1993

Outcome-based education: A description and indirect analysis

Mary L. Jensen

Outcome-based education: A description and indirect analysis

Abstract

The Des Moines Register headlines proclaimed "Outcome-based education; State's effort at reform under fire as stressing attitude" (March 22, 1993, p. 3A). The Iowa Farm Bureau Spokesman announced ·outcome Based Education--a controversy· (April 10, 1993). Education Week described a bitter fight over school funding in Pennsylvania, with the news that "Pennsylvania House Votes to Nullify State Board's LearnerOutcome Rules· (February 17, 1993, p. 19). The Program News bulletin of the Association for Supervision and Curriculum Development advertised its version of the Outcome-Based Education videotape series, devoting its whole May, 1993, issue to promotion of outcome-based strategies.

Outcome-Based Education:

A Description and Indirect Analysis

Master of Arts in Education

Eduational Psychology: Teaching

Mary L. Jensen

August, 1993

CHAPTER ONE

INTRODUCTION TO OUTCOME-BASED EDUCATION

The Des Moines Register headlines proclaimed "Outcome-based education; State's effort at reform under fire as stressing attitude" (March 22, 1993, p. 3A). The Iowa Farm Bureau Spokesman announced "Outcome Based Education--a controversy" (April 10, 1993). Education Week described a bitter fight over school funding in Pennsylvania, with the news that "Pennsylvania House Votes to Nullify State Board's Learner-Outcome Rules" (February 17, 1993, p. 19). The Program News bulletin of the Association for Supervision and Curriculum Development advertised its version of the Outcome-Based Education videotape series, devoting its whole May, 1993, issue to promotion of outcome-based strategies.

For more than a decade, schools in the United States have been under pressure to improve the performance of students. More recent references seem to verify that efforts to improve have resulted in little overall improvement, as the 1992 World Competitiveness Report indicates. According to the report (The Des Moines Register, June 22, 1992, p. 1), the U.S. has dropped from second place to fifth place in economic competitiveness. These rankings are based upon overall economic and political strength. Since a major component of a nation's economic strength lies in its workforce, each nation's educational system is also reviewed. The report ranked the U.S. educational system as next to last place among industrialized nations, with only Greece ranking lower. The report calls this decline, "most alarming for long-term competitiveness." The report described this decline in the U.S.

educational system as "partly due to the current inability of the educational system to meet the needs of a competitive economy" (p. 1).

A number of states have implemented statewide Outcome Based Education (OBE) programs to improve students' school performance in recent years. Examples of states with OBE programs are Minnesota (Erickson, 1990), Utah (Utah's Educational Reform Programs, 1990-91), Texas (Lindley & Carter, 1982), and Illinois (Hall & Pierson, 1991). Individual school districts also report implementation of OBE programs. Examples of such school districts are Alhambra High School, Phoenix, Arizona (Briggs, 1988); Johnson City, New York (Burns, 1987); Pasco, Washington (Nyland, 1991); Arlington Heights District 214, Illinois (Burns & Squires, 1987); Red Bank, New Jersey (Burns, 1987); Mariner High School, Everett, Washington (Burns, 1987); Whitmore Lake, Michigan (Stevens & Herman, 1984); and Center School of New Canaan, Connecticut (Rubin & Spady, 1984).

The state of Iowa is typical among states where efforts are underway to restore U.S. competitiveness. Beginning in 1990, a "roundtable" of business and education leaders met to plan a path that would lead to "world-class" schools in Iowa (The Des Moines Register, March 22, 1993, p. 3A). Believing that the present system is "as antiquated as the one-room schoolhouse", leaders agreed that basic changes are in order. A committee of 170 leaders consulted citizens throughout the state to determine what an educated Iowa student

should know and be able to do. They drew up a list of broad educational goals for school districts to follow, known as "outcomes" of education. In Chapters Three and Four these goals are presented and discussed.

One result of the state of Iowa's efforts has been to bring the discussion about outcome-based education to the individual educator in the classroom. The writer, a secondary teacher in a small midwestern school district became aware of the discussion only after it had been discussed in neighboring districts. Administrators and colleagues seemed unable to define or describe it satisfactorily. Teachers were being told that the way they've been teaching is no longer adequate. They must become part of "transforming" the school. It seemed important to slow down and examine more carefully what was being asked or demanded of teachers in this and in many more school districts in the United States.

The questions that arose from this researcher's first exposure in 1992 essentially became the questions for the present research: first, what is outcome-based education? Second, what are its undergirding assumptions? Third, is it a good idea? These questions provided the basis for a search that led in many directions.

Much of the available material about OBE consists of newspaper articles and handouts distributed at inservice meetings. Since presenters tend to photocopy and make transparencies without documentation, it is difficult to trace the principles of OBE to any solid research findings.

Though it is assumed that William G. Spady developed many of the graphic representations about OBE, they are reproduced seemingly at will by Area Education Agency (state of Iowa consulting and support service) staff and workshop presenters, handed out to teachers, who then reproduce them further (See Appendix B for an example). Since Spady's graphic material lacks citations as to origins, audience members are asked to accept them uncritically as legitimate and acceptable. (See Appendix A for examples.) Much of the written material about OBE is expository in nature, no doubt traceable to Spady, but lacking in citation of references.

