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AUTHOR Hall, Gene E.
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ABSTRACT

Over the past few years, several complicated innovations, such as mainstreaming and minimal competency testing, have confronted teachers in addition to their usual responsibilities. In order to facilitate the teachers' implementation of such changes, the Concerns-Based Adoption Model (CBAM) was developed, using the teacher and the innovation as the frame of reference. Three of CBAM's diagnostic dimensions are the person's Stages of Concern About an Innovation: Levels of Use of the Innovation: and Innovation Configurations. The model may be applied to many different innovations in a variety of contexts. Competency testing is seen as an innovation because it introduces new testing procedures and necessitates a complex process of change. The implementation of competency testing should include emphasis on advance planning, attention to individual concerns and levels of use, and acknowledgement of the innovation configurations which are being implemented. (Author/GSK)

MEETING THE CONCERNS OF USERS:

A WAY TO IMPLEMENT COMPETENCY TESTING

Gene E. Hail

Procedures for Adopting Educational Innovations Program
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MEETING THE CONCERNS OF USERS: A WAY TO IMPLEMENT COMPETENCY TESTING[1,2]

Gene E. Hall

Procedures for Adopting Educational Innovations Project
Research and Development Center for Teacher Education
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In thinking over the last ten to fifteen years of education and schooling in the United States, one develops a picture of dedicated, hard-working people who are intensely concerned about kids, learning, teachers, and social and cultural responsibilities. The intentions are ideal, but the action is harried, frenzied, stop-gap, short-term crisis oriented, and energy depleting. The American education scene gives one the impression that there are hundreds of Paul Revere's riding off in every imaginable direction yelling alarms.

Every level of government, every constituency and special interest group, educators (professional and amateur), politicians, and even some admirals intensely concerned about education. And they all have their own selectively identified ill.

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[1]Paper presented at the Conference "Here Comes Competency Testing! Are You Ready?", Boxborough, Massachusetts, May 18, 1978.

[2]The research described herein was conducted under contract with the National Institute of Education. The opinions expressed are those of the author and do not necessarily reflect the position or policy of the National Institute of Education, and no endorsement by the National Institute of Education should be inferred.

There are so many alarms being sounded, cures offered and cures required that the enormous pile of band-aides and potions themselves have become the biggest problem. Underneath this heap of conflicting federal programs, curriculum specialists, accountability systems, administrators, unions, parents and politicians, is the teacher who is somehow supposed to run the model classroom for thirty students, obtaining optimal learning with ever increasing diversity in objectives, decreasing resources, and instructional time.

In the last three years alone, several massive, complicated and not very well defined innovations, including mainstreaming and minimal competency testing, have been laid on the teacher. To my knowledge nothing has been taken away from the responsibility of the teacher during this time. How is a teacher to do all of these things? What can those in teacher support positions do to assist and facilitate the teacher in implementing these many changes? Is it possible to do everything at once? Where and how should change facilitation begin?

These and other change related questions are the subject of research underway at the Research and Development Center for Teacher Education at the University of Texas at Austin. The research is based on the Concerns-Based Adoption Model (CBAM), which uses the teacher and the innovation as the frame of reference. The researchers are attempting to develop a clear understanding of how change occurs from the teachers' point of view and what can be done by change facilitators to assist teachers in implementing innovations.

In this paper, three of the CBAM's diagnostic dimensions and a set of intervention strategies will be described. The goal is to introduce some concepts that can be used to facilitate change, as well as to legitimize some of the realities of the change process. In the next section, some key assumptions are outlined. Then, the three diagnostic dimensions are presented. Descriptions of selected intervention strategies and implications of each follow. The paper

concludes with some implications of this research for adoption and implementation of the widely advocated innovation, competency testing.

CBAM ASSUMPTIONS

Development of the Concerns-Based Adoption Model (Hall, Wallace & Dossett, 1973) was based on extensive experience in implementing educational innovations in school and college settings. Underlying the model are several assumptions which shape the perspectives by which we view the change process in schools and colleges. The present research activities, which are focused on initial verification of several of the key components of the CBAM, are based upon these assumptions, as is the view of planned change developed in this paper.

Seven key assumptions of the Concerns-Based Adoption Model have direct relevance to this discussion of strategies and processes for implementing competency testing or other innovations:

1. Change in schools and colleges is a *process*, not an event. All too often it appears that policy level decision-makers, administrators in schools, and, in many instances, individual teachers, assume that change is made at a point in time as a result of some sort of profound decision, legislative act, or cataclysmic event. It is assumed that the teacher will change from using one reading text to instantly demonstrating great sophistication in using another. Or it is assumed that with the opening of school in the fall teachers will automatically be effective teamers. However, with the CBAM, change is viewed as taking time and entailing movement through a series of phases and stages.

2. The *individual* needs to be the primary focus of intervention for change in the classroom. For other change models (e.g., organizational development), the composite institution is viewed as the unit of intervention and the emphasis is placed upon improving communication and other organization norms and behaviors. From the CBAM perspective, the emphasis is placed on working with the individual teachers and administrators in terms of their roles and how they function with the innovation. Further, we would argue that the institution cannot be viewed as having changed until the individuals within the institution have changed.

3. Change is a highly *personal* experience. All too often it seems that inservice teacher educators, administrators and other change facilitators are overly attentive to the trappings and technology of the innovation and ignore

the perceptions and feelings of the people experiencing the change process. In the CBAM, it is assumed that the change process has a personal dimension to it, and that in many instances the personal dimension is of more critical importance to success or failure of the change effort than is the amount of technical support for the innovation. Since change is brought about by individuals, their personal feelings and perceptions, satisfactions, frustrations, concerns and motivations all play a part in determining success or failure of a change initiative.

4. Full *description* of the *innovation* in operation is a key variable. All too frequently it appears that innovation developers have not clearly or fully developed operational definitions of their innovations. Change facilitators and teachers do not know what the innovation is supposed to look like when it is implemented. Thus, another key assumption for concerns-based change is that there must be a full description of what the innovation entails when it is fully in use. Note that for the purposes of discussion here, the term innovation will be used to encompass both process (e.g., team teaching), and product (e.g., a new reading text) changes.

