An investigation of the factors which influence teachers to try mastery learning in their classrooms
by Robert Gene Osland

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education
Montana State University

Abstract:
The problem of this study was to determine which factors were most important in influencing teachers to try Mastery Learning. In this study the change process was examined in relation to the implementation of Mastery Learning and how that process was affected by the following six factors: the instructional leadership by the principal; the school climate; the support from the central office administration and the Board of Education; the supervision of the instructional process; the appropriate in-service education relative to the planned change and the potential for student success.

The study was conducted during the 1984-1985 school year. The population consisted of the regular classroom teachers in three school districts which initiated the attempt to implement Mastery Learning during the 1984-1985 school year.

To collect the data a simulation instrument was utilized. The instrument consisted of a series of simulations or profiles each of which represented a possible change environment. The information cues within each profile were the six factors which were determined to be important in a change process in education. The statistical method used was Judgment Analysis (JAN) which yielded policies, multiple regression equations, for each rater and for clusters of similar raters. The multiple regression weights represented the policies.

In every group analyzed there were two types of policies. In one policy type the teachers expressed an equal importance for all of the change factors. In the second policy type the teachers gave a high priority to the potential for student success and a priority to the appropriate in-service education. The first policy type indicated that all of the change factors were important to a substantial group of teachers. For this reason in a curricular change process care should be excercised to meet all six of the factors. The second policy type showed that early feedback showing student success should be built into the curricular change process and that the teachers should receive appropriate in-service education before the change is implemented in the classroom.

AN INVESTIGATION OF THE FACTORS WHICH INFLUENCE TEACHERS TO TRY MASTERY LEARNING IN THEIR CLASSROOMS

by

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APPROVAL

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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Date June 6, 1985

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ABSTRACT

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In every group analyzed there were two types of policies. In one policy type the teachers expressed an equal importance for all of the change factors. In the second policy type the teachers gave a high priority to the potential for student success and a priority to the appropriate in-service education. The first policy type indicated that all of the change factors were important to a substantial group of teachers. For this reason in a curricular change process care should be excercised to meet all six of the factors. The second policy type showed that early feedback showing student success should be built into the curricular change process and that the teachers should receive appropriate in-service education before the change is implemented in the classroom.

Chapter 1

INTRODUCTION

John B. Carroll (1963:27) set forth the basic premises upon which a new curriculum model was established.

> The amount of time actually needed by a person to learn a given task satisfactorily is a function not only of aptitude, but also of the quality of instruction insofar as it is less than optimal.

Carroll's contention was that with a given aptitude, if sufficient time was spent by the student, under the appropriate instruction, a given task could be learned satisfactorily. From Carroll's original work many educators set forth curriculum models based on this philosophy.

James Block (1971) used the name "Mastery" for a model which structures curriculum in a manner supportive of what Carroll advocated. Block explained that Mastery is structured to maximize the likelihood that each student will reach the performance levels essential for competence. The process operates on the proposition that almost every student can learn the basic skills and knowledge that are the core of school curriculum when the instruction is of good quality and appropriate and when adequate time is spent in learning.

Madeline Hunter (1983:3) stated,

> Consequently, teaching is now defined as a constant stream of professional decisions made before, during and after interaction with the student; decisions which, when implemented, increase the probability of learning. . . . Even champions have coaches.

Mastery Learning had become a major curriculum innovation in education. "Mastery Learning can work and the implications are very exciting, but it isn't easy" (Knight, 1981:136).

Numerous reports had surfaced concerning the need for change in education. A common thread in reports by The National Commission on Excellence in Education (1983), Boyer (1983), Sizer (1984) and Goodlad (1984) was the need for renewed efforts on the part of educators and supportive community members to improve our schools. Indeed, a golden opportunity did avail itself for educators to make substantial changes for the improvement of our schools.

"The problem is how to change and how to manage change successfully" (Block, 1974:120). This problem must be addressed by everyone in education. According to Drucker (1967:5), "every knowledge worker in modern organizations . . . is responsible for a contribution that materially affects the capacity of the organization to perform and to obtain results." Educators, teachers and administrators, with valid experiences of their own, need to provide more background information concerning Mastery Learning. "Otherwise a promising new direction will become another educational fad" (Knight, 1981:136).

> We are slowly moving toward a new conception of a professional discipline concerned primarily with the process of change. It rests on the assumption that social progress can be planned and engineered so that it is more reliable and more beneficial to more people. This new concept of "planned innovation" stresses the importance of realistic diagnosis of needs, adequate resource retrieval, collaborative planning and solution building and systematic design and evaluation of alternative solutions. (Havelock and Havelock, 1973:1,2)

An exciting curriculum model, that worked, had been articulated. Educators were provided with a proven approach in their repertoire to assist in the quest for educational excellence. "The greatest wisdom not applied to action and behavior is meaningless data" (Drucker, 1967:5).