Spady's journal articles, which do refer briefly to several prominent educational researchers, formed the basis for an ERIC search. This attempt yielded rather sketchy and repeated references to the same theorists, as well as reported success stories about OBE. It was decided then that the most promising way to learn about OBE and come to some judgment about it was to trace every suggestion of connections to underlying research, and study and present that evidence. It was discovered that OBE is actually an amalgam of varied assumptions and methods, and that there was actually no formal research on it as an entity. It was then determined that the best one could do was to study descriptions of and research on its component parts. After that it became possible to make at least some tentative and indirect judgments about OBE. The research problem became one of exploring

the documentation on and the viability of the various components of OBE.

Evidence is presented in response to the three main research questions in the order given. The first question of the research (What is outcome-based education?) is discussed in Chapter Two: Outcome-Based Education Defined and Described. The second question for research (What are the undergirding assumptions upon which outcome-based education depends?) is pursued in Chapter Three: Review of the Literature on Outcome-Based Education and Its Components, which also includes reports about schools where outcome-based systems have been implemented. The third and final question for the research (Is outcome-based education a good idea?) is addressed in Chapter Three and more fully explored in Chapter Four: Outcome-Based Education: Indirect Analysis. A chapter of summary, conclusions and recommendations follows.

CHAPTER TWO

OUTCOME-BASED EDUCATION DEFINED AND DESCRIBED

With so much interest brewing about the subject, it becomes both interesting and necessary to develop a clearer definition of outcome based education, often referred to as OBE.

OBE is a process for improving students' school performance, based on the attainment of clearly articulated outcomes or goals in kindergarten through twelfth grade school programs. The outcomes have been typically developed through school district, community and state-wide efforts to define what the school graduate should be like and be able to perform. Each final, or exit, outcome is achieved through the gradual process of mastering each lesson, unit, course or grade level outcome as students progress through the school year, relying on mastery learning techniques to bring this about. It is the responsibility of school personnel to design the step-by-step process by which the final outcomes may be achieved.

William Spady, perhaps the most visible developer and promoter of OBE, is director of the International Center on Outcome-Based Restructuring in Eagle, Colorado. He was among the first organizers of coordinated efforts to develop the use of educational outcomes to improve school learning by an increasing number of schools. He defined the "outcome-based delivery system" in the following way:

> . . . Outcome-Based (OB) systems represent a workable alternative to prevalent, often ineffective instructional

> approaches and, because of their demonstrated capacity to improve the learning of students from all socio-economic and racial groups. . . OB models are predicated on the premise that illiteracy and failure are neither inevitable nor acceptable consequences of schooling for anyone. When guided by OB principles, schools are expected to become 'success based' rather than 'selection oriented' (Spady, 1981, p. 3).

By 1984, Spady had refined his definition to include more specific ways that schools could apply the OBE approach:

> The term "outcome-based" refers to a variety of instructional systems in which the specific learning achievements of students--rather than predetermined time and schedule factors--govern their placement and movement through the curriculum. In such programs, students are flexibly grouped according to the specific levels of achievement and curriculum challenge they have the prerequisites to handle (Rubin & Spady, 1984, p. 38).

It can be seen that in both of Spady's definitions, he stops short of calling OBE a "program" or a "package." Instead, OBE proponents usually describe it as a variety of processes, utilizing whatever combination of mastery learning, performance assessment, and criterion-referenced testing that individual school districts determine would be appropriate. The constant in both definitions, however, is that the process promotes success for all students, and that it depends on a change in traditional instructional practices. Educators often think of

OBE as being part of a school transformation effort to improve students' performance.

Taking credit for first using and promoting the term, "outcome-based," Spady defined the term in a newsletter devoted to the subject. He said outcome-based means, "to design and organize all curriculum and instructional planning, teaching, assessing, and advancement of students around successful learning demonstrations for all students" (Spady, 1992, p. 7). In his explanation of the definition, Spady continues by saying that: "1) an outcome is, in fact, a CULMINATING DEMONSTRATION of the entire range of learning experiences and capabilities that underlie it, and 2) it occurs in a PERFORMANCE CONTEXT that directly influences what it is and how it is carried out" (Spady, 1992, p. 7).

Spady cautions educators to refrain from assuming that all outcome-oriented instruction is OBE. He points out that some schools assume "anything that involves outcomes is, therefore, Outcome-Based" (Spady, 1992, p. 7). To attack this mistaken notion, Spady states, "Outcome-Based implies that we will design and organize everything we do directly around the intended learning demonstration we want to see at the end" (Spady, p. 7). The principles for this process are reviewed in the next chapter.

While the concept of OBE seems reasonable to many educators, Spady recognizes that it is in the implementation that many schools encounter difficulty. To help clarify the implementation terminology,

Spady defines three stages whereby a school might develop into a fully outcome-based school: traditional, transitional, and transformational OBE. These descriptions find their way into much of the literature defining OBE.

Traditional OBE--Existing curriculum is used, as well as the traditional school day and calendar. Mastery of the course or grade content is the main goal, and students are granted repeat attempts at improving a grade. The learning and assessment take place within the classroom.

