study available for comparison was the Rutherford, Hall and George (1982) study (published at the same time this current study was underway). The Rutherford, et al., study was part of the research effort being conducted by the University of Texas Research and Development Center for Teacher Education at Austin (R&DCTE). The Rutherford study had a population of 589 compared to this current study's population of 52. The fact that there is any comparability in the results attests to the reliability and validity of the Change Facilitator Stage of Concern Questionnaire and procedures.

The Level of Use (LoU) comparison is a different matter. No LoU studies of principals acting as change facilitators were available for comparison. The only reliability and validity check for LoU ratings is the rerating procedure using second and third party certified raters. This current study had 100 percent agreement with second-party raters.

A more complex procedure uses ethnographic methods to assess use, but that procedure is too complicated for the purposes of determining Level of Use (LoU). The current study adds support to the R&DCTE research and studies of Reliability and Validity. The fixed focus interview, with its branching format, identified different categories of users and agreed with the predicted shift in focus from program usage to student outcome.

### CONCLUSIONS

The Concerns Based Adoption Model provides a method for assessing change facilitators (principals) as they implement an innovation so that supervisors or other program administrators can plan and select appropriate strategies to help. The three components of the CBAM, Innovation Configuration (IC), Change Facilitator Stage of Concern (CFSoc), and Level of Use (LoU) can be used to confirm key elements essential to the fidelity of an innovation, discover and quantify concerns of change facilitators, and assess behaviors of change facilitators as they use strategies and techniques to facilitate the implementation of an innovation. In a comparison of results from this study of principals and other studies of change facilitators, the CBAM instruments and procedures yielded similar results with non-instructional as well as with instructional innovations. The two instruments of the CBAM, Change Facilitator Stages of Concern Questionnaire (CFSocQ) and Level of Use interview and rating (LoU) were shown to have predictive value and can be used to forecast the next stage of greatest concern and the next behavioral level of change facilitators.

A method was developed and discussed in this study which combines values determined by the CFSocQ and the LoU rating into an index. The use of the index allows supervisors and other program administrators to group change facilitators (principals) with similar concerns and behavioral levels relative to the innovation being implemented. The purpose for the grouping is that specific helping strategies can be selected for different groups of change facilitators. For the current study, more than half of the principals needed to be grouped for an inservice presentation specifically designed to inform them (Awareness and Information) about self-service and to give them some training in facilitating the change from regular service to self-service. Another group of principals needed to be instructed in the facilitation of nutrition education by using the self-service innovation in the cafeteria as a practical learning laboratory experience on a day-to-day basis.

In conclusion, the Concerns Based Adoption Model can be used in the field, and its component instruments and procedures have practical application in helping change agents facilitate a change.

#### RECOMMENDATIONS

An additional study paralleling this one would add to the confidence of using the CBAM in other settings. A study is needed of principals in a decentralized school system where principals have total, unilateral control and responsibility for their own food service operation and do not have a School Food Service Supervisor (SFSS). The SFSS could be used as a variable and the results from such a study

could be compared to results of this study. During the Level of Use interviews for this current study, principals indicated that they shared responsibility with the SFSS. The effect of this dual responsibility on facilitating the self-service innovation could not be assessed in this study because of the assumption that principals had unilateral authority in their own school and also that school systems were selected on the basis that they had a SFSS and a centralized organizational structure.

Another recommendation is suggested for the selection of school systems to be studied, and that recommendation is that either a longitudinal study be conducted with the same school systems in this study for the purpose of determining the effect of the length of time of use of self-service, or that principals be identified for a study based on their length of time in using self-service. Principals who made up the sample to be interviewed for this study were selected according to their Stage of Concern profile or percentile scores. It is recommended that selection for another study be based on the length of time a principal had the innovation of self-service in her/his school. The basis for the recommendation results from the problem of determining the dividing point in Levels of Use where facilitation efforts shift from program use to student outcome. The new hypothesis is that by using an innovation over longer periods of time, both Level of Use ratings and Change Facilitator Stage of Concern would show higher values in the student outcome areas.

A recommendation is made for the procedure of grouping principals (change facilitators) who score at the Routine Level of Use (LoU IVA). This level contains the theoretical construct where behavior changes from program use to student outcome. The overall Routine (LoU IVA) rating does not provide precise enough information, therefore, it is necessary to assess ratings for the behavioral categories in order to more precisely determine the point of use within the Routine Level. However, if that procedure is not possible and if the overall rating must be used, then the option of choice would be to consider all Routine users as being involved with facilitating student outcome rather than program use.