Problem Statement

One area of education which had received a great deal of attention was curriculum. Reports dealing with the need for school curricula to meet the demands of society and aid students in reaching their fullest potential were common. "The push toward educational excellence is irreversible, and the movement seems likely to benefit the public schools" (Odden, 1984:318). Goodlad (1975:16) stated that there are two widely accepted statements of goals for education; "the full development of the individual and identification with an ever-widening concept of social and cultural responsibility." "Education . . . provides new insight and skill, introduces new possibilities, and excites new appetites for something better than what now exists" (Blake and Mouton, 1964:316). One

curriculum model which addressed the full development of the individual was Mastery Learning. Mastery Learning was viewed in this study as an educational change. Change is the process by which innovations are implemented.

Therefore, the problem of this study was to determine which factors were most important in influencing teachers to try Mastery Learning. This study investigated the factors which influence teachers to try Mastery Learning. More specifically, this study examined the change process relating to the implementation of Mastery Learning and how that process was affected by the following six school factors: the instructional leadership by the principal, the school climate, the support from the central office administration and the Board of Education, the supervision of the instructional process, appropriate in-service education relative to the planned change, and the potential for student success. Ancillary information was obtained with three demographic factors. The three demographic factors were: years of teaching experience, level of education degree earned by the teacher, and grade level teaching assignment.

Need For The Study

Mastery learning had proven itself an effective curriculum model. Bloom (1976:210) indicated that, "one implication of this theory is that talent can be developed . . ." In referring to a Mastery Learning implementation project, Rubin

and Spady (1984:44) wrote, "because the vast majority of students learn so well under this system, their success reinforces the teachers' sense of success and efficacy." In reporting research concerning innovative applications of Mastery Learning Bloom (1984:6) concluded, "it would change popular notions about human potential and would have significant effects on what the schools can and should do with the educational years . . ." Numerous studies pointed to the effectiveness of the model and each study contributed more data to the information pool which is utilized by interested educators.

Even with the impressive record which Mastery Learning maintained, the paradigm could be practiced by more educators. Owens (1970:141) contended, "it is a commonplace observation that actual change in schools--significant, meaningful, effective change--is even now proceeding in desultory fashion . . ."

> We need to know . . . why a particular innovation spreads rapidly or slowly, what the causes of resistance to change are in educational systems, and why particular strategies of change chosen by innovators succeed or fail. . . . Given an increase in understanding it seems likely that we may be able to manage educational innovation somewhat more skillfully than we have in the past. (Miles,1964:2)

No study had been conducted in this geographic area concerning the change process relative to the implementation of Mastery Learning. This study attempted to contribute to the data base concerning the implementation of the Mastery Learning curriculum model by determining which factors were most

important in teacher's decisions to try Mastery Learning. It was the researcher's expectancy that information from this study would be significant in providing assistance to area educators in changing school systems and providing a higher quality educational outcome.

General Questions to be Answered

This research study and its subsequent statistical analysis was designed to answer seven questions. The seven questions were:

1. Was there more than one order of importance of the six educational change factors (instructional leadership by the principal, the school climate, the support from the central office and the Board of Education, the supervision of instruction process, appropriate in-service education relative to the planned change, and the potential for student success) present in the population?

2. What importance did the teachers give each of the six educational change factors in trying Mastery Learning?

3. Was there more than one order of importance of the six change factors present in each of the three public schools?

4. What importance did the teachers in each of the three public school districts give each of the six educational change factors?

5. Was a teacher's likelihood of trying Mastery Learning independent of years of teaching experience?

6. Was a teacher's likelihood of trying Mastery Learning independent of level of education degree earned?

7. Was a teacher's likelihood of trying Mastery Learning independent of teaching level assignment?

General Procedures

The procedures followed in this study were as follows.

1. The study was conducted in three school districts, two of which were located in Montana and one of which was located in Wyoming. The researcher traveled to each of the school districts to obtain permission from the superintendents to meet with the teachers and request their participation in the study.

2. A simulation instrument utilizing quantitative profiles to express change environments was developed. Sample profiles are included in Appendix B.

3. To the extent possible, data was obtained from all regular classroom teachers in the selected schools.

4. The researcher was present at the local school district to administer the data collection instrument.

5. Hypotheses related to the questions were formulated.

6. The data obtained was statistically analyzed using the judgment analysis (JAN) technique and conclusions and recommendations were drawn.

7. An ERIC Search was conducted with the following

descriptors: JAN; Judgment Analysis; Change; Develop; Improve; Innovate; Planning; Mastery; and Competency.

Limitations and Delimitations

The following were the limitations of the study.

1. The only curricular change that was considered was the implementation of Mastery Learning.

2. The only schools considered were in school districts in which the initial in-service education relative to Mastery Learning occurred during the 1984-1985 school year.

3. The only phase of the change process this study examined was the decision to try the innovation.

4. Library searches were restricted to those available at Montana State University and inter-library loan.

The following were the delimitations of the study.

1. The study was conducted during the 1984-1985 school year.

2. Only regular classroom teachers participated in completing the research instrument.

Definition of Terms

Mastery Learning--A teaching/learning strategy in which material is divided into small learning units and formative tasks utilized to assess and diagnose student progress. The formative tasks are used not only to identify competent learners but also to diagnose the individual learning

difficulties (feedback) and to prescribe specific remediation procedures (correctives) (Guskey, 1985).