Transitional OBE--The emphasis is on the final, or exit outcomes, not the subject content. Outcomes utilize higher-order thinking, not factual recall. Teachers blend curricula together to offer cross-disciplinary approaches that may transcend the school day or year.

Transformational OBE--Exit outcomes are developed for the lifeskills necessary in the future. The outcomes are too complex to be confined to the school building, traditional course content, or schedule. Student performance is seen as the ultimate goal. Traditional grades, credits, promotions and graduation requirements are questioned. (Spady, 1992, p. 10f).

How different would a school be if community and district personnel decided to "go OBE"? Spady lists seven characteristics of the transformed school, paraphrased from his 1992 article: the school schedule and calendar would not determine when or with whom students learn; grades would reflect student performance compared to an authentic criterion, not the average of first-time attempts; students

would be encouraged to collaborate in order to ensure "success for all"; more recognition of the individuality of learners, adjusting time and curriculum accordingly; textbooks would be replaced in favor of "intended outcomes"; no more tracking of students according to ability, as "all instruction will ultimately focus on higher level learning and competencies for all students"; less emphasis on standardized tests, using locally-constructed authentic assessments instead (Spady, 1992, p. 12f).

Herein lies the potential for controversy, as districts and whole states attempt to determine what approach will best prepare young people for the future. School districts face several decisions regarding OBE: whether to begin designing an OBE program; if so, what the outcomes will be; who will design the outcomes; how much money can be devoted to such a "transformation." Since all stages of this decision-making process have the potential for conflict, a further description of the research regarding OBE and analysis of its efficacy may assist those facing this serious question.

CHAPTER THREE

REVIEW OF THE LITERATURE ON OUTCOME-BASED EDUCATION AND ITS COMPONENTS

The research process revealed that most literature on the topic of OBE is of an expository or narrative nature. It was found that there is little or no direct research on OBE per se.

As noted previously, the primary writer and speaker about OBE is Dr. William G. Spady, Director of the International Center on Outcome-Based Restructuring, in Eagle, Colorado. As the most visible promoter of OBE, he has also contributed to the early development of the program, beginning as early as 1980, when 50 participants in Mastery Learning and Competency-Based Education groups met to seek a common ground and form a structure for school success based on outcomes (Spady, 1981, p. 7). Included in the meeting were representatives from such large city school districts as Chicago, Cleveland, Dallas, Denver, New Orleans, and New York City. Small school districts represented included Johnson City, New York; Lorain, Ohio; Red Bank, New Jersey; and Waxahachie, Texas. The group formed the Network for Outcome-Based Schools, and eventually received a Danforth Foundation grant in 1987 (Spady, 1981, p. 7) to initiate OBE programs in twelve school districts, a program known as the High Success Program on Outcome-Based Education, with William Spady as director. Much of Spady's writing results from his experiences with these schools.

Other writers and proponents of OBE which have been discovered are James H. Block, Robert Burns, David Squires, Carol Murphy, Stephen E. Rubin, Kit Marshall, J.A. King, and K.M. Evans. To fully understand the underlying ideas and theories of OBE, one has to investigate these researchers who are cited by the proponents of OBE.

Ideas do not develop in a vacuum, but they tend to grow from preceding developments and thinking based on observations and research of many years. So it is with OBE, which has its roots in the past. It is the combination of several prominent previous theories and practices, with the added feature of modern communication and media methods used to promote and package it.

It was found that, while the literature about OBE is highly descriptive, it doesn't fully detail these origins and roots. The way to understand OBE, then, is to trace the origins and more fully describe and analyze them. The proponents of OBE say it is a series of principles, which may be applied through a variety of practices. The three fundamental principles used by the proponents are the vehicle for reporting the ideas of the proponents and the educational psychologists whose work they cite for support of these principles. The educational psychologists cited are B.F. Skinner, J.B. Carroll, B.S. Bloom, Robert Mager, Robert Gagne, and Robert Glaser.

Thus, the review of the literature consists first of a review of the writings of the major OBE proponents and of the ideas of those theorists from whom they draw; second, descriptive material by administrators of

selected school districts which have adopted OBE is described; third, their reports of OBE success are summarized and literature which highlights disagreements about OBE is reviewed.

Principles of Outcome-Based Education

Spady has defined three major principles that characterize OBE, though sometimes a fourth is also presented (Spady, 1988, p. 7): Clarity of focus on outcomes; expanded opportunity and instructional support; and high expectations for learning success. A fourth principle, "design down and deliver up," is sometimes listed as a separate principle, but also is seen as a corollary to the first principle, which is how it is treated in this paper. Each is examined individually.

Principle 1: Clarity of Focus on Outcomes

In order to fully describe the meaning and importance of this principle, it is necessary to further explain the word "outcomes." Spady uses the term interchangeably with the word "goal" (King & Evans 1991, p. 73). Exit outcomes are the end-products of the educational process and are designed by school district boards, parents, and teachers as ways of defining what the student will know and be able to perform as a result of years of instruction in the school district p. 73). These exit goals form the center of all other instructional activity, which in themselves include more specific outcomes.