The size of the smallest group of principals in a future study needs to be increased. The smallest group in this study was five, but not all five of the principals in each group provided complete data. If the smallest group contained 15 to 20 respondents, statistical procedures could be used with reasonable confidence. The practical problem remains in finding 15 to 20 principals who would fit the upper categories of the Concerns Based Adoption Model in terms of concerns about and use of an innovation. Self-service in the cafeteria is recommended as the innovation of choice based on its pervasiveness, simplicity of checking for key elements, and easily quantifiable student outcome.

The final recommendation involves use of the Management/Leadership Matrix developed in this study. The objective of the Matrix is to provide a quick and easy way of combining Stages of Concern with Levels of Use in a graphic way. The limitations of the present study

resulted in yielding respondent (school principal) data that allowed placement of groups mainly in only one quadrant. Hopefully, a larger and more diversified innovation user population would yield data allowing groups to be placed throughout the range of each quadrant.

In summary, it must be concluded that within the Concerns Based Adoption Model process of assessing change facilitators, there is a division point between Management concerns and behaviors and Leadership concerns and behaviors. It is clear that the division point exists in the Stages of Concern between Management (SoC 3) and Consequence (SoC 4) concerns, but in the Levels of Use, the division point may lay between Mechanical (LoU III) or Routine (LoU IVA) behaviors or between Routine (LoU IVA) and Refinement (LoU IVB) behaviors.

It must also be concluded that the process of assessing change facilitators as reported in this study, can be applied to both non-instructional as well as instructional innovations. It is the process that is important rather than the content or locus of the innovation.

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## APPENDIXES

APPENDIX A

THE LEVEL OF USE (LoU) RATING SHEET

# The LoU Rating Sheet

UTR&D/CBAH, 1976

## LEVEL OF USE RATING SHEET

| Tape #:<br>Date: / /            |           | Site:<br>I.D. #:      |         | Interviewer:<br>Rater: |          |                  |            |             |
|---------------------------------|-----------|-----------------------|---------|------------------------|----------|------------------|------------|-------------|
| Level                           | Knowledge | Acquiring Information | Sharing | Assessing              | Planning | Status Reporting | Performing | Overall LoU |
| Non-Use<br>D.P. A               | 0         | 0                     | 0       | 0                      | 0        | 0                | 0          | 0           |
| Orientation<br>D.P. B           | I         | I                     | I       | I                      | I        | I                | I          | I           |
| Preparation<br>D.P. C           | II        | II                    | II      | II                     | II       | II               | II         | II          |
| Mechanical Use<br>D.P. D-1      | III       | III                   | III     | III                    | III      | III              | III        | III         |
| Routine<br>D.P. D-2             | IVA       | IVA                   | IVA     | IVA                    | IVA      | IVA              | IVA        | IVA         |
| Refinement<br>D.P. E            | IVB       | IVB                   | IVB     | IVB                    | IVB      | IVB              | IVB        | IVB         |
| Integration<br>D.P. F           | V         | V                     | V       | V                      | V        | V                | V          | V           |
| Renewal                         | VI        | VI                    | VI      | VI                     | VI       | VI               | VI         | VI          |
| User is<br>not doing:           | ND        | ND                    | ND      | ND                     | ND       | ND               | ND         | ND          |
| No information<br>in interview: | NI        | NI                    | NI      | NI                     | NI       | NI               | NI         | NI          |

| Past User                                       | Estimated past LoU              | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------------------------------|---------------------------------|---|---|---|---|---|---|---|
| The amount of information in the interview was: | insufficient for rating         | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The interviewee:                                | does not fit on the chart       | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The interviewee:                                | was very difficult to interview | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

APPENDIX B

RAW DATA OF PRINCIPALS' RESPONSES

# RAW DATA KEY

| SPACE | DESCRIPTION                                                                                                                                                                                                                                               |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Group number<br>0= Original group<br>1= Interview group                                                                                                                                                                                                   |
| 2-5   | Subject Identifying Number                                                                                                                                                                                                                                |
| 6-40  | Questions 1-35 responses from CFSoc Questionnaire                                                                                                                                                                                                         |
| 41-42 | How long have you had self-service in the cafeteria?<br>(in months)                                                                                                                                                                                       |
| 43    | Are you involved with any other innovation?<br>(Yes= 0; No= 1)                                                                                                                                                                                            |
| 44    | How many innovations have you been involved with?<br>None= <u>0</u> ; Less than 3= <u>1</u> ; 4 to 6= <u>2</u> ; more than 7= <u>3</u>                                                                                                                    |
| 45    | Comments; None= 0; Comments= 1+                                                                                                                                                                                                                           |
| 46    | Hypothetical curve code                                                                                                                                                                                                                                   |
| 47-48 | Level of Use; 00= Nonuser. . . . . 0<br>10= Orientation. . . . . I<br>20= Preparation. . . . . II<br>30= Mechanical User. . . . . III<br>41= Routine. . . . . IVA<br>42= Refinement. . . . . IVB<br>50= Integration. . . . . V<br>60= Renewal. . . . . VI |