Adoption--"A decision to continue full use of an innovation" (Rogers, 1962:17). The adoption process is the mental process through which an individual passes from first hearing about an innovation to final adoption. For this study, full use refers to applying Mastery Learning in one class or subject.

Rejection--"A decision not to adopt an innovation" (Rogers, 1983:172).

Change--"The process by which alteration occurs in the structure and function of a social system" (Rogers and Shoemaker, 1971:7). Alteration in this study, refers to the effects of teachers applying Mastery Learning in their classrooms where such a system was not previously in use.

In-service Education--"All activities carried out by the district or school to promote staff growth and renewal" (Rogus, 1983:9).

Instructional Leadership by the Principal--"The activity of influencing people to strive willingly for group goals" (American Association of School Administrators, 1983:19).

School Climate--"The perceived subjective effects of . . . environmental factors on the attitudes, beliefs, values, and motivation of people in a particular organization" (Sergiovanni, 1983:56).

Student Success--"Levels of learning in all students that satisfy the public's expectations for minimum standards while providing maximum challenges" (Rubin and Spady, 1984:37).

Supervision Process--A rational modification of teaching performances based on, "systematic cycles of planning, observation, intensive intellectual analysis of actual teaching performances . . ." (Acheson and Gall, 1980:11).

Support from the Central Office Administration and the Board of Education--The enormous influence superintendents and boards exert on principals through their policies, priorities, resources allocated for these priorities and communications to effect these wants (American Association of School Administrators, 1983:56).

Summary

The United States public education system was under a barrage of criticism. One area receiving much attention was curriculum. Movements were numerous which purported to have a good solution for revitalizing curricula. One movement which was solidly based in theory and supportive field research was Mastery Learning. Mastery Learning was a curriculum model which dealt primarily with identifying student problems early, providing appropriate instruction to correct the problems and then determining the student's competencies which become the necessary entry level skills for future areas of study.

Change in education proceeds in desultory fashion even with our contemporary research based approaches and insights. One example of change taking place in school districts is the implementation of Mastery Learning.

In this study an attempt was made to determine which factors in the change process promoted the trying of Mastery Learning. Three school districts were studied to determine what affect six factors had on the decision by individual teachers to pursue Mastery Learning. The six factors of interest were: instructional leadership by the building principal; school climate; support from the central office administration and the Board of Education; supervision of instruction; appropriate in-service education relative to the planned change; and potential for student success. Three demographic factors were ancillary to the study. The three demographic factors were: years of teaching experience; level of education degree earned; and grade level teaching assignment.

The study was conducted during the 1984-1985 school year. Data was gathered by the researcher utilizing a simulation instrument designed to elicit decisions by respondents relative to educational change. The simulation instrument was administered by the researcher at the school site of the participating teachers.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

For the purpose of this study, the literature was reviewed with regard to two major topics: Mastery Learning and Change Theory. Mastery Learning was reviewed with regard to its historical development, contemporary definition and usefulness and effectiveness in contemporary education. Change Theory was reviewed from a historical perspective, including the contemporary methodology of the science, its application in educational change and more specifically in its utilization for administrative involvement in curriculum change in education.

Mastery Learning

> The essential new fact is that a developed society and economy are less than fully effective if anyone is educated to less than the limit of his potential. The uneducated is fast becoming an economic liability and unproductive. Society must be an "educated society" today--to progress, to grow, even to survive. (Drucker, 1957:114)

Block (1979), one of the most widely recognized proponents of Mastery Learning expressed a similar thought. Block (1977:117) stated, "one of the striking societal features of Mastery Learning is the degree to which it presses for a

society based on the excellence of all participants . . ." The theory and basic ideas underlying the mastery structure are not contemporary. According to Torshen (1977) the roots of Mastery Learning are hundreds of years old. Considerable attention had been given by J. Franklin Bobbit, from 1918-1941, Ralph Tyler in 1950 and Benjamin Bloom, John Carroll, Fred Keller, Robert Meager, and others beginning in the 1960's. Mueller (1976:44) indicated that since its recent resurgence "literally scores of papers, articles, and monographs have reported that students have learned better under the mastery model than under alternative instructional models." A good definition was provided by Cohen (1981:36), "Mastery Learning is competency based and teaches to precisely defined objectives." Cohen further stated that all students must demonstrate mastery of the intended outcome before continuing to the next point in the curriculum. Students who do not master the steps in one curriculum are given additional instruction until they demonstrate mastery or competency. Under this schema it is possible for all students to earn an 'A', but some students get it faster than others.