5. There are identifiable *stages* and *levels* of the change process as experienced by individuals. The change process is not an undifferentiated continuum. There are identifiable stages that individuals move through in their perceptions and feelings about the innovation, and identifiable skill levels that individuals move through as they develop sophistication in using the innovation.

6. Inservice teacher training can be best *facilitated* for the individual by use of a client-centered diagnostic/prescriptive model. To deliver relevant and supportive inservice teacher training, change facilitators need to diagnose where their clients are in the change process and target their interventions toward the diagnosed needs. In all toc many inservice activities, the trainers' needs are addressed, not the teachers'.

7. The change facilitator needs to work in an *adaptive/systematic* way. Because change is a process and because the focus for concerns-based inservice training is on individuals as they are involved in change, the change facilitator must constantly assess and reassess the state of the change effort. Change facilitators must constantly adapt their interventions in accord with the latest diagnostic information. And all of this needs to be done with constant awareness of the larger-organization context. The individuals involved in the change represent a subsystem of the larger system. Interventions made on them may have consequences elsewhere and actions and events that occur elsewhere in the system may in turn impact the subsystem that is the unit of change. Thus, the change facilitator/teacher trainer or administrator are constantly under conflicting pressures. On one hand, the change facilitator needs to be working diagnostically and prescriptively with individuals and, at the same time, the change facilitator must constantly keep in mind the larger system and its actions and reactions as the change process unfolds.

Based upon these assumptions then, the Concerns-Based Adoption Model has been developed. Within the CBAM, three key variables serve as diagnostic tools

for developing a clear focus on what is happening with individual teachers who are the clients of the inservice teacher training programs and the frontline users of educational innovations, such as competency testing. These three dimensions are: the person's Stages of Concern About an Innovation, Levels of Use of the Innovation, and Innovation Configurations. In combination, these three variable dimensions provide the change facilitator with the diagnostic tools and a frame of reference to design and conduct concerns-based interventions, such as inservice teacher training, in order to manage the change process. The larger organizational and user systems context will not be addressed in this paper. Rather, the focus will be on individual and innovation diagnosis and the design of concerns-based interventions. Each of the three dimensions named above will be described next.

STAGES OF CONCERN ABOUT THE INNOVATION

One of the key assumptions of the CBAM, as I have said, is that change is a personal experience. Everyone, as they approach change, as they initially implement an innovation, and as they develop skill in using the innovation, will have certain perceptions, feelings, motivations, frustrations, and satisfactions about the innovation and the change process. One dimension of the CBAM is the concept of "concerns" which has been developed to describe these perceptions, feelings and motivations of innovation users and nonusers. Project research has, initially, verified a set of stages that people move through as they are involved in innovation implementation. These Stages of Concern About the Innovation provide one key diagnostic tool for determining the content and delivery of inservice teacher training activities.

The concept of concerns originated with research done by Frances Fuller (1969, 1970) at the Research and Development Center for Teacher Education at

the University of Texas at Austin. Fuller, in her research, identified a set of concerns that preservice teachers expressed as they moved through their teacher education program. These concerns changed from initial, unrelated concerns about teaching ("I am concerned about getting a ticket to the rock concert next Saturday night."); to concerns about self in relation to teaching ("I wonder if I can do it."); to task concerns about teaching ("I'm having to work all night to prepare my lesson plans for the next day."); to impact concerns ("Are the kids learning what they need?"). In total, Fuller identified six different levels of concern that preservice teachers expressed at different times during their teacher training programs.

As the concept of teacher concerns was being disseminated, it became apparent that the concept applied in similar fashion to individual teachers and college professors when they were involved in implementing various educational innovations. Seven Stages of Concern About the Innovation were identified (see Figure 1). It appears that a person's Stages of Concern about an innovation move through the same progression from self, to task, to impact that Fuller had identified.

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insert Figure 1 here

SoC Research

Subsequent research with the concept of Stages of Concern (SoC) has focused on the development of a reliable and valid measurement procedure for assessing SoC (Hall, George & Rutherford, 1977) and conducting a series of cross-sectional and longitudinal studies to verify that SoC exist. The findings from these research studies (Hall & Rutherford, 1976) confirm the existence of Stages of

Figure 1

STAGES OF CONCERN ABOUT THE INNOVATION*

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

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

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

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

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

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

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

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*Original concept from Hall, G. E., Wallace, R. C., Jr., & Dossett, W. A. A developmental conceptualization of the adoption process within educational institutions. Austin: Research and Development Center for Teacher Education, The University of Texas, 1973.

Concern and suggest, although this is not conclusive, that the phenomenon is more developmental than one might want to believe.

Before implementation of an innovation it appears that Stages 0, 1, and 2 concerns will be most intense. As the implementation progresses, Stage 3, Management, concerns become more intense, with Stages 0, 1, and 2 concerns decreasing. With time, the Impact concerns of Stages 4, 5 and 6 become most intense. Another finding from SoC research is that an individual does not have concerns at only one stage; rather, there is a concerns "profile" with some stages being relatively more intense and other stages of concern less intense at the same time. Thus, as an implementation effort evolves, SoC profiles can be seen to change in a wave pattern. This ideal flow of concerns over the implementation period is represented in Figure 2.