\*1234567 101234567 201234567 301234567 401234567 50

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 J226154721775733636556727755122611552642201002

| *1234567 101234567 201234567 301234567 401234567 50 |     |
|-----------------------------------------------------|-----|
| 1009042752462552633667734655452442754554            | 110 |
| 1005571721473722614777717725411612762726            | 000 |
| 101551112711117410711111170131740110171             | 100 |
| 1007567700770700701776617663011600661061            | 120 |
| 1009553266645646745476611116651651452561            | 100 |
| 1020511336221463146201317531112632221111            | 000 |
| 1004007300703470000000707750000500030500            | 541 |
| 1226153633766632535665624542143631552543            | 141 |
| 1003533042233360574261230511166760255261            | 100 |
| 1000556546253364603365511364261530530120            | 100 |
| 1082054000060001111151115501111110511111            | 000 |
| 1017572242770000707777500746050700770070            | 100 |
| 1485217427711161307111111777161160161111            | 200 |
| 1011561622661661601666600611161411650350            | 100 |
| 101507000007000070007700000000000700000             | 000 |
| 1002517161111171101111101177171171101111            | 200 |
| 1372974720675702001525707740300200770700            | 041 |
| 1560173601770730614777717731031710771711            | 341 |
| 1403133604241622364646551044120430363010            | 100 |
| 1365131311533351311233613561111321241111            | 541 |

## APPENDIX C

### CHANGE FACILITATOR STAGES OF CONCERN QUESTIONNAIRE

4 Digit Identifying Number \_\_\_\_\_

School System \_\_\_\_\_

#### SELF-SERVICE INNOVATION IN SCHOOL FOOD SERVICE

The purpose of this questionnaire is to determine what you think about regarding your responsibilities in food service. It deals with change and the innovation of self service in the cafeteria. Whenever the word "innovation" appears in the questionnaire, please think and respond in terms of self-service in the cafeteria. The questionnaire items were developed to be used with any innovation, and were tested by responses of educators in many different settings (classroom teachers, principals, State Dept. Specialists, college professors) who ranged from no knowledge at all of various innovative programs to those who had many years of experience in working with that particular innovation. Therefore, you may find that some of the items on this questionnaire seem 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.

For example:

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

Please respond to the items in terms of your present concerns, or how you feel now about your involvement with facilitating self-service in the cafeteria. We do not hold to any one definition of this program, so please think of it in terms of your own perceptions of what it involves. Remember to respond in terms of your present concerns about your involvement as a facilitator of cafeteria self-service.

Thank you for your time to complete this task. Please feel free to write any comments, reactions or questions you may have about the items on the questionnaire. Should you wish to express yourself or state any additional concerns you may have about cafeteria self-service, the implementation process, or this questionnaire, please feel free to use the last page for your response.

Adapted from materials of the  
CBAM Project, R&D Center for Teacher Education  
The University of Texas at Austin

|                                                                                                                                              | 0          | 1                  | 2 | 3                       | 4 | 5 | 6                   | 7           |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|---|-------------------------|---|---|---------------------|-------------|
|                                                                                                                                              | Irrelevant | Not true of me now |   | Somewhat true of me now |   |   | Very true of me now |             |
| 1. I would like more information about the purpose of this innovation.                                                                       |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 2. I am more concerned about facilitating use of another innovation.                                                                         |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 3. I would like to develop working relationships with administrators and other change facilitators to facilitate the use of this innovation. |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 4. I am concerned because responding to the demands of staff relative to this innovation takes so much time.                                 |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 5. I am not concerned about this innovation at this time.                                                                                    |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 6. I am concerned about how my facilitation affects the attitudes of those directly involved in the use of this innovation.                  |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 7. I would like to know more about this innovation.                                                                                          |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 8. I am concerned about criticism of my work with this innovation.                                                                           |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 9. Working with administrators and other change facilitators in facilitating use of this innovation is important to me.                      |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 10. I am preoccupied with things other than this innovation.                                                                                 |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 11. I wonder whether use of this innovation will help or hurt my relations with my colleagues.                                               |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 12. I need more information about and understanding of this innovation.                                                                      |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 13. I am thinking that this innovation could be modified or replaced with a more effective program.                                          |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |
| 14. I am concerned about facilitating use of this innovation in view of limited resources.                                                   |            |                    |   |                         |   | 0 | 1                   | 2 3 4 5 6 7 |