This coincides with the Carroll model (Carroll, 1963) in which the contemporary theory of Mastery Learning was clearly set forth. Carroll cited five elements which are basic to the concept of Mastery Learning. Three of those elements were considered to be within the individual and two elements were external. The three internal elements were aptitude--the time

needed to learn the task under optimal instructional conditions, ability to understand instruction--appropriate instruction for the individual student and perseverence--the amount of time the learner is willing to engage actively in learning. The two external elements were opportunity--time allowed for learning, and quality of instruction--a measure of the degree to which instruction is presented so that it will not require additional time for mastery beyond that required in view of aptitude. Block (1974) summarized Carroll's model in the following manner:

> As I interpreted it, the Carroll model made clear that if students are normally distributed with respect to aptitude for some subject and all students are given exactly the same instruction (the same in terms of amount and quality of instruction and learning time allowed), then achievement measured at the completion of the subject will be normally distributed. Under such conditions the correlation between aptitude measure at the beginning of the instruction and achievement measure at the end of the instruction will be relatively high (typically about +.70). Conversely, if students are normally distributed with respect to aptitude, but the kind and quality of instruction and learning time allowed are made appropriate to the characteristics and needs of each learner, the majority of students will achieve mastery of the subject. And the correlation between aptitude measure at the beginning of instruction and achievement measured at the end of instruction should approach zero. (4,5)

"One implication of the theory is that equality of learning outcomes can be a goal of education rather than equality of opportunity" (Bloom, 1976:215). Bloom suggested that teachers must find ways of giving each child the help and encouragement needed when needed it rather than ensuring

identical treatment of all children. Inequality of treatment may be needed, at least at certain stages of the learning process, if children are to attain equality of learning outcomes. This concept was clarified by Bloom (1981):

> The kind and quality of instruction and the amount of time available for learning are made appropriate to the characteristics and needs of each student, the majority of students may be expected to achieve mastery of the subject. (156)

This concept was further clarified by Bloom (1979):

> The most important is the feedback-corrective process. . . . When the feedback corrective process is used well, we begin to understand the enormous potential of all of our students. They have the prerequisites for each new learning task . . . (159)

Bloom explained that students use learning time more effectively and that the amount of time required to learn each new step becomes more similar for most students. Bloom (1976) again stressed the importance of corrective feedback.

> The major thesis . . . is that a system of feedback to the teacher and students can reveal errors in learning shortly after they occur, and if appropriate corrections are introduced as they are needed, the educational system can be a self-correcting system so that errors made at one time can be corrected before they are compounded with later errors. (212)

By using the feedback-corrective process the history of the learner is used to advantage. "One assumption . . . is that the history of the learner is at the core of school learning" (Bloom, 1976:13). This concept passed beyond an assumption when research indicated:

> The weight of this evidence suggests not only that there is a predictive relation between cognitive entry behaviors and subsequent achievement measures, but that cognitive entry behaviors are causal links in determining learning. (Bloom,1976:68)

Bloom (1976:68) also stated, "there is a strong positive correlation between the cognitive entry behaviors of a student and his achievement in subsequent courses or learning tasks."

It is the contention of Mastery Learning advocates that the corrective-feedback process detects learning deficiencies before they are harmful to the student. By doing this the student enters the next learning task with the necessary entry level cognitive skills. Because the necessary skills are a part of the student's history, mastery of the tasks occurs in a shorter period of time. According to Hyman and Cohen (1979:105), "Learning for Mastery is consistently more effective than traditional curriculums." Hyman and Cohen further clarified that if the required competencies are clearly defined and the process properly monitored and such a technique compared with the traditional fuzzy, the results have to to be in favor of Learning for Mastery. Hyman and Cohen (1979:109) concluded, "Learning for Mastery appears to us to be the most potent curriculum model of our time."

Chandler (1982) found that of ninety-seven studies comparing average achievement between mastery and nonmastery groups fifty-nine favored mastery. Three favored non mastery and no statistically significant results were found for the remaining thirty-five studies. In another review he found that

forty-eight of sixty-one groups indicated statistically significant average achievement results in favor of mastery taught students. No study favored nonmastery. Chandler (1982:10) concluded, "this means that if a student is at the fiftieth percentile . . . in the nonmastery group he could be expected to move to the eightieth percentile using a mastery approach." According to Bloom (1976:213), "Mastery Learning has already amply demonstrated that the large majority of students in a class can learn selected subjects up to as high a level as the most able students in the group." Bloom (1984:15) reported, "after several years . . . the improvements in students' higher mental process learning and achievement became very pronounced." Bloom's (1984) research indicated that the students develop a positive academic self-concept, an interest in the subject and a desire to learn more in the subject field.

Rubin and Spady (1984) in discussing a successful implementation of Mastery Learning reported:

> Any model that differs this substantially from conventional practice is bound to be met with skepticism if not outright resistance by teachers and administrators, making its implementation highly problematic despite the obvious benefits to students from all ability levels. (43)

Goodlad (1975:16) stated, "it is often said about education, as about many other things, that nothing changes but the appearance of change." In discussing change in public schools Snyder and Johnson (1983:21) reported, "the emphasis for school improvement today is on student achievement, and on students'

needs and creating various mechanisms through which these needs can be met." Bennis, Benne, Chin and Corey (1976) stated:

> Agents of planned change must resist in themselves the despair and accept the deepened ethical responsibility . . . And they must invite their clients to open their values, personal, local, political, religious, to a test against this new universal criterion of good--human survival. (22)

In this society the school is a familiar and omnipresent institution and as James and Tyack (1983:406) stated, "by thinking about what consequences today's transformations in society have for education, Americans can think concretely about how to shape the future of their children."