The basis for Spady's terminology is in the work of Robert Gagne, especially Gagne's use of the terms "outcome" and "objective" (King & Evans, 1991, p. 73). In his 1974 work, Essentials of Learning for Instruction,

Gagne described the outcomes of learning as the output (Gagne, 1974, p. 49) of the learner in response to the stimulation, or input of the learning process. The output, or outcome, then, is the "modification of behavior that is observed as human performance." Gagne believed that this change in behavior is observable in performances by the student in five categories: verbal information,intellectual skills, cognitive strategies, attitudes, and motor skills.

Gagne describes the relationship between "outcomes" and "objectives" by stating that the objectives are derived from outcomes (Gagne, 1974, p. 72). His use of the term "objectives" may also be taken to mean "behavioral objectives" or "instructional objectives" (p. 72). He refers to stating an objective as to express, "one of the categories (or subcategories) of learning outcomes in terms of human performance and to specify the situation in which it is to be observed." As an example, Gagne provides the illustration of "verbal information" as an outcome, for which a learning objective may be,

(Situation): Given the question, "What are the provisions of the First Amendment to the U.S. Constitution?";

(Outcome performance): States the provisions (freedom of religion, speech, press, assembly, petition)'

(Action): Writing. (p. 73)

The parts of the learning outcome specify the situation of the learning stimulus, the expected category, followed by the student action taken by the learner to demonstrate proficiency.

As described by Spady, the exit outcomes form the center, the "knowledge, competencies, and personal qualities we want students to demonstrate upon leaving school," (Spady, 1988, p. 8). These form the basis of the educational program. A student would not receive a diploma without demonstrating achievement of the exit goals. The diploma would be granted only when competency was demonstrated. It can be seen that the curriculum is defined by the exit outcomes, not the other way around (p. 8). Having first defined the exit outcomes, the school staff then proceeds to design instructional plans which they believe will bring about the desired goals in each student. In this way, the instructional plans focus on the exit outcomes. Student learning and performance are assessed to determinine whether the exit outcomes have been achieved. This type of assessment is known as criterion-referenced testing. The assessment program also determines student placement and advancement into appropiate stages of achievement of the exit outcomes. Students are placed according to what they have achieved, not according to conventional age or tracking categories.

Examples of exit outcomes are seen in Figure 1 (Burns & Squires, 1987, p. 2); Figure 2 (Minnesota Department of Education Draft, 1991); and Figure 3 (Des Moines Register, May 7, 1993, p. 1). Since the typical exit outcomes are general in nature, it is necessary to develop more and more specific outcomes as course, unit, and lesson outcomes are determined down through the levels of instruction. This is what is known

Figure 1. General Learner Outcomes for Township High School District 214

District 214 graduates will demonstrate:

Verbal, quantitative, and technological literacy

Skills in communication and group interaction

Skills in problem solving and group interaction

Skills in expressing themselves creatively and responding to the creative works of others

Civic understanding through the study of American culture and history

Understanding of past and present culture

Concern, tolerance and respect for others

Skills in adapting to and creating personal and social change

Capacity for enhancing and sustaining self esteem through emotional, intellectual, and physical well being

Skills necessary to be self directed learners

Figure 2. Proposed Secondary Graduation Outcomes

Minnesota Department of Education

The graduate shall have demonstrated the knowledge, skills, and attitudes essential to:

a. communicate with words, numbers, visuals, and sound;

b. think and solve problems to meet personal and academic needs;

c. function as a citizen in local, state, national, and global communities;

d. understand diversity and the interdependence of people;

e. work independently and in groups;

f. develop physical and emotional well-being;

g. contribute to the economic well-being of society.

Figure 3. Iowa Department of Education Proposed Student Outcomes

Iowa Department of Education Proposed Student Outcomes

Environmental responsibility--All learners exhibit behaviors that support a healthy environment

Group membership--All learners participate as responsible members in a variety of societal groups

Lifelong learning--All learners seek learning opportunities which will prepare them for personal and occupational growth throughout life

Life management--All learners manage life to promote personal and interpersonal well-being

Problem solving--All learners identify problems, think them through, and make reasonable decisions

Commitment to quality--All learners maintain a commitment to quality in education, work and other aspects of life

Communication--All learners communicate in various ways with diverse audiences

Creativity--All learners appreciate creativity and use it to improve and enrich their lives and the lives of others

Diversity--All learners respect diversity and promote equity for all

in OBE literature as "designing down" (Spady, 1988, p. 7). Teachers must then ensure that instructional activity in classrooms aligns with the longer-term exit outcomes.

As mentioned previously, there are more than just exit outcomes in the OBE program. Exit outcomes are the first and most important, followed by program, course, unit and lesson outcomes (Spady, 1988, p. 7). Each is designed to fulfill achievement goals set at the next higher level, the process referred to above as "designing down". At each level, the final exit outcomes are applied as the measure of what is really important for the student to know and be able to perform. Burns and Squires (1987) have stated that, "The primary aim is to connect the general educational goals for students, expressed in district and school philosophy and exit outcomes, to the daily lessons students experience" (p. 2).

Outcomes are designed to play particular roles at each level. The Minnesota Department of Education provides more specific definitions of these various levels of outcomes. Educators seeking to carry out the mandate of the Minnesota State Legislature, beginning in 1983 (Erickson et. al., 1990, p. 2), developed definitions for use by individual districts as guides for preparation of outcomes at all levels (pp.14 f.):

Learner Goal--General statement describes the knowledge, skill, processes, values and attitudes that a learner can expect to achieve from active participation in K-12 public education.