- |                                                                                                                           |                 |
|---------------------------------------------------------------------------------------------------------------------------|-----------------|
| 15. I would like to coordinate my efforts with other change facilitators.                                                 | 0 1 2 3 4 5 6 7 |
| 16. I would like to know what resources are necessary to adopt this innovation.                                           | 0 1 2 3 4 5 6 7 |
| 17. I want to know what priority my superiors want me to give this innovation.                                            | 0 1 2 3 4 5 6 7 |
| 18. I would like to excite those directly involved in the use of this innovation about their part in it.                  | 0 1 2 3 4 5 6 7 |
| 19. I am considering use of another innovation that would be better than the one that is currently being used.            | 0 1 2 3 4 5 6 7 |
| 20. I would like to help others in facilitating the use of this innovation.                                               | 0 1 2 3 4 5 6 7 |
| 21. I would like to determine how to enhance my facilitation skills.                                                      | 0 1 2 3 4 5 6 7 |
| 22. I spend little time thinking about this innovation.                                                                   | 0 1 2 3 4 5 6 7 |
| 23. I see a potential conflict between facilitating this innovation and overloading staff.                                | 0 1 2 3 4 5 6 7 |
| 24. I am concerned about being held responsible for facilitating use of this innovation.                                  | 0 1 2 3 4 5 6 7 |
| 25. Currently, other priorities prevent me from focusing my attention on this innovation.                                 | 0 1 2 3 4 5 6 7 |
| 26. I know of another innovation that I would like to see used in place of this innovation.                               | 0 1 2 3 4 5 6 7 |
| 27. I am concerned about how my facilitating the use of this innovation affects those directly involved in the use of it. | 0 1 2 3 4 5 6 7 |
| 28. Communication and problem-solving relative to this innovation take too much time.                                     | 0 1 2 3 4 5 6 7 |
| 29. I wonder who will get the credit for implementing this innovation.                                                    | 0 1 2 3 4 5 6 7 |

30. I would like to know where I can learn more about this innovation. 0 1 2 3 4 5 6 7
31. I would like to modify my mode of facilitating the use of this innovation based on the experiences of those directly involved in its use. 0 1 2 3 4 5 6 7
32. I have alternate innovations in mind that I think would better serve the needs of our situation. 0 1 2 3 4 5 6 7
33. I would like to familiarize other departments of persons with the progress and process of facilitating the use of this innovation. 0 1 2 3 4 5 6 7
34. I am concerned about finding and allocating time needed for this innovation. 0 1 2 3 4 5 6 7
35. I have information about another innovation that I think would produce better results than the one we are presently using. 0 1 2 3 4 5 6 7

PLEASE COMPLETE THE FOLLOWING:

36. How long have you been involved with the implementation of self-service in the cafeteria  
Years \_\_\_\_\_ Months \_\_\_\_\_
37. Are you currently involved in implementing any other innovations?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- If yes, how many? Less than 3 \_\_\_\_\_ 4 to 6 \_\_\_\_\_ more than 7 \_\_\_\_\_

Use this space below and the back of this page to express any concerns you have not been able to indicate in the questionnaire.

## APPENDIX D

### LEVEL OF USE (LoU) INTERVIEW

LoU Interview

0-II/III-VI

Are you currently using \_\_\_\_\_

If yes, turn page, If no, continue.

NO

Have you ever used it in the past? If so, when? Why did you stop?

If yes, go to PAST USERS (Below) \_\_\_\_\_

If no, continue.

→ 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?

← NOW, GO TO ABOVE SECTION, STARTING WITH QUESTION MARKED 0/I-II.

YES

- Open-ended Please describe for me how you use \_\_\_\_\_. (Ask sufficient questions to cover minimal criteria for use.)
- 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 \_\_\_\_\_? Do you meet on a regular basis? Have you made any changes in your use of \_\_\_\_\_ based on this coordination?