Change Theory

> In 1900, controversy over planned change was typically stated in sweeping ideological terms. Should or should not men seek, through deliberate and collaborative forethought in the present, to mold the shape of their collective future? Or should confidence rather be placed in a principle of automatic adjustment, operating within the processes of history to reequilibrate, without human forethought yet in the interest of progress and human welfare, the inescapable human upsets and dislocations of a changing society? (Bennis, et al., 1976:14)

Bennis, Benne and Chin (1961:2) suggested, "concerning methods of change, we can observe two idea-systems . . . that are directly counterposed: the law of nonintervention and the law of radical intervention." According to Bennis, et al. (1976) the idea of social scientists participating in and actively influencing change in our society has been a controversy since the emergence of the idea in the late

nineteenth century. In general the 'planners' saw an important place for social science in informing various groups in the processes of planned change. Proponents of 'automatic adjustment' tended to relegate the social scientist to a role of observer and denied them leadership in influencing the direction of practical affairs or, in essence, arrested planned change.

Lester Ward (Commager, 1950) was one of the early proponents in the role of 'planners' for social change. He proclaimed that modern men must extend scientific approaches in the planning of changes in the patterns of their behaviors and relationships. In the early twentieth century he was aware that man was utilizing scientific intelligence to induce changes in the nonhuman environment and he saw this extending to the management of human affairs.

> Man's destiny is in his own hands. Any law that he can comprehend he can control. He cannot increase or diminish the powers of nature, but he can direct them. . . . Human institutions are not exempt from this all-pervading spirit of improvement. They, too, are artificial, conceived in the ingenious brain and wrought with mental skill born of inventive genius. The passion for their improvement is of a piece with the impulse to improve the plow or the steam engine. . . . Intelligence, heretofore a growth, is destined to become a manufacture. . . . The origination and distribution of knowledge can no longer be left to chance or to nature. They are to be systematized and erected into true arts. (Commager, 1950:208,210,213,214)

Proponents of the 'automatic adjustment' approach had opinions directly in conflict with planned approaches. Bennis, et al. (1961:2) suggested that advocates took the position,

"tampering and social tinkering with man's natural and social universe interferes with the homeostatic forces, which if left unfettered, will bring about the perfectly maximized good life." William Graham Sumner (Commager, 1950) was one of the leaders in sociology who emphasized the folly of prophecies such as Ward's.

> If we can acquire a science of society based on observation of phenomena and study of forces, we may hope to gain some ground slowly toward the elimination of old errors and the re-establishment of a sound and natural social order. Whatever we gain that way will be by growth, never in the world by any reconstruction of society on the plan of some enthusiastic social architect. The latter is only repeating the old error over again and postponing all our chances of real improvement. Society needs first of all to be free from these meddlers . . . Here we are, then, once more back at the old doctrine laissez faire. Let us translate it into blunt English, and it will read--Mind your own business. (Commager, 1950:15)

According to Bennis, et al. (1976) subsequent events have to a large extent foreclosed on the Sumner argument for laissez faire. Human interventions designed to shape and modify the institutionalized behaviors of people are now familiar features of our social landscape. In the fifties we were widely seeking to plan social changes.

During the fifties the prevailing model of planned change was an engineering model as opposed to a clinical model distinguished by Gouldner (1956). In the engineering model plans are made by the experts to meet the needs of those affected as interpreted by the experts. In the clinical model the experts work collaboratively with those affected by the

change to empower them with the abilities to understand and internalize the various complexities of the change being innovated. Bennis, et al. (1976) credited man's technical genius in the physical world with the success of the engineering model. The New Deal and World War II had ingrained in the public the concept that with our technology we could advance and conquer most any problem presented to our society. Interestingly, our technical genius, exhibited by the bomb on Hiroshima, initiated a new set of concerns which eventually threatened man's existence. "Man's ingenious and inventive cultivation of technology had given him the power to pollute his planet irreparably and to destroy all terrestrial life" (Bennis, et al., 1976:18).

The turbulent sixties were a key period in the evolution of change theory as suggested by Bennis, et al. (1976):

> They exposed and in a measure cleared away some of the conventional debris that has clouded the realities of existing relationships in our society--the distorting effects of power differentials, the dysfunctional inhibitions of expression of affect, positive and negative, and many human relationships; the gap between professed values and values in use; and the dehumanizing effects of depersonalized relations in many of our bureaucratized institutions, political, industrial, and educational. (19)

It was during this period that the need to regard social relations and the dynamics between individuals, groups and cultures or societies in the planning of change became apparent. The theoretical traditions of organizational analysis and cultural approaches were being established

according to Reid and Walker (1975):

> These are seen as mutually interdependent, and the reaction to innovation is held to depend on the degree to which the consequent reordering of relationships within and between . . . is tolerable in terms of the benefits likely to accrue. (245)