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insert Figure 2 here

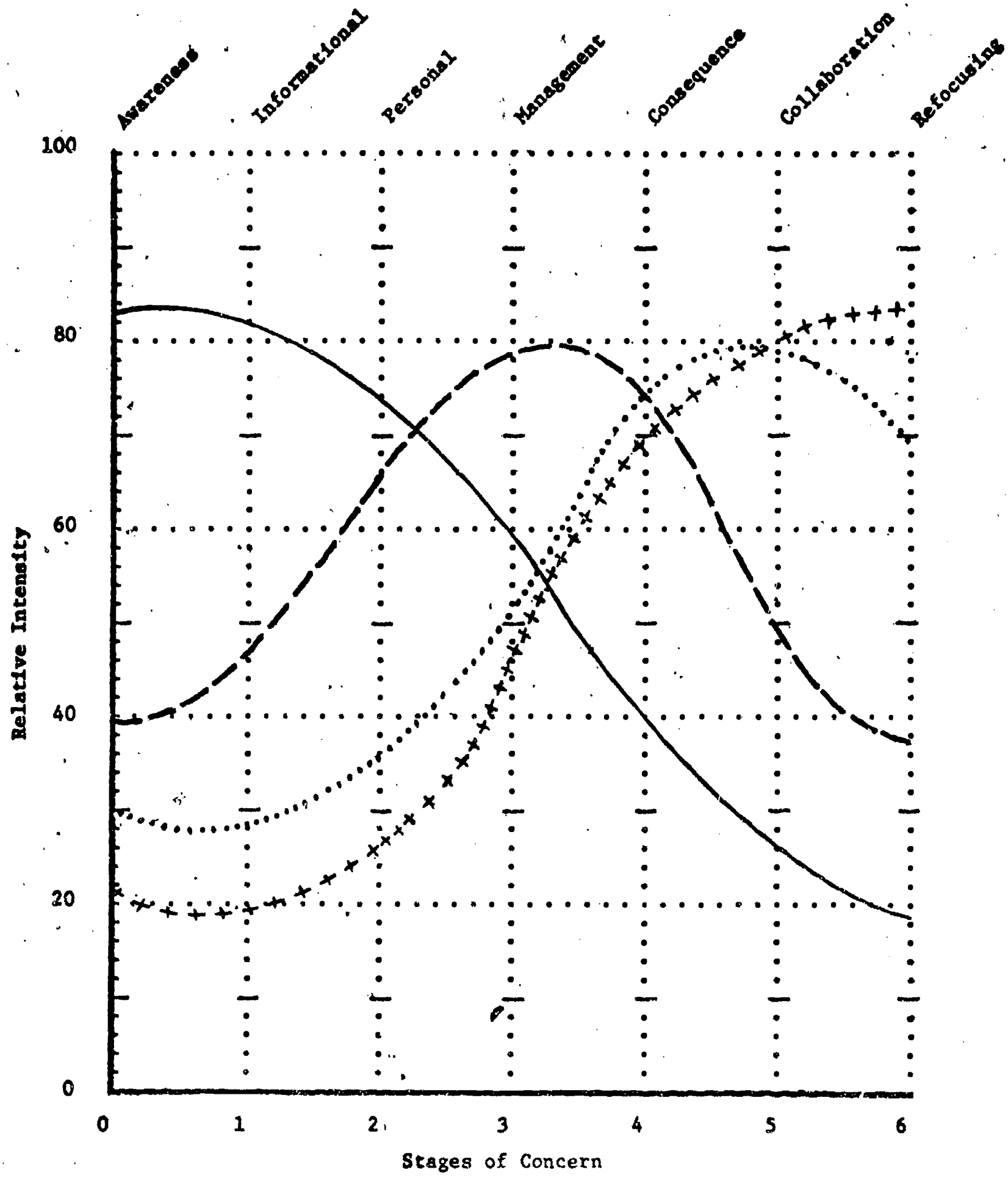
LEVELS OF USE OF THE INNOVATION

The second key dimension of for assessing people as they are involved in change is Levels of Use of the Innovation (LoU). The SoC dimension focuses on the individual's perceptions, feelings and motivations about the innovation, while the LoU dimension focuses on what she or he is doing. Thus, with LoU, the focus is on the individual's behavior and performance in regard to the innovation.

Eight different Levels of Use have been identified and operationally defined. The *operational definitions* for the overall levels are presented in Figure 3 along with *decision points* which have been developed to make clear the

Figure 2

Hypothesized Development of Stages of Concern



demarcation between the levels. Full operational definitions of the Levels of Use are developed and described elsewhere (Hall, Loucks, Rutherford, & Newlove, 75).

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insert Figure 3 here

Levels of Use begin with the individual "Orienting" herself or himself to the innovation. The individual is actively engaged in looking over and reviewing materials, attending orientation workshops, examining the innovation, and considering its use.

Usually, initial use of the innovation begins at a "Mechanical" Level of Use. At this time, use of the innovation is somewhat disjointed, with the user depending heavily on the user's guide. A great deal of time is spent on logistical/management kinds of activities. Problems may arise, and must be dealt with. Printed materials may not arrive on time or the crickets may die before the science lesson is completed.

Later on, use moves to a "Routine" level, where the user has the systems worked out and has developed to a stable use of the innovation. Other users, however, move on to idiosyncratic "Refining" of their use of the innovation, making adaptations with the intent of increasing impact on clients. And, eventually, the user may move to "Integration" and "Renewal" levels (described in Figure 3). Again, the focus of LoU is on describing in behavioral terms what the individual is doing with the innovation.

LoU Research

During the last three years, we have explored the Level of Use concept

Figure 3 Levels of Use of the Innovation

LEVELS OF USE		DEFINITION OF USE
0	NONUSE	State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.
	Decision Point A	Takes action to learn more detailed information about the innovation.
I	ORIENTATION	State in which the user has recently acquired or is acquiring information about the innovation and/or has recently explored or is exploring its value orientation and its demands upon user and user system.
	Decision Point B	Makes a decision to use the innovation by establishing a time to begin.
II	PREPARATION	State in which the user is preparing for first use of the innovation.
	Decision Point C	Changes, if any, and use are dominated by user needs.
III	MECHANICAL USE	State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.
	Decision Point D-1	A routine pattern of use is established.
IVA	ROUTINE	Use of the innovation is stabilized. Few, if any, changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.
	Decision Point D-2	Changes use of the innovation based on formal or informal evaluation in order to increase client outcomes.
IVB	REFINEMENT	State in which the user varies the use of the innovation to increase the impact on clients within the immediate sphere of influence. Variations are based on knowledge of both short- and long-term consequences for clients.
	Decision Point E	Initiates changes in use of innovation based on input of and in coordination with what colleagues are doing.
V	INTEGRATION	State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.
	Decision Point F	Begins exploring alternatives to or major modifications of the innovation presently in use.
VI	RENEWAL	State in which the user reevaluates the quality of use of the innovation, seeks major modifications of or alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

From the LoU Chart. Austin: Research and Development Center for Teacher Education, The University of Texas at Austin, 1975.

extensively. Initial research activities involved the development of a measurement procedure for assessing Levels of Use. A focused interview procedure has been developed (Loucks, Newlove & Hall, 1975). The interviewer uses a branching format to question the teacher regarding her or his use of the innovation. Based on the information gathered in the interview and the operational definitions and decision points of LoU, the individual is rated on overall Level of Use and in seven categories which represent a more detailed breakdown of each of the levels. To verify the existence of the Levels of Use, the LoU interview has been applied in a series of cross-sectional and longitudinal studies in both school and college settings using a variety of process and product innovations. The findings from these research studies have verified that the eight different Levels of Use are found in practice.