\*If yes, go to LoU V Probes (Below) →

- 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 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 you got?
- 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-V/VI Are you considering or planning to make major modifications or replace \_\_\_\_\_ at this time?

LoU V Probes ←

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

← If you have enough evidence to place the person at LoU V, go to Question III-V/VI.

← If you do not think the person is an LoU V, go to Question Sharing.

## APPENDIX E

SUMMARY LEVELS OF USE (LoU) RATINGS n=20

SUMMARY  
LEVELS OF USE (LoU) RATINGS n=20

| SID  | BEHAVIORAL CATEGORIES |                   |         |           |          |                     | OVERALL<br>LoU |
|------|-----------------------|-------------------|---------|-----------|----------|---------------------|----------------|
|      | KNOWLEDGE             | ACQUIRING<br>INFO | SHARING | ASSESSING | PLANNING | STATUS<br>REPORTING |                |
| 0005 | I                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0025 | 0                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0035 | 0                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0040 | IVA                   | IVA               | IVA     | IVA       | IVA      | IVA                 | IVA            |
| 0055 | I                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0075 | II                    | II                | II      | II        | II       | II                  | II             |
| 0090 | I                     | I                 | I       | I         | ND       | ND                  | I              |
| 0095 | 0-I                   | I                 | 0       | I         | 0        | 0                   | 0              |
| 0115 | I                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0150 | I                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0155 | I                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0175 | I                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0205 | 0                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 0820 | I                     | 0-I               | 0       | I         | 0-I      | 0                   | 0              |
| 2261 | IVA                   | IVA               | IVA     | IVA       | IVB      | IVA                 | IVA            |
| 3651 | IVA                   | IVA               | IVA     | IVA-B     | IVA-B    | IVA                 | IVA            |
| 3729 | IVA                   | IVA-B             | IVA     | IVA       | IVA-B    | III-IVA             | IVA            |
| 4031 | 0                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 4852 | 0                     | 0                 | 0       | 0         | 0        | 0                   | 0              |
| 5601 | IVA                   | III-IVA           | IVA     | IVA       | IVA-IVB  | IVA                 | IVA            |

RATING KEY: LEVELS OF USE

|                |     |             |     |           |    |
|----------------|-----|-------------|-----|-----------|----|
| Non Use        | 0   | Routine     | IVB | Not Doing | ND |
| Orientation    | I   | Refinement  | IVB |           |    |
| Preparation    | II  | Integration | V   |           |    |
| Mechanical Use | III | Renewal     | VI  |           |    |