Program Level Learner Outcomes--The learner outcomes that define the scope and intended breadth of study of a subject area. They represent the contribution that the subject area makes to the full range of learner goals.

Course/Grade level Learner Outcomes--The compilation of concept level learner outcomes that are assigned/incorporated into the instruction of a specific course or grade. The outcomes for any one course or grade shall be drawn from a number of different subject areas.

Unit Level Learner Outcomes--A series of statements, adopted by a teacher, to define the scope of an instructional unit. The total listing of unit outcomes for any one course or program are the steps through which the course outcomes will be achieved.

Lesson Level Learner Outcomes--A series of statements, adopted by a teacher, to define the purpose of a specific lesson. All of the lesson outcomes for a unit outcome make up the steps through which the unit outcomes will be achieved.

These are the Minnesota Department of Education's definitions developed to inform individual teachers, administrators, school boards and communities, as they seek to "design down" the educational program, beginning from the exit outcomes.

Since the development of learner outcomes is so crucial to OBE, it is important to consider several developments in that area in the 20th century. A volume that was owned by a prominent English teacher in a

small midwestern community and later purchased as an antique reveals that even in 1901, learner outcomes were considered to be "the first question in the art of teaching" (White, 1901, p. 22). He relates the ends of teaching to the teaching process in three ways: the end to be attained in teaching guides the process; the end to be attained in teaching is a measure of success; the end is the sure test of methods and devices (p. 23).

In 1913, the Commission on the Reorganization of Secondary Education issued a statement asserting that the objectives in education are, "worthy home-membership, vocation, and citizenship" (Lenning,1977, p. 50). Their list of "Cardinal Principles of Education Set Forth in 1918" included: health, command of fundamental processes, worthy home membership, vocation, citizenship, worthy use of leisure, and ethical character (p. 51). Similarities to the 1918 principles may be seen in the Minnesota and District 214 emphases on personal health and skills involving membership in societal groups.

The "Aims of Education" set forth by the National Education Association in 1938 detailed objectives under four headings: self-realization, human relationships, economic efficiency, and civic responsibility (Lenning, p. 53). Through Lenning's investigations into the learner outcomes of the past, it can be seen that the concern of educators has long been the final product, the student, and what she or he knows and can perform as a citizen and member of society. In this

sense, the content of the exit outcomes currently being developed have a long history.

The next major shaper of thought about educational outcomes was Ralph Tyler in his Basic Principles of Curriculum and Instruction in 1950. Stating that the emphasis in education is on achieving the objectives, Tyler asserts to teachers that it takes systematic planning to carry out the purposes of instruction. The objectives should be stated in terms of student behavior as well as the life skill to which they relate (King & Evans, 1991, p. 73).

In 1956, Benjamin S. Bloom and associates published the Taxonomy of Educational Objectives, which became the best-known of the classifications of cognitive learning objectives. Interestingly, Bloom acknowledged his dependence on Tyler by both dedicating his book to him and including him in the group of associates who performed the research for the taxonomy. Bloom summarized the four main questions faced by teachers and curriculum developers when they plan instruction:

1. What educational purposes or objectives should the school or course seek to attain?

2. What learning experiences can be provided that are likely to bring about the attainment of these purposes?

3. How can these learning experiences be effectively organized to help provide continuity and sequence for the learner and to help him

in integrating what might otherwise appear as isolated learning experiences?

4. How can the effectiveness of learning experiences be evaluated by the use of tests and other systematic evidence-gathering procedures? (Bloom, 1956, p. 25).

Bloom developed the taxonomy of educational objectives to assist in specifying what students really know when they know something. How does one determine what is understood by the student? "What does a student do who 'really understands' which he does not do when he does not understand?" (p.1). The link to OBE is very evident in Bloom's work. His emphasis on student performance appears nearly identical to OBE's emphasis on outcomes. (For reference to Bloom in Spady's work, see Spady, 1981, p. 4.)

The taxonomy consists of six classes of student learning arranged in a hierarchy, ranging from the most simple to the most complex learning. His conceiving of the taxonomy as hierarchical in nature reveals Bloom's belief that achievement of each class of learning depends upon prior achievement of the previous class. Since learning must build upon previous learning, so must learning activities. Bloom specified behaviors he saw as connected to each level and compiled a useable handbook for reference by teachers in planning objectives. Examples of outcomes are included, such as the illustration of "knowledge of trends and sequences," one of the nine subcategories in the knowledge class. A specific example of this type of knowledge

would be, "To know and describe the forces which determine and shape public policies" (Bloom, p. 71).

As teachers use the taxonomy, they are expected to systematically attempt to move students from knowledge to comprehension, application, analysis, synthesis and finally evaluation, which is the most complex class of learning (Bloom, pp. 210-207). At each level, test questions are generated or activities planned to verify accomplishment of the specific learning objective, following a period of instruction. It is reasonable to suppose that OBE program planners would rely on Bloom's work to assist them as they move step-by-step toward exit outcomes, which usually involve complex learning. (For examples of exit outcomes, see Figures 1,2, and 3.)