One research study was of teachers involved in teaming in elementary schools and another study was of the use of instructional modules by college and university faculty. The subjects were selected according to years of experience with the innovation. Levels of Use interviews were then conducted. Figure 4 represents a summary of the cross-sectional samples from the two studies.

We found that the distribution of individuals across the levels is not equal. In both samples (see Figure 4), the largest proportion of individuals is at the IV A, Routine, level. It appears that most individuals who implement an innovation reach Level of Use IV A and remain there. Further analyses of this level have indicated that there are probably three types of IV A's. The first type is the former Mechanical user (Lo III) who is resting after having "made it" to Level of Use IV A. Another kind is the "Refining" IV A who has just completed implementation of a refinement or adaptation of the innovation and may be resting from this refining activity. Finally, there are the "career IV A's" who appear to be unchanging IV A users of the innovation.

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insert Figure 4 here

Another analysis indicates that 60% to 70% of the first year users of an innovation are likely to be at the Mechanical Level of Use. The number of Mechanical users decreases as years of experience with the innovation increase.

Analyses of longitudinal data suggest that movement in LoU is not lockstep all the way through. Individuals do not start at Level of Use 0 and sequentially move all the way to LoU VI. The movement from LoU 0 to LoU IV A does appear to be more sequential. Above LoU IV A, however, individuals may skip level IV B or V and move directly to VI or they may move in one of several combinations. Further, it appears that once LoU IV A is reached, movement is more dependent on factors beyond the control of the individual. That is, the organizational context appears to play a greater part, as does the role of the unit manager or principal influencing movement to refining levels.

INNOVATION CONFIGURATIONS

Stages of Concern and Levels of Use provide two key ways of describing and understanding the individual involved in change. The third dimension focuses on the innovation. As innovation developers are well aware, the innovation is "adapted" and quite often drastically mutated as it is implemented. In fact, a great deal of thought has been given to this by diffusion researchers (Rogers & Shoemaker, 1971; Berman, McLaughlin, Bass, Pauly & Zellman, 1977).

Although the name of the innovation may remain the same across classrooms and across school sites, what is actually being done in different locations may

Figure 4

Percentage of Distribution of Overall Level of Use
for Individuals Involved in Cross-Sectional Studies of Two Innovations

Fall, 1974

LEVEL OF USE	STUDY OF TEAMING IN ELEMENTARY SCHOOLS N = 371	STUDY OF MODULES IN TEACHER EDUCATION INSTITUTIONS N = 292
0	7%	10%
I	9%	31%
II	3%	9%
III	19%	8%
IVA	52%	22%
IVB	6%	11%
V	3%	8%
VI	2%	2%

differ dramatically. In many cases, these may be alternate forms of what the developer had in mind, but in other cases the variations may be altogether unacceptable forms of the innovation. Part of our present research is focused on analyzing the various ways innovations are adapted. To do this, we have developed a concept called innovation configurations and a procedure for determining innovation configurations.

One way to illustrate the concept is to think of driving a car as an innovation. The SoC dimension of the CBAM describes the perceptions, motivations, and feelings that one has as she or he adopts, implements and institutionalizes driving a car. The Levels of Use dimension describes the driver's performance from early Mechanical use, with grating gears and bumpy starts, to the Routine LoU IV A user's focus on the entire trip without a great deal of thought to the driving, to the driver who is making refinements to increase gas economy or driving proficiency. Innovation configurations describe the kind of car that is being driven. The car could be a Volkswagon, Ferrari. or Ford. Some people, however, may think that they are, or claim that they are, driving a car while they are really driving a bicycle.

Thus, a continuum can be visualized as illustrated in Figure 5, along which these various "innovation configurations" exist. At the extreme right is a description of the developer's model of the innovation. The developer's model(s) entails all of the requirements and enhancements of the implemented innovation that the developer has in mind. A continuum then extends from the developer's model toward greater and greater adaptations and changes in the innovation, to some point (DP) where the developer insists that the mutations are so drastic that what is being used (driven) is not the innovation.

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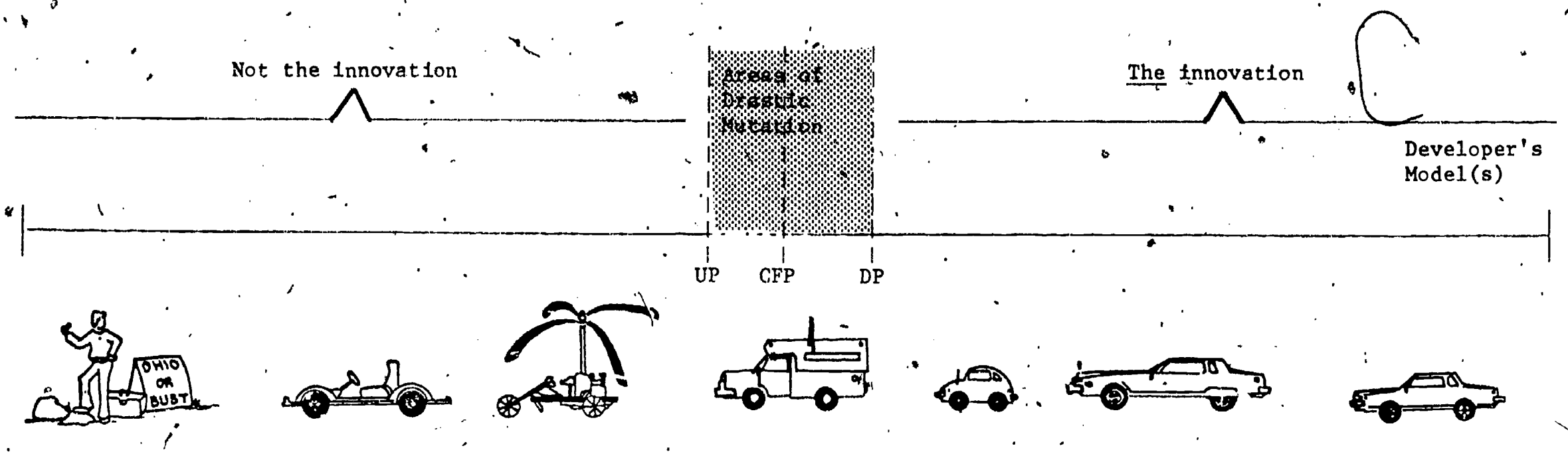
insert Figure 5 here