APPENDIX F

PRINCIPALS' PERCENTILE SCORES

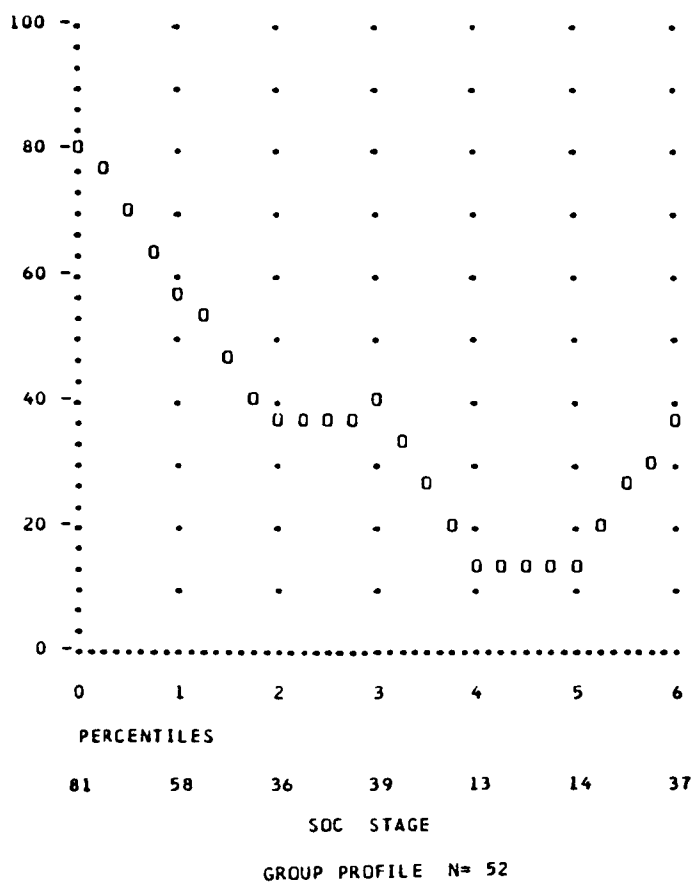
GROUP OF 52 PRE-TEST CASES

| SUBJECT<br>NUMBER | STAGE OF CONCERN PERCENTILE SCORES |    |    |    |    |    |
|-------------------|------------------------------------|----|----|----|----|----|
|                   | 0                                  | 1  | 2  | 3  | 4  | 5  |
| 0 0 0 0 5         | 87                                 | 89 | 43 | 44 | 5  | 4  |
| 0 0 0 2 0         | 99                                 | 72 | 81 | 97 | 16 | 18 |
| 0 2 2 2 5         | 81                                 | 69 | 24 | 74 | 39 | 18 |
| 0 0 0 2 5         | 87                                 | 92 | 34 | 96 | 3  | 0  |
| 0 0 0 3 5         | 97                                 | 81 | 24 | 94 | 3  | 8  |
| 0 0 0 4 0         | 48                                 | 13 | 56 | 35 | 16 | 32 |
| 0 0 0 4 5         | 98                                 | 59 | 49 | 55 | 7  | 8  |
| 0 0 0 5 0         | 75                                 | 34 | 62 | 35 | 3  | 7  |
| 0 0 0 6 0         | 31                                 | 49 | 1  | 19 | 1  | 0  |
| 0 0 0 5 5         | 75                                 | 69 | 18 | 11 | 4  | 67 |
| 0 0 0 7 0         | 99                                 | 46 | 79 | 78 | 9  | 4  |
| 0 0 0 7 5         | 98                                 | 99 | 43 | 5  | 20 | 67 |
| 0 0 1 6 0         | 97                                 | 56 | 87 | 55 | 4  | 8  |
| 0 0 8 2 0         | 2                                  | 3  | 0  | 2  | 1  | 0  |
| 0 0 0 8 5         | 99                                 | 87 | 12 | 35 | 4  | 3  |
| 0 0 0 9 0         | 97                                 | 87 | 56 | 86 | 16 | 32 |
| 0 0 0 9 5         | 99                                 | 69 | 89 | 91 | 7  | 5  |
| 0 0 1 0 0         | 99                                 | 79 | 24 | 19 | 2  | 18 |
| 0 0 1 0 5         | 99                                 | 46 | 7  | 2  | 1  | 0  |
| 0 0 1 1 0         | 99                                 | 84 | 39 | 15 | 2  | 2  |
| 0 0 1 1 5         | 96                                 | 84 | 89 | 78 | 13 | 24 |
| 0 0 1 2 0         | 0                                  | 99 | 24 | 11 | 0  | 0  |
| 0 0 1 2 5         | 96                                 | 72 | 43 | 55 | 5  | 12 |
| 0 4 8 5 2         | 99                                 | 8  | 0  | 26 | 6  | 0  |
| 0 3 0 5 2         | 99                                 | 99 | 62 | 71 | 46 | 24 |
| 0 0 1 5 0         | 69                                 | 40 | 39 | 28 | 2  | 7  |
| 0 0 1 5 5         | 81                                 | 5  | 30 | 94 | 2  | 0  |
| 0 1 4 8 2         | 81                                 | 5  | 1  | 1  | 1  | 0  |
| 0 0 1 6 5         | 48                                 | 0  | 0  | 1  | 1  | 0  |
| 0 0 1 7 0         | 69                                 | 99 | 39 | 19 | 6  | 5  |
| 0 0 1 8 3         | 99                                 | 53 | 68 | 5  | 7  | 1  |
| 0 0 1 7 5         | 97                                 | 87 | 62 | 55 | 68 | 21 |
| 0 7 2 8 3         | 55                                 | 81 | 39 | 44 | 16 | 28 |
| 0 0 1 8 5         | 81                                 | 99 | 18 | 26 | 7  | 4  |
| 0 0 1 9 0         | 99                                 | 43 | 56 | 55 | 5  | 2  |
| 0 0 1 9 5         | 98                                 | 34 | 30 | 55 | 2  | 3  |
| 0 0 2 0 0         | 94                                 | 79 | 24 | 60 | 20 | 12 |
| 0 0 2 0 5         | 31                                 | 5  | 7  | 11 | 39 | 3  |
| 0 0 0 9 3         | 98                                 | 8  | 4  | 44 | 2  | 8  |
| 0 4 4 4 5         | 98                                 | 56 | 43 | 74 | 3  | 5  |
| 0 4 0 3 1         | 81                                 | 76 | 18 | 55 | 4  | 3  |
| 0 3 6 5 1         | 87                                 | 46 | 62 | 8  | 6  | 0  |
| 0 1 2 6 4         | 61                                 | 76 | 1  | 0  | 1  | 0  |
| 0 9 2 5 1         | 99                                 | 64 | 24 | 30 | 2  | 3  |
| 0 3 7 2 9         | 81                                 | 46 | 62 | 11 | 97 | 97 |
| 0 3 1 6 6         | 61                                 | 66 | 30 | 15 | 2  | 7  |
| 0 5 1 5 4         | 91                                 | 8  | 18 | 2  | 9  | 9  |
| 0 2 5 2 3         | 98                                 | 46 | 7  | 5  | 1  | 0  |
| 0 2 7 6 8         | 91                                 | 61 | 39 | 66 | 11 | 24 |
| 0 5 6 0 1         | 31                                 | 92 | 4  | 5  | 68 | 54 |
| 0 3 0 2 4         | 99                                 | 13 | 7  | 22 | 2  | 0  |
| 0 2 2 6 1         | 87                                 | 87 | 73 | 60 | 82 | 82 |