In 1962, the influential Robert Mager published Preparing Instructional Objectives in order to define the term and assist teachers in preparing objectives. "You cannot concern yourself with the problem of selecting the most efficient route to your destination until you know what your destination is" (Mager, p. 1). It would appear that Mager drew from behaviorist theory when he said that the objectives must be stated in terms of what the student will be able to do as a result of the educational process. Mager asks, "What is the learner DOING when he is demonstrating that he has achieved the objective (p. 14)? Similarly, he wrote of stimuli necessary to produce such behavior. Behaviorism, as a root component of OBE is discussed further in Chapter Five. As a

result of Mager's and others' work, American educators were on the way to designing behavioral objectives for school learning.

Having reviewed the roots of the OBE principle calling for focus on outcomes, it can be seen that the roots of this principle go at least as far back as the turn of the century. Tyler, Bloom, Mager and Gagne, have each contributed to a belief in the importance of clearly stated outcomes. The role played by outcomes is so important, according to Spady, that "this clear picture of where they stand and where they are headed is a genuine boon and stimulus to students" (Spady, 1988, p. 7).

Principle 2: Expanded Opportunity and Instructional Support

Spady states that "all students deserve the time and instructional support they need to learn well what is considered essential to their future success in school and in life" (Spady, 1988, p. 7).

Time is often the driving force behind the traditional school. The district calendar, number of days in attendance, number of hours in seats, bells that signal the end of studying one subject and the beginning of studying another, number of credits accumulated, amount of requirements fulfilled, are the traditional measures of success in the typical school district (Spady, 1988, p. 4). OBE proponents suggest that this school model "promotes teaching that emphasizes curriculum coverage over student mastery"(p. 5). In contrast, "in the outcome-based paradigm, it is the outcomes, not the calendar, that determine credit and, in turn define what constitutes a 'course' and the content

needed in that course. Here the key issue is reaching the outcomes successfully, not precisely when or how much time it takes to do it" (p. 5).

The roots of this principle lie in the work of John B. Carroll (Spady, 1981, p. 2), who is referred to frequently in OBE literature. A forerunner of mastery learning, in 1963, he outlined the process for school success in his paper, "A Model of School Learning." Carroll summarized his learning model by saying that, "the learner will succeed in learning a given task to the extent that he spends the amount of time that he needs to learn the task " (Carroll, p. 725). In his explanation of the model, he emphasizes that by "time" he means time when the student is actively engaged in learning. His claim here is that forcing students to repeat a course or simply spend more time on a subject, will not necessarily result in more learning. Carroll described three attributes of the time element related to school learning.

First, Carroll believed that the amount of time required for a child to learn will vary greatly from one child to the next (Carroll, p. 725). In fact, Carroll drew the dramatic conclusion that aptitude actually consists of the amount of time required to learn a task. Thus, a student who requires less time to learn is said to have a higher aptitude for learning. The traditional school model does not provide for individual differences in time of learning, and usually includes the expectation that all students will learn in an equal amount of time.

A second attribute of the time element in learning, according to Carroll, is the student's ability to understand instruction (Carroll, p. 726).

Carroll combined ability with another time-related variable, the quality of instruction, to complete his discussion about time and instruction. He stated that the teacher's task is to organize the instruction in such a way that each student is able to learn as quickly as possible. This efficiency depends upon the learner being told, "in words that he can understand, what he is to learn and how he is to learn it" (Carroll, p. 726). This concept also supports the OBE emphasis on clearly stated outcomes.

A third attribute of the time element is learner perseverance. Defined as, "the time the learner is willing to spend in learning" (Carroll, p. 728), perseverance is the one element that places responsibility for learning on the student and her or his motivation for learning. Carroll completes his model claiming that there are five elements involved in school learning: the individual, internal elements just described: aptitude, ability, and perseverance; and the external elements of opportunity, or the amount of time allowed, and the quality of instruction (Carroll, p. 729). This model formed the basis of the thinking of researchers like Spady when they formulated the second principle of OBE (Spady, 1981, p. 2).

Principle 2 has a second aspect, expanded instructional support. This is to insure that all students have the opportunity to learn material well before being passed on to more complex material. Spady believes that having enough opportunities to learn the material well is important for success in life and in future learning (Spady, 1988, p. 7). After an initial period of instruction, an initial assessment of learning should take place,

which reveals which students need more time. In this way, OBE encourages second chances to learn for mastery (p. 7).

Spady finds roots for this concept of expanded opportunity for learning again in the writings of Benjamin S. Bloom, particularly in his 1968 work, "Learning for Mastery" (Spady, 1988, p. 7). Bloom stated that teachers frequently devote more attention to some students than to others, in spite of their idealistic goals of providing for all students' needs equally. Bloom also asserted that teachers subtly convey their expectations to students, and that they don't usually expect all of them to achieve (Bloom, p. 142). As a result, students' expectations are limited and the results of instruction are diminished. OBE proponents suggest that this negativism be replaced with a positive, optimistic attitude that emphasizes success for each student (See Principle 3). For example, Spady states the three basic tenets of OBE are: "success for all students, success breeds success, and schools control the conditions for success" (Spady, 1981, p. 10; Spady & Marshall, 1991 pp. 67, 70).