Figure 5

Configuration Continuum

Using "Car" as the Innovation



Points of Drastic Mutation

UP -- User's Point

CFP -- Change Facilitator's Point

DP -- Developer's Point

Interestingly, users and change facilitators do not always agree with the developer's use/nonuse point. They often set completely different points beyond which the innovation is no longer considered to be in use. What happens, in reality, is that the developer, change facilitators, and users do not agree on a point of drastic mutation. Instead there is an area or zone of drastic mutation within which some observers will say that the innovation is successfully implemented, but other observers will deny that the innovation is present.

Innovation Configuration Research

Several aspects of research on the concept of innovation configurations are currently underway at the Texas R&D Center. One is an attempt to clarify and describe the concept of innovation configurations. Another aspect of the research focuses on the determination of configurations through the use of a "configuration hunt." At the beginning of the Levels of Use interview, an attempt is made to determine which of many configurations a particular person is using. Then, it must be judged whether or not that configuration represents use of the innovation or not. Based upon a series of interviews, configuration checklists have been developed for several innovations. These checklists identify key components of the innovation and variations within each of these components. From analyses of checklists filled out by interviewers, users, and nonusers of the innovation, it is possible to identify dominant patterns or dominant configurations that occur across many classrooms.

As I have shown, SoC, LoU, and Innovation Configurations are three key diagnostic dimensions for assessing the present state of a change effort and for planning next steps. These diagnostic dimensions provide change facilitators with mileposts to mark progress and keep clear what the innovation and the people are to be doing.

STRATEGIES FOR IMPLEMENTATION

With the innovation of competency testing in a given school system, what is the ideal state that is envisioned? Is it described in operational terms? How will the school system know it has got it? More specifically, the following questions must be addressed:

1. What configuration of competency testing is to be implemented?
2. What Level of Use of that configuration is to be accepted?
3. What should the concerns of users be at the time of institutionalization?

The above questions must be answered first. Once they are, the managers of the change process need to develop a "game plan" for implementation. This is similar to the football coach's game plan. Strategies need to be selected, defenses and offenses developed. As the game plan unfolds, tactics need to be adjusted, and in some cases, strategies and game plans drastically altered. However, the effective change facilitator has in mind how the various interventions will fit together into a coordinated set of supports and facilitating acts to assist and back the users of the innovation.

The concerns-based approach assumes that "game-planning" strategies for change is not only possible, but essential for successful change. (Some kind of strategy exists in all change efforts, unfortunately, these strategies are largely a result of happenstance rather than a result of careful planning.) In this discussion, strategy is defined as an interrelated set and sequence of activities covering most of the implementation period which are carefully designed to facilitate implementing the innovation.

Any strategy has inherent advantages and disadvantages. In addition, contextual variables and characteristics of particular innovations will make

some strategies more advantageous than others. At the beginning of the change attempt, the manager of the change process should give thought to exactly which strategy or set of strategies she or he will employ and consider the consequences of each in terms of the Stages of Concern and Levels of Use of the individuals, system implications, and the requirements of the innovation configuration to be implemented.

In this section, eleven implementation strategies are described briefly, and their implications, advantages, and disadvantages are discussed. No one strategy in and of itself will form a complete "game plan" for an implementation effort, and none is without disadvantages as well as advantages. The point here is that strategies should be consciously selected, and the change facilitator needs to anticipate the various implications of the strategy chosen.

The strategies[3] described below have been observed in both school and college settings, and examples of each will be used as illustrations.

Bootstraps Approach. This particular strategy is all too frequently found in education. The overall plan begins with the dean, or principal, and several members of the faculty deciding that, with no additional resources or support, a particular innovation will be implemented. The catch is not only are there no resources available, but everything that is currently being done must continue. The assumption seems to be that there is more energy available in the existing resource system in terms of faculty time, skill and interest. It is further assumed that change does not cost.

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[3]An earlier version of these strategies was described in Hall, "Facilitating Institutional Change Using the Individual as the Frame of Reference," in Grosenick, J. K., and Reynold, M. K. (eds.). Teacher Education: Renegotiating Roles for Mainstreaming, to be published in 1978 by University of Minnesota Press, Minneapolis, Minnesota.

The potential advantage of the Bootstraps Approach is that the implementation effort should not cost a great deal in terms of hard resources ($). However, an inherent weakness is that the users may not have the time and resources it takes to implement the change fully, thereby endangering the whole effort or the possibility of implementing a less demanding "cheaper" innovation configuration. (The often heard statement, "I could build better modules than those in the middle of the night" has near zero predictive validity.) Further, the Bootstraps Strategy usually calls on the same faculty and staff who are already doing the most. In the long run, the Bootstraps Strategy can cost more by burning out many of the potentially most effective faculty and administrators.

In terms of concerns, the Bootstraps Approach will arouse a great deal of initial Personal (Stage 2) and Management (Stage 3) concerns: "Where am I supposed to find the time for this?" Personal concerns will be exacerbated further if there is no clear statement of priorities from the administration which would allow faculty to divert their attention from low priority tasks.

Sabbatical Leave Strategy. The Sabbatical Leave Strategy was used extensively in the TTT (Training Teachers of Teachers) grants of the late 1960's and early 1970's. In this strategy, a member of the faculty is "selected" to spend a sabbatical at an institution that is already using the innovation. The assumption is that the faculty member will become tooled-up in the use of the innovation, return to her or his home institution, and provide resident expertise for the change effort.