## APPENDIX G

### PRINCIPALS' STAGES OF CONCERN GROUP PROFILE

GROUP OF 52 PRE-TEST CASES



|              |    |    |    |    |    |    |    |
|--------------|----|----|----|----|----|----|----|
| MEAN         | 81 | 58 | 36 | 39 | 13 | 14 | 37 |
| STD DEV      | 25 | 31 | 26 | 30 | 21 | 22 | 30 |
| M1 SOC: FREQ | 32 | 12 | 1  | 2  | 0  | 1  | 4  |
| PERCENT      | 62 | 23 | 2  | 4  | 0  | 2  | 8  |

## APPENDIX H

### SCHOOL AND STUDENT OUTCOME DATA

| School Data |                |                         | Student Outcome Data |        |                                |                            |        |       |                 |                           | Average Daily Garbage<br>(Plate Waste)* |      |
|-------------|----------------|-------------------------|----------------------|--------|--------------------------------|----------------------------|--------|-------|-----------------|---------------------------|-----------------------------------------|------|
| SID         | School<br>Type | Food<br>Service<br>Type | ADA                  | ADP    | Percent Lunch<br>Participation | Average Daily Sales Totals |        |       | Total<br>(Gal.) | Per Participant<br>(Gal.) | (Cups)                                  |      |
|             |                |                         |                      |        |                                | Income                     | Lunch  | Milk  | All Other       |                           |                                         |      |
| 0005        | 00             | R                       | 294.30               | 208.15 | 70.73                          | 227.48                     | 190.74 | 27.17 | 9.57            | 5                         | .0240                                   | .384 |
| 0025        | 01             | R                       | 1129.50              | 763.62 | 67.60                          | 794.30                     | 714.89 | 29.22 | 50.19           | 25                        | .0327                                   | .523 |
| 0035        | 00             | R                       | 542.80               | 473.38 | 87.21                          | 531.59                     | 450.53 | 47.93 | 33.14           | 4                         | .0085                                   | .136 |
| 0040        | 11             | SS                      | 575.80               | 364.31 | 63.27                          | 442.22                     | 354.98 | 15.98 | 71.27           | 1                         | .0027                                   | .043 |
| 0055        | 00             | R                       | 253.05               | 176.88 | 69.90                          | 192.42                     | 169.00 | 10.58 | 12.83           | 3                         | .0170                                   | .272 |
| 0075        | 00             | R                       | 741.05               | 387.17 | 69.90                          | 422.43                     | 357.83 | 32.04 | 32.56           | 14                        | .0362                                   | .579 |
| 0090        | 00             | R                       | 191.60               | 164.15 | 85.67                          | 204.47                     | 156.11 | 4.40  | 27.11           | 3                         | .0141                                   | .226 |
| 0095        | 01             | R                       | 910.30               | 619.50 | 68.05                          | 728.39                     | 565.93 | 31.96 | 130.45          | 15                        | .0242                                   | .387 |
| 0115        | 00             | R                       | 716.60               | 443.88 | 61.94                          | 476.84                     | 392.05 | 65.69 | 18.82           | 8                         | .0180                                   | .288 |
| 0150        | 00             | R                       | 473.30               | 335.46 | 70.88                          | 359.12                     | 305.20 | 28.37 | 25.54           | 4                         | .0119                                   | .190 |
| 0155        | 00             | R                       | 620.25               | 400.62 | 64.59                          | 422.49                     | 357.20 | 21.72 | 42.19           | 4                         | .0100                                   | .160 |
| 0175        | 00             | R                       | 402.15               | 311.85 | 77.55                          | 325.32                     | 299.87 | 4.38  | 21.07           | 3                         | .0096                                   | .150 |
| 0205        | 00             | R                       | 259.90               | 216.96 | 83.48                          | 291.08                     | 220.36 | 23.75 | 12.99           | 2                         | .0064                                   | .100 |
| 0820        | 2X             | OS                      | 130.36               | 444.38 | 39.31                          | 715.72                     | 431.33 | 12.13 | 272.27          | 20                        | .0291                                   | .466 |
| 2261        | 22             | OS                      | 882                  | 242    | 27.44                          | 440.92                     | 309.58 | X     | 43.38           | .5                        | .0014                                   | .022 |
| 3651        | 00             | SS                      | 356.03               | 328.05 | 92.14                          | 448.67                     | 330.95 | X     | 38.39           | .5                        | .0010                                   | .016 |
| 3729        | 11             | SS                      | 597.50               | 547.50 | 91.63                          | 688.39                     | 566.19 | X     | 122.20          | 2                         | .0033                                   | .053 |
| 4031        | 00             | R                       | 315.38               | 197.70 | 62.69                          | 458.76                     | 189.48 | X     | 269.28          | 2                         | .0101                                   | .162 |
| 4852        | 00             | R                       | 286.10               | 217.85 | 76.14                          | 327.31                     | 213.62 | 21.02 | 67.48           | 3                         | .0092                                   | .147 |
| 5601        | 00             | SS                      | 362                  | 297    | 78.88                          | 381.59                     | 295.34 | X     | 12.27           | 1                         | .0027                                   | .043 |