By the conclusion of the sixties the various liberation movements and grass-roots efforts had made permanent impressions on the status of planned change. Bennis, et al. (1976) reported:

> They have unmasked the assimilationist myth of the American melting pot and revealed the pluarlism inherent in American life, the variety of groups and group interests that are seeking their place in the sun and they have thus placed the clarification negotiations of differing values and value orientations as an inescapable priority upon the agenda of agents of change and their clients. (19)

Chin and Corey in Bennis, et al. (1983) suggested three types or groups of strategies for planned change:

1. empirical-rational strategies
2. normative-re-educative strategies
3. power-coercive strategies

The fundamental assumption underlying the empirical-rational strategies is that men are rational. It is assumed that if an individual or group can be shown the advantages of a proposed change the individual or group will adopt the change because of their rationality and self-interest. In normative-re-educative strategies the rationality and intelligence of the individual or group is not denied. Patterns of action are supported by sociocultural norms and by commitments on the part of

individuals to these norms. Norms are undergirded by the attitude and value systems of individuals. Change will occur only as the persons involved are brought to change their normative orientations to old patterns and their commitments to new ones. Changes in normative orientations involve changes in attitudes, values, skills, and significant relationships, not just changes in knowledge. In power-coercive strategies the application of power in some form assures the compliance of those with less power to the plans, directions, and leadership of those with greater power. Goodlad (1979), in developing a conceptual system to define the current state of affairs in the implementation of curricular innovations included the values of the personal domain of all individuals involved in the societal considerations as important factors in the change process.

Lewin (1951) stated that man must participate in his own re-education if he is to be re-educated at all. The re-education is a normative change as well as a cognitive and perceptual change. Lewin emphasized action research as a strategy of changing and participation in groups as a medium of re-education. Lewin's force field analysis provides a graphic understanding of the restraining forces and driving forces present in a given situation. The equilibrium may be shifted in a given direction by either eliminating one set of forces or strengthening the opposing set of forces.

Lewin (1947) identified three phases of the change process:

1. unfreezing
2. changing
3. refreezing

The aim of unfreezing is to provide the impetus for the individual to change. It is a thawing out process in which the forces acting on individuals are rearranged so that they now see the need for change. It is a breaking down of the mores, customs and traditions so that they are ready to accept new alternatives. In changing, the individual is ready to conduct himself in a new pattern of behavior. Refreezing is the process by which the newly acquired behavior is integrated into the individual's personality or ongoing activities.

Realizing that early efforts in the behavioral sciences seemed to provide knowledge without effecting changes, Hersey and Blanchard (1982) proposed a four leveled structure of change in people.

1. knowledge
2. attitudes
3. individual behavior
4. group behavior

Changes in knowledge are the easiest to make, followed by changes in attitude. The attitude changes are more difficult to make due to their being entwined in the value system of the individual. Changes in behavior are significantly more difficult to attain and more time consuming with the

implementation of changed group behavior being the most difficult and time consuming.

Rogers (1983) articulated a planned change process referred to as the Diffusion of Innovations. Rogers (1983:6) defines this as "a kind of social change . . . by which alteration occurs in the structure and function of a social system." Rogers (1962:14) refered to a social system as, "a population of individuals who are functionally differentiated and engaged in collective problem-solving behavior." The members of the social system are individuals but they may represent informal groups or schools. Rogers and Shoemaker (1971) pointed out that many changes take place at the individual level, that is the individual makes a decision to either adopt or reject an innovation. Rogers and Shoemaker also pointed out that change occurs at the social system level. In many situations the individual and system changes are interrelated. "The aggregation of a multitude of individual changes produces a system-level alteration" (Rogers and Shoemaker, 1971:11).

Rogers (1983:10) stated, "there are four elements in any analysis of the diffusion of an idea: (1) the innovation, and (2) its communication between individuals, (3) in a social system, (4) over time." The essence of the process is the human interaction in which one person communicates a new idea to another person.

"An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1973:11). The period of time from the inception of the innovation to the discovery by the individual is of no consequence in regard to human behavior. If the idea seems new to the individual, it is an innovation. The compatability of the innovation is the degree to which it is consistent with the existing values of the individual. The relative advantage is the degree to which an innovation is superior to the ideas it supercedes. The complexity of an innovation is the relative difficulty to understand and use the idea. The divisibility is the degree to which an innovation may be utilized to a limited extent. Communicability is the degree to which an innovation may be diffused to others.

"Communication is a process in which participants create and share information with one another in order to reach a mutual understanding" (Rogers and Kincaid, 1981:65). In the convergence model of communication a cyclical process occurs where one individual shares information and perceives the other person's understanding by their response, and vice versa. After several cycles of information exchange the individuals move to a mutual understanding.