The potential advantages of this strategy are that the home institution will develop in-house expertise, establish closer ties with another institution, and keep costs reasonable, since there is, at the most, one faculty member's time being invested. However, there are several potential disadvantages.

Observation of this strategy indicates that, in general, the faculty member who is selected to go on sabbatical leave is likely to be the one that the institution can most afford to have gone. Chances are this faculty member is not the one who will be most credible upon her or his return, nor will she or he be the one who is most able to acquire the skills that are needed during the visit to another institution. Further, unless other strategies are employed at home while the potential change agent is gone, the home-based faculty are not apt to accept the new expert when she or he returns from taking a "vacation."

Superstar Strategy. The Superstar Strategy has been employed quite successfully by several teacher education institutions implementing competency-based programs and in the administrative ranks of large school systems. The basic design of the Superstar Strategy is to hire one or more young, bright, hustling, highly competent, productive, upwardbound Ph.D.'s. These "superstars" come to the system bringing with them the expertise needed to implement the innovation. They also bring ties to the regional or national movement in the area of the innovation and ties back to the prestigious institutions where they were previously located.

However, one potential disadvantage of the Superstar Strategy is that superstars are not institution-bound; rather, they are profession-oriented and are apt to move in four or five years as they climb up the professional ladder. Further, many superstars are not skilled in working with other faculty members. The result may be an "us-versus-them" phenomenon wherein the superstars may establish a program from which the regular faculty feel alienated, since it was developed by "them" and not "us." A further potential disadvantage is that if several superstars are hired, a rivalry or open warfare may develop between them, since they are highly competitive and striving individuals.

Experimental Program: Experimental programs have been a frequently practiced strategy in teacher education. A select few of the faculty are given special permission to develop an experimental program which is operated alongside the regular program.

A potential advantage is that not all faculty have to go through the struggles, trials, and tribulations of developing the program. The bugs can be worked out in an experimental program and a more efficient program can be institutionalized at a later date. A potential disadvantage is that the experimental program may not get institutionalized. In many cases, the Experimental program may not get institutionalized. In many cases, the experimental program is developed, establishes a reputation of its own and is frequently visited by educators who are interested in learning about the effort. However, the regular program remains untouched. For example, one experimental program received national and international fame and for the eight years of its life remained in a refurbished house on the edge of the university campus while the regular program went on unaffected. In addition, another potential problem is the question of who owns the program. The administration and the program staff need to make certain that they are constantly reaching out to the regular faculty to involve them in the development and evolution of an experimental program. Otherwise, the "us-versus-them" phenomenon occurs.

Decree or Mandate. Although this is classified as a strategy, it occurs more often as an event with delivery of the Word. This "strategy" is a common occurrence in schools, and its frequency appears to be increasing in higher education. With this strategy, change is announced: "As of September, the teacher education program will be competency-based." "As of 1978, mainstreaming will be a part of both elementary and secondary regular programs."

Decrees and mandates have several advantages, one being that the change is "accomplished" instantaneously. Another advantage is that the faculty are aware of administrative priorities so that there is little possibility of confusion about how they should be investing their time. (An interesting hypothesis which needs an empirical test is that, in higher education, the decree/mandate may be one of the most effective, given the present liberal definition of academic freedom.) A disadvantage of the Decree/Mandate Strategy is that it doesn't take into account the assumption that change is a process rather than an event. Another disadvantage is that decrees, especially those without the provision of additional resources, result in faculty not being able to accomplish all that is expected of them. In several cases administrators who have made decrees have later been fed half-truths and misinformation so that they are not fully aware that the decreed change is not fully implemented. "Oh, yes, we have been IGE for several years."

Hit-and-Run Workshops. Hit-and-run, or "God-bless-you," workshops are the norm in many school systems; they are not so common in higher education, since so few faculty seem to participate in and see the need for inservice training (although this, too, is changing). The general format for this strategy is a one-to-five-day workshop in which all of the wonders and trappings of the innovation are introduced, normally by a consultant from far away (very far away). At the end of this "training," the consultant heads for the airport saying, "God bless you. Good-bye." The institution and the users are left to implement the innovation using the discovery approach. That is, during the time of Mechanical Use (LoU III), the faculty and the administration are left on their own to discover both the problems and their solutions.

The advantage of this strategy is that the faculty do get some training,

some knowledge, and some skill development before they begin to use the innovation. The disadvantage is that follow-through during the implementation process is not provided, so the faculty use a great deal of energy discovering the problems and trying to determine the solutions. At many institutions, recent innovations such as modules, IPI, and IGE have not lasted because the users lacked the necessary follow-through handholding during the implementation.

Good-Time Workshops. Good-time workshops (which are often hit-and-run as well) are also frequently employed in school settings. Change in this case is really nonexistent. The sole goal of the good-time workshop is high happiness coefficients for the participants on the end-of-workshop evaluation forms. No change is expected on the part of administrators, the workshop participants, or the trainer. In its purest form, the honorarium received by the leader of the good-time workshop is prorated based on the value of the happiness coefficients. Good-time workshops are frequently practiced in states and institutions where inservice is mandated and a number of days per school year are set aside, but there is little or not expectation for actual change in the classroom.

Pennsylvania Contingent. The Pennsylvania Contingent is usually based on changes in the administrative structure. This strategy begins with the unit manager, the dean, or the superintendent, being replaced with one from Pennsylvania (or wherever). The new administrator immediately recognizes that there is a leadership gap and that refinforcements are needed, so one of her or his former colleagues (from Pennsylvania) joins the administrative staff as an assistant dean/assistant superintendent. The assistant superintendent's wife needs an appointment as a faculty member or supervisor and an old colleague from a professional association is also brought in as a school principal. The Pennsylvania Contingent normally increases in number very quickly.

The potential advantages of the strategy include the addition of new resources, leadership, ideas to the institution, and the establishment of a cohesive leadership nucleus. The potential disadvantages include the members of the Pennsylvania Contingent talking only to themselves about all of the problems the institution has and how they will cure all the ills, while the regular faculty are sitting on the side saying, "We'll be here long after they're gone." This again can result in an "us-versus-them" phenomenon which will further reduce chances for successful change.