In order to bring about the expanded opportunities and increased instructional support, the traditional school model must be challenged (Spady, 1981, pp. 15f). Figure 4 (adapted from Spady, 1981, p. 16) presents his view of the contrast between traditional school practices and the OBE approach. To him, the goal system of traditional instruction is vague, inconsistent, private and comparative, resulting in inconsistent student learning at the end of the required learning time. In contrast, the OBE system measures students against criteria which are

Figure 4. A Framework of Organizational Variables that Affect Instructional Operations

Time/Opportunity Structure	
Traditional School Practice	Humanistic Developmental Approach
Fixed/Single	Flexible/Multiple
Role Constrained	Role Flexible
Minimum Competency Testing	Mastery Learning/Outcome Based
Vague Referenced	Criterion Referenced
Variable, Private	Fixed, Public
Exclusionary Model	Inclusionary Model

fixed and public; that is, well-known to the student. In the traditional structure, the amount of time spent in instruction is fixed, and students must demonstrate only the minimal level of learning in order to graduate or pass. OBE proponents see the traditional model as exclusionary because not everyone can meet even minimum standards, due to the "sink or swim" mentality of the system (p. 16).

The OBE model, however, is said to be inclusive in that all students are provided equal opportunity for instruction designed to bring about real learning, or mastery. In this sense, it seems more humanistic because it relates the instruction to individual needs and is flexible in terms of time and instructional strategies. The inclusionary model keeps "access and eligibility open for those with any hope of eventual success" (Spady, 1981, p. 16). In this sense, it is the application of Bloom and Carroll.

Principle 3: High Expectations for Learning Success

In his 1988 article, "Organizing for Results: The Basis of Authentic Restructuring and Reform", Spady, in describing the third principle of OBE, asserted that all students can learn successfully and achieve high standards (Spady, 1981, p. 10; Spady & Marshall, 1991, pp. 67, 70). Much of the literature disseminated to teachers at OBE in-service training sessions urges participants to believe that all students can succeed. Teachers are instructed to write outcomes in higher-order terms, set high criteria for credit, issue "incomplete" grades if standards are not met, and provide additional instruction when needed (Spady, 1988, p.

7). Teachers are encouraged to mark papers in pencil, rather than ink, to reinforce the idea that grades are not final until the standard is achieved, and that a grade may be changed if performance improves. In this way, students are given an incentive to challenge themselves to higher performance, knowing that support for improvement is available (Spady, 1988, p. 7).

Although Spady described OBE as an "approach to schooling that is both achievement-oriented and humanistic" (Spady, 1981, p.11), it would appear that there are also clear connections to behaviorist theory. The following discussion shows the close ties between OBE and the work of B.F. Skinner, beginning with the credit given him by Block and Burns.

In the 1977 paper "Mastery Learning," James H. Block and Robert B. Burns discussed how their mastery learning theory grew from Personalized Systems of Instruction, or PSI (Block & Burns, p. 9). PSI was developed by Skinner as an application of his belief that behavior and learning can be shaped toward a desired goal. Block and Burns noted that "the theoretical basis for this strategy (PSI) lay in B. F. Skinner's pioneering work on operant conditioning and the application of that work in the programmed instruction movement of the 1960s" (Block & Burns, p. 9). They described Skinner's work as being directed primarily toward achievement by individual students, while others, such as Bloom, have developed applications for Skinner's work to the whole classrooom (Block & Burns, p. 10).

The behaviorists developed the concept of shaping an individual's behavior toward a desired goal by applying a stimulus-response model. J. B. Watson, for example, believed that one can make a child into any kind of person. "Give me a dozen healthy infants and my own world to bring them up in and I will guarantee to train any one of them to become any type of specialists I might select--doctor, artist, merchant or chief, beggerman or thief" (Strom, p. 464).

Building on Watson's work, B. F. Skinner developed the concept of operant conditioning, a mode of changing behavior by applying various satisfying stimuli as rewards for the desired behavior. The subject then voluntarily repeats the behavior in order to gain the reinforcer. Using such techniques, Skinner became famous in part for teaching a chicken to play ping pong, and a pigeon to play the xylophone (Strom, p. 476). From Skinner's research with animals and humans, behavior modification and programmed learning evolved in schools in the 1960s and 1970s.

While others such as Bloom were expanding programmed learning into mastery learning strategies for the classroom, Skinner himself was developing his own approach to improving American schools. In his article, "The Shame of American Education" in 1984, he called for solving the problems of the schools by "simply . . . using time more efficiently" (Skinner, p. 950). He said, "it is within easy reach. Here is all that needs to be done" (p. 950). He went on to describe a four-part plan that greatly resembles Spady's outcome-based approach:

1. Be clear about what is to be taught.

2. Teach first things first.

3. Stop making all students advance at essentially the same rate.

4. Program the subject matter (p. 951).

Skinner's and Spady's theories have several things in common: both rely on establishing clear outcomes or goals of learning; both believe in advancing toward those outcomes in measured stages; both assert that most students can succeed, given enough time and opportunity; both have high expectations for student success.