Social systems are composed of individuals and the individuals are categorized on the basis of their innovativeness. "Innovativeness is the degree to which an individual is relatively earlier in adopting new ideas than the

other members of his social system" (Rogers, 1983:22). The five adopter categories are: innovators, early adopters, early majority, late majority and laggards. Lindquist (1978) described the categories in the following manner. Innovators are individuals uncomfortable with the status quo, eager to try new things amd compose 3-4 percent of the system population. Early adopters are open but not as eager as innovators and compose 12-15 percent of the system population. Early majority individuals are cautious followers and compose 33 percent of the system population. Late majority individuals want impressive evidence that this new practice is possible, effective and rewarding before venturing a try. These individuals compose 33 percent of the system population. Laggards resist change until everyone else is doing the new thing and compose 15 percent of the system population. The categories, as described by Lindquist, approximate a normal distribution with divisions in standard deviations from the mean.

Time is important in the diffusion process but difficult to express in absolute terms. "Time does not exist independently of events, but it is an aspect of every activity" (Rogers, 1983:20). Rogers clarified this by explaining that the time dimension is involved as an individual passes from first knowledge of an innovation through its adoption or rejection, the innovativeness of an individual or in an innovation's rate of adoption in a system, usually measured by

the number of individuals that adopt the innovation in a given period of time.

The innovation-decision process is another aspect of the time element.

> The innovation-decision process is the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision. This process consists of a series of actions and choices over time through which an individual or organization evaluates a new idea and decides whether or not to incorporate the new idea into ongoing practice. (Rogers, 1983:164)

Rogers (1983) described the present conceptualization in the following manner:

> Knowledge occurs when an individual (or other decision-making unit) is exposed to the innovation's existence and gains some understanding of how it functions.
>
> Persuasion occurs when an individual (or other decision-making unit) forms a favorable or unfavorabale attitude toward the innovation.
>
> Decision occurs when an individual (or other decision-making unit) engages in activities that lead to a choice to adopt or reject the innovation.
>
> Implementation occurs when an individual (or other decision-making unit) puts an innovation into use.
>
> Confirmation occurs when an individual (or other decision-making unit) seeks reinforcement of an innovation-decision already made, but he or she may reverse this previous decision if exposed to conflicting messages about the innovation. (164)

Adoption, in the decision stage, is a decision to make full use of an innovation as the best course of action available. Rejection is a decision to not adopt the innovation. Partial

use of an innovation is classified as adoption. Zuckerman (1983) reported similar conclusions concerning commitment to change. The judgment, or decision, will be either positive or negative depending on how the change will affect the individuals professionally, personally, emotionally and financially.

Implementation is marked by "overt behavior change, as the new idea is put into practice" (Rogers, 1983:174). Kirst, (1982) and Tyack, Kirst and Hansot (1980) reported that reforms which endure make structural and organizational additions within a school system. Levy (1983) and Kirst (1982) reported that positive confirmation will result if innovations are firmly grounded in valid educational philosophy, solve problems, and are persistently and wisely administered.

A form of planned change unique to education does not exist. "Curriculum implementation has been treated . . . as a subcategory of the more general question of how to introduce and establish innovations" (Reid and Decker, 1975:244). Reid and Decker further stated that in planning curricula we are very directly concerned with aims and values and the resources must be personal and institutional. Renfro and Morrison, (1983) in discussing educational change, reported that change has come from developments in the external environment--the environement in which our institutions must survive and thrive and that anticipating and responding to change is a major responsibility for all institutions.

Lindquist (1978) stated that planned change starts with a felt need on the potential user's part. Block (1974) reported the condition of readiness for the teaching staff is that of being student oriented. Herchberger (1975) stated that three elements are necessary prerequisites in successful change. First, there must be dynamic leadership. Second, the philosophical base must be designed and internalized by the faculty and leaders. Third, the environment must allow for the designing, implementation and constant evaluation of all school program and curriculum.

"For years now, studies have pointed to the pivotal role of principals in bringing about more effective schools (Boyer, 1984:22)." Chesler, Schmuck and Lippit (1983) and Nicholson and Tracy (1982) reported that the principal must have an accurate perception of the values and skills of his staff and the staff must recognize the principal's knowledge and emphasis on instructional improvement to successfully implement innovations. Corbett (1982) reported that principals are responsible for providing continued incentives so that innovative behavior in the classroom will be maintained long enough for the new practices to become routine. Corbett (1982b:35) stated, "the burden of providing encouragement and incentives for change likely will fall to administrators . . ." Corbett also suggested that teachers are apt to interpret the ending of formal activities as a lack of administrators' interest. Torshen (1977:26) concurred that "the teachers

cannot be expected to put forth the necessary effort unless they receive adequate support and encouragment from their superiors."

> It seems . . . that if we are to have change in school systems, we cannot look to the principal to initiate this change. The initiative for change must come from the top. Once a change is sanctioned by his superiors, the principal will work to effect that change at the building level. (Griffiths, 1983:284)

Oliver (1984:9) in discussing how to make change happen stated, "leadership for change must occur at the highest level if change is to occur in an organized and systematic manner." In a change process which was gaining momentum in the confirmation stage Grossnickle (1983) included the Board of Education as an important support element.