Multiple Adoption Design (M.A.D.). The Multiple Adoption Design is most often practiced in school systems. (In higher education, one innovation at a time is plenty.) With the M.A.D. Strategy, there is an attempt to implement many different innovations concurrently. The M.A.D. Strategy can be readily observed in Title I schools, with "innovative" superintendents, and in suburban school districts where there was a need to appear to be progressive in the 60's, and in the 70's, they must appear to be heading back to the basics.

The consequences of this strategy are several. One (normally seen as an advantage) is that many different innovative efforts can be listed as "in use;" thus they are labeled as "innovative." A disadvantage is that users of the innovations experience "system overload" in which they have more to implement than they can possibly manage since, once again, change is a process and not an event. Thus, as new innovations are added each year, the overload on the teachers, the classrooms, and the children quickly reaches a point of diminishing returns.

Wonder Woman/Superman Strategy. This strategy is more frequently found in higher education. The plan here is to select one of the faculty members who can become the key leader of the change effort. Major responsibility for implementation is assigned to this person. This person can either be a senior faculty member, a young faculty member, or a new person who is brought in to encourage the change

effort. Using young or new faculty members is potentially disadvantageous, since not only will senior faculty see them as lacking credibility, but the powers, promotions and tenure may be jeopardized. Further, new personnel will not be aware of all the intricacies and politics of the institution and may not be able to work as effectively in the change attempt.

Other potential disadvantages of this strategy are that the change leader(s) may become overloaded. Further, the administration may not publicly back them, leaving "leaders" on their own to implement a change that they are being held accountable for without having the authority or the resources to make faculty follow-through.

The Matrix Management System can have similar dynamics, since the Wonder Woman or Superman may be striving to get faculty resources from adminstrators of different departments who do not see the innovation as a departmental priority. The change facilitator is left in the cold, filling in with weaker faculty and/or lacking the resources and authority to do the job.

However, this strategy can be very effective when credible personnel are used, since the person has enough time to do the handholding and supportive activities required during implementation. This kind of strategy can also result in many faculty members having ownership in the innovation and the input to them being individualized and personalized.

Hire a Martyr. In several institutions where there is a long history of stability, the system leaders have gone outside and hired a very dynamic and aggressive leader. This new leader moves in, throws everything up in the air and, through determination and creative leadership, gets the system moving. There is normally enormous inertia that must be overcome and, after the initial shock, faculty begin to slowly organize their resistance to this intrusion. In four to six years the dynamic leader begins to be bogged down because the

resistant system has become more effective in checking the leader. Pressure increases for removal of the leader (which follows quickly), which was anticipated from the beginning, but everyone is happy. Martyrdom is ordained for the leader so she or he is able to move on to bigger things. The faculty are happy that they got rid of the zealot and the system leadership has seen the system change. The amount of change is as much as the system leaders really wanted and now a "maintainer" leader, probably from the inside, is hired to fortify the gains.

The advantages of this strategy include the initial success it accomplishes, a broad base of activities is possible, and one person has control over a wide enough span to move things. The disadvantages include the trauma that occurs in reaction to the leader, which can make future change attempts more difficult.

Implications of Our Research for Competency Testing

The practical results of the research discussed in this paper are generic in nature because the results may be applied to many different innovations in a variety of contexts. Our research has confirmed that the concepts, LoU, SoC, and innovation configuration analysis are useful in studying and implementing a variety of innovations (e.g., team teaching, innovative science curricula, instructional modules) in a variety of institutions (elementary schools, secondary schools, and higher education institutions). These same concepts can be used to provide insight to those who wish to, or must, implement the innovation of competency testing.

Competency testing is indeed an innovation. One obvious reason is that competency testing brings with it new testing procedures. Another, more compelling reason is that implementing competency testing necessitates a complex process of change. Several implications of our concerns-based research tie

directly to potential problems with implementing competency testing. In summary, let's first look at the process of implementing competency testing, and then provide some guidelines and suggestions for change managers to consider.

Implementing Competency Testing

Several phenomena are likely to be found in a school system that is in the beginning stages of implementing competency testing. Of course, there will be some idiosyncratic features of any change effort because we are dealing with people, not institutions. But, generally speaking, the following events should be expected:

1. The innovation will be confused. Competency testing is not a well-defined or well-understood innovation. This lack of definition and understanding is, most likely, due to the fact that competency testing has a highly visible component (testing); therefore, the subtle and sophisticated process component of competency testing is often left by the wayside. The process component is the gradual strengthening of education based on the analyses of data, how the results of the tests are used, and how staff, children, and parents are prepared for the testing and the test results.

Unfortunately, this process of competency-based education has been overlooked due to the isolation of competency testing as the sole focus of concern. If competency testing was intertwined with competency-based education, then the act of testing would take on a more relevant meaning in that the tests would have tangible and constructive uses.

2. Personal concerns will be high. Several things can be predicted in regard to teachers' and administrators' Stages of Concern profiles and their Levels of Use. Because of the inherent threat involved in competency testing,

Stage 2 (Personal) concerns will be extremely high. In addition, Stage 6 (Refocusing) concerns may be up, thus indicating the following: (1) the user will be, most likely, harboring uncomfortable feelings toward competency testing, and (2) they will be holding opinions (sound or otherwise) that are against the implementation of competency testing.

In terms of Levels of Use, it is safe to assume that nearly all faculty and administrators will be at a Level of Use 0 (Nonuse). In addition, their knowledge, which is one category dimension of the Levels of Use phenomenon, will be at LoU 0 as well. That is, there will be little knowledge of what competency testing is, what its meaning and parts are, and how it may relate to anything else within the instructional program or the school system's responsibilities. Further, it is quite likely that what knowledge is possessed will be based on misinformation which will further exacerbate the personal concerns. Note that this knowledge "state" may also exist on the parts of upper level administrators, as well as the school board, the public, and the local press.