CODE KEY: School Type--Grades

00 = Elementary K-8  
01 = Elementary K-6  
11 = Middle School 7-8  
22 = High School 9-12 (Open Campus)  
2X = High School 9-12 (Closed Campus)

ABBREVIATIONS:

SID = Subject Identification Number  
ADA = Average Daily Attendance  
ADP = Average Daily Participation  
Gal. = Gallon(s)

FOOD SERVICE TYPE:

R = Regular United States Department of  
Agriculture Pattern  
OS = Offer vs. Serve  
SS = Self Service  
X = Missing value Reported in All Other  
Category

\*United States Department of Agriculture Guideline for Plate Waste: 1 Gallon Per 100 Students (.16 Cup Per Participant).

## VITA

Casimir Zyss was born on June 15, 1932 in Chicago, Illinois. As an outstanding elementary graduate, he was accepted into Lane Technical High School. The family moved to San Bernardino, California where Casimir graduated from high school in 1950 and distinguished himself in football, swimming, riflery, and track. He enrolled at the University of California at Berkeley in Pre-veterinary Medicine, but transferred to the Davis Campus for his sophomore year, and changed his major to Food Technology. As a result of the Korean conflict, Casimir was inducted into the Army (in his senior year) and served with the 39th Infantry Regiment near Nurnburg, Germany.

In 1967, Casimir received the Bachelor of Arts degree with a major in Elementary Education from Sacramento State College. He has 14 years of classroom teaching experience in California and Tennessee. He was awarded the degree of Master of Science with a major in Elementary Guidance in 1973 from The University of Tennessee, Knoxville. He has experience as Director of Guidance and Staff Development. During his doctoral studies, he held several positions at The University of Tennessee. He was appointed as a Fellow to Public Schools for Cooperative Research as Part of the Bureau of Educational Research and Service as Associate Director of two projects, the Southeast Sex Desegregation Assistance Center and the Tennessee State Facilitator Project (part of the National Diffussion Network, United States Department of Education), and currently as a consultant to the Facilitator Project.

Casimir served as Director/Principal/Guidance Counselor of an Alternative School for emotionally disturbed children. He is one of the founding members of the American Council on Rural Special Education (ACRES). Casimir is in private practice as a consultant and is working with the Department of Psychiatry of a medical school on Alternative Centers for children at educational, emotional and social risk.

Casimir has had 20 years of experience in the private sector of business where he was engaged in food processing and sales. He held positions of Plant Manager, Sales Manager, Vice-President and as Chairman of a Board of Directors. Casimir was recently involved in a project which involved food processing for a joint effort of the United States and Mexican Departments of Agriculture.