> In short, it may be said that the Board of Education has wishfully provided rather extensive resources in the hope that students and staff will continue to grow . . . and give potential users the necessary push to get them going. (16)

The superintendent is also an important element in the change process.

> Superintendents . . . had better quickly get over the comforting notion of leaving everything to building principals . . . And both superintendents and principals had better quickly get beyond the equally comforting notion and popular practice of turning over to a team of outside consultants the central task of improving instruction . . . (Goodlad, 1983:7)

In the effective schools projects in New York City and Milwaukee, Eubanks and Levine (1983:701) stated, "a superintendent who maintains high standards and holds schools

accountable, yet rewards those who do good work is a key ingredient."

The education administrator can make change effective by "creating favorable climates, involving people in the change process and helping the people responsible for diffusing the change" (Coleman, 1983:10). Olivier (1984) reported that the principal must provide an atmosphere in which teachers can explore and experiment and which provides instructional teams the opportunity to work as a group with some degree of protection from administrative and peer interference. Herchberger (1975) suggested that the environment allows and encourages humanistic discussions which plan toward possible experimentation of innovation programs. It also provides adequate support and time for the implementation of the innovation programs and for constant evaluation of the entire school program. Lewis (1983) suggested that assessing the climate will be a good indicator for the adoption of an innovation.

> The organizational climate is almost like a barometer, indicating how employees feel about specific managerial practices. Employees may feel relaxed, or driven, uptight, and under suspicion. The climate consists of the interpersonal and environmental factors that shape behavior and motivation. The organizational climate is that set of characteristics which describe an organization. The organizational climate . . . influences people's behavior thus different climates stimulate different motivation and result in different performance and human relationship. (36)

Coleman (1983) and Grant (1983) reported that a climate favorable to change can be cultivated. The climate is characterized by high interpersonal trust and openness, democratic leadership styles by the administrators, equal power, confronted differences, the involvement of all relevant parties and commitment. Herchberger (1975:106) stated, "there must be a climate for desirable change before it can indeed take place."

Sparks (1982) and Nicholson and Tracy (1982) agreed that skillful, knowledgeable teachers who are given a chance to participate are important in the implementation of change. "To bring about change, the first requirement is an interested and skillful practicitioner or teacher (Olivier, 1984:9)." Torshen, (1977) Johnson (1969) and Hannifen and Barrett (1983) agreed that in schools where teachers are properly educated and in-service training is provided to the individuals involved in the implementation, change is occurring.

> The improvement of schooling is a systemic problem that must be approached at a variety of points and with a variety of strategies. Recognizing the existence of and intervening in the pattern of social interaction is one obvious strategy. For example, reformers might try to . . . do a much better job of inservice education . . . (Tye and Tye, 1984:321)

"More than ever before, those who seek to change schools must change teachers while they are working in schools (Mann, 1978:3)." Tye (1984) suggested that it is essential that we make a commitment to provide the necessary support systems for teachers. "Teachers have to understand new ideas from the

inside out if they are to benefit from them" (Ferguson, 1980:310). She also suggested that even a tiny minority of committed teachers and administrators can have a huge impact in implementing programs that work.

Acheson and Gall (1980) reported that teachers are learners and the content they need to learn is the profession of teaching. "At various points in their professional development teachers need the skillful assistance of a clinical supervisor if they are to make progress" (Acheson and Gall, 1980:17).

> After the change appears to be properly diffused, a preliminary review and evaluation is needed to determine whether the intended objectives are being achieved. An ongoing evaluation of each change . . . must be a part of the total change strategy (Coleman, 1983:9).

Cook (1984) expressed that to be successful change agents, principals must employ a developmental strategy that assures tangible results.

> Principals are the professionals who possess all of the necessary attributes of leadership: the initiative to effect change, the willingness to set high goals, the ingenuity to seek improvement, the experience to find the way and the courage to see things through to completion. (13)

"The bottom line, however, is the program's success. . . . The result is a positive team feeling and renewed staff vitality" (Rubin and Spady, 1984:44). Lewis (1983:97) reported that seeing their work group move smoothly and productively toward their goals motivates the leader, "one success becomes a challenge to greater success." Lortie (1975:129) reported

that, "when students exert more than usual effort or show special enthusiasm, some teachers feel self-approval and pride in their craft capacities." Corbett (1982:191) suggested that in our contemporary society student success has become an important motivator for teachers, "primarily because of teacher isolation students have been shown to be particularly important sources of incentives for teachers." Torshen (1977:27) stated that educators need the assurances that educational programs will be "used for the benefit of the students" and not for other purposes.

Summary

Current literature is replete with demands for increased student achievement in our public schools. A contemporary curriculum model which has demonstrated its effects through students gains is Mastery Learning. Three of the major proponents of Mastery Learning, Block, Bloom and Spady, reported student gains in academic achievement, improved functioning in the higher levels of Bloom's taxonomy, and improved attitudes toward the desire to learn the subject matter.

The literature also revealed that it is very difficult to implement changes in United States public schools. A major concern for educators is how to implement proven innovations within their respective school programs.