Some Suggestions

Given the likelihood that there will be misunderstandings of competency testing and resistance from those who must use the innovation, the following suggestions are offered to those who must manage the change effort:

1. Don't call the innovation competency testing. As the early competency-based teacher educators found out, "CBTE" has become a red flag. As soon as the acronym or the name is referred to, defenses are immediately raised and the potential of having input to raise the knowledge level or the positive engagement of the recipients drops dramatically. Therefore, do not call this innovation competency testing. Call it something else that is vague in terms of implications and that makes it sound more like motherhood and applie pie.

2. Tie the innovation of competency testing to other missions and programs of the system. Do not allow competency testing to be delivered as a "shirttail" phenomenon that has no meaning or place in the overall instructional program or administrative requirements of the school system. If at all possible, show that, rather than competency testing being an inconvenience, it is instead an opportunity for benefit to be gained in terms of previously identified needs. This stance would have to be valid and delivered with credibility or it will further raise personal concerns. However, if there is a legitimate and logical basis for tying competency testing to other needs of the district, show how competency testing will actually strengthen other activities within the district.

3. Acknowledge the mandate. If competency testing is being mandated by the legislature or the school system, acknowledge this up front and point out that this does cause additional stress for all involved. A mandate adoption strategy does cause many personal concerns. However, there are many beneficial changes that do come about due to a mandate, therefore, the obvious thing to do is to be straight-forward and acknowledge that there is no choice but to get on with doing the best possible job. And again, attempt to set a positive and optimistic mood (e.g., We're all in this together--sink or swim!)

4. Address directly and systematically the deficient knowledge base. The runaway ignorance that surrounds this particular innovation requires immediate attention. Key administrators need to be given a cram course from skilled experts in order to introduce them to the subtleties of competency testing. These administrators also need to receive skill training about the change process and, thereby, learn to work with uncomfortable or, in some cases, threatened faculty. The entire cadre of instructional staff who are to become users of competency testing need to have their knowledge base increased early in the process. This

does not mean a two-day hit-and-run workshop on the intracacies of competency testing. Rather, there should be a continuing, properly staggered delivery of information which deals with the overall structure and schema of competency testing and what it means for the school system and the individual staff member. Key points and clarification needs must be addressed first, and, in time, the more subtle aspects may be addressed. For example, one approach could be delivery of a combination of brief seminars held by unit managers, newsletters, presentations to PTA and the media, other general and, later, more specific kinds of information with gradual increases in complexity.

5. Develop a game plan for the implementation effort. Do not undertake the implementation of competency testing in the midst of everything else with the erroneous assumption that it will be easily accomplished or that the best way to implement this innovation is to handle each crisis and decision-point as it is reached, or shortly thereafter. Rather, a game plan should be developed that addresses exactly what the implementation support will be, exactly what the innovation configuration will be, and develop a systemic strategy for supporting and insuring that the innovation is implemented. In other words, don't leave it to chance.

6. Show how the data gathered is related to decision-making and practice. If the competency testing data are going to make a difference in terms of hiring and firing or promotions, then acknowledge this. Be up front about how the data will be used or will not be used as a result of its collection. If the data will be used for the assignment of children or the assignment of teaching responsibilities, then this should be clearly stated to avoid misinterpretation and false expectations. It may mean more initial concerns, but in the long run it will result in less disruption as the competency testing effort proceeds.

7. Provide feedback during any pilot processes and following any data

collection activity. This data feedback should immediately follow any testing period. It is not good to allow personal concerns to set unanswered for six to eight months while tests are being processed. The test processing should be done quickly, and even if the data are only in terms of partial returns, feedback in a very short period of time should be provided to the administrators and staff. Otherwise, personal concerns will, again, have time to rise and be further exacerbated.

8. Develop a clear operational description of the innovation configuration to be implemented. This will not be an easy task, especially with a highly complex and sophisticated process innovation, such as competency testing. However, the development of an operational description of the configuration to be implemented will, in the end, make the job of implementation easier for all involved. This includes the unit manager, the teachers, the parents, and others who are concerned about competency testing. Of course, this does mean more planning time early in the process. However, the ultimate success depends on clarity and consistency across the board in terms of what the innovation is to look like once it is implemented. This configuration includes not only the act of testing, but how the data will be processed, what will happen to the data, how it will be fed into the system in terms of decision-making and fed back to all involved.

9. You can't do everything at once, so don't try. One of the largest hoaxes being carried out in the American education scene is the maintenance of the impression that school systems can implement everything on top of everything else and do it successfully. The implementation of competency testing cannot be done on top of everything else assuming that staff are presently engaged 100% of their professional time. Thus, something will have to go if competency testing is to become an integral part of the system activities. Rather than allowing it

to be squeezed in and, as a result, everything being forced into a lower quality of activity, the decision-makers are advised to deliberately subvert certain mandated activities and other changes and requirements in order to get one or two successfully implemented. This is especially true in schools where the activity is already complex, such as Title I schools. If anything is really going to happen with the teachers and children, then they can't be attempting to do everything at once. The administration have to, through covert and unofficial actions, be able to assist instructional staff in prioritizing how they will invest their energy and time. If this is done, they will be able to initially implement one or two innovations a year and have time to work on institutionalizing. If competency testing is to be one of the last year's priority items, then other things will need to be glossed over or done less well. If competency testing itself is to be done less well, then do not make a big fuss about it and allow it to coast along (like so many other things do).

In summary, the implementation of innovations, whether they be relatively simple innovations, such as changing a reading text, or more complex innovations, such as competency testing or individually guided education, requires time, skill, and support if it is to be implemented successfully and function effectively. These implementation efforts do not occur by decision-makers working with a "shoot from the hip" style in terms of managing the change process. Concerns-based implementation emphasizes the importance of game planning in advance, attending to the individual in terms of their concerns and their Levels of Use throughout the change attempt, and having clearly in mind the innovation configuration(s) which are being implemented so that everyone can have in mind what the criterion for success are.

Change in schools and colleges is never easy. There is bound to be high cost at times. However, it can and must be accomplished. And the ultimate

rewards if kept clearly in mind, can be reached. In addition, a great deal of personal growth (students and teachers) is also an exciting outcome along with the institution's growth. Assuming that competency testing has its merits, then its implementation should be attended to with care and sensitivity so that it does not become another destructive band-aid added to the pile.

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