The major link between OBE and behaviorism is the reliance of both upon mastery learning, in which learning in small steps is rewarded. The reward most likely would be to participate in enrichment opportunities, as opposed to reteaching exercises. In OBE, the exit outcomes dictate what the final product, the graduate, will be like. The behavior of the student has been shaped toward those outcomes when each lesson, unit, or course outcome is successfully completed. The school graduate, then, must successfully demonstrate the predefined, prespecified behavior.

OBE and Contributing Research

Since almost all OBE literature refers to B.S. Bloom as the major contributor to OBE processes, his work is examined in greater detail (Spady, 1988, p. 5; Abrams, 1985; Spady, 1981; Hymel, 1990; Guskey, 1983). Also cited by OBE proponents as instrumental in developing the model on which OBE is based are J. B. Carroll (Hymel, 1990; Spady,

1981), R. Glaser (1962; King & Evans, 1991), James H. Block (Guskey and Gates, 1986; Spady, 1981), and R. B. Burns (1987). There are a number of researchers whose writings are examined in order to describe links to the third OBE principle, high expectations of student success.

Since OBE principles, particularly the third, rely on the models of mastery learning and competency-based-education (C. Murphy, 1984, p. 2), it must be pointed out that in tracing the origins of OBE, one also discovers the roots of mastery learning. As a result, the writers examined here are also the formulators of mastery learning, which, it is argued here, is a forerunner and major component of OBE. The connections between mastery learning and OBE are treated following the investigation of the basis for both theories.

In John B. Carroll's 1963 work, A Model of School Learning, he proposed a set of elements on which school success depends. At the beginning of his work, he declared that, "what is needed is a schematic design or conceptual model of factors affecting success in school learning and of the way they interact (Carroll, 1963, p. 723)." As previously noted, Carroll defined five elements in any learning task: aptitude, or the time needed to learn a task; ability, or "general intelligence;" perseverance, or the amount of time the learner is willing to spend; opportunity, or the amount of time allowed for the learning task; and the quality of instruction (pp. 726-729). The first three elements are treated as individual and internal, while the last two are external factors controlled by the school and the teacher.

As noted in the discussion of Principle 2, Carroll proposed a connection between time and success. This connection led Carroll to the belief that most students can succeed if given enough time. OBE emphasizes flexibility and second-chances to learn; that is, given enough time, most students can succeed. Principle 3 of OBE, that of high expectations for learning success, is related to Carroll's conclusion that all five elements, working together, contain the ingredients for success or failure in school (Carroll, p. 733). Working from his model, Carroll and others, such as J.H. Block and R. B. Burns, explored the ways in which the five elements can be manipulated to bring about the fulfillment of high expectations for learning success.

Working in the same time period as Carroll, Robert Glaser sought to apply the behaviorist theories of B.F. Skinner to practical models of instruction in classrooms (King & Evans, 1991, p. 73). Skinner, Glaser, and other behaviorists were attempting to mechanize the process of teaching by means of individualized instruction, programmed learning, and computer-generated instruction. Glaser became the researcher who developed criterion-referenced measurement, which is used as the assessment tool in OBE processes (p. 73). He also defined a basic model for teaching. In Glaser's 1962 work, "Psychology and Instructional Technology," Glaser described his four-step plan for teaching, which bears resemblence to the plans of OBE proponents today.

Step one is the stage where teachers write objectives (outcomes). These should be of short-range and a long-range natures.

Second, the teacher preassesses student knowledge. Since the student is asked to relate prior learning to new situations, it is important to determine what students already know. Third, teachers must plan the instructional methods and materials to enable students to fulfill the objectives. Finally, evaluation takes place to determine whether objectives have been met. More than simply a written test, evaluation may involve a project, class participation, or other assignment. Evaluation serves not only to determine a grade, but to provide feedback which may indicate need for further instruction. This step is called a "feedback loop" in behaviorist and OBE literature (Glaser, p. 6).

Another component of the OBE process that draws upon the work of Glaser is criterion-referenced measurement (King and Evans, 1991, p. 73). He envisioned student performance along a "continuum of subject matter skills, ranging from no proficiency to high proficiency" (Glaser, 1962, p. 19). Calling this type of assessment "content-referenced" (p. 20), he placed its value on the fact that it locates a student's progress toward completion of a skill. In addition, it also reveals what terminal behaviors the student can perform.

Benjamin Bloom expanded upon the work of Carroll and Glaser when he published his article, "Learning for Mastery" in 1968. This became the basis for the mastery learning movement. Mastery learning became a major component of OBE in the 1980's. Since Bloom's work was so crucial to the present OBE model, and since Bloom is cited in nearly every resource related to OBE, it is discussed here in some detail.

While the original article was published in The Evaluation Comment (May, 1968), Bloom republished it in his book, All Our Children Learning in 1981.

Bloom asserted that the "most wasteful and destructive aspect of the present educational system is the fact that teachers begin the typical school year with the expectation that fully one-third of their students will either fail or barely pass their class. Another third are expected to learn, but not enough to be considered "good students (Bloom, 1981, p. 153)." Bloom assumed that there is a connection between these low expectations and the actual performance of students. He pointed out the tremendous cost to society of alienating young people from school and society in this way, especially in light of the fact that most students could really master what is taught, if the appropriate means of instruction were to be used. Bloom proposed mastery learning as the solution to this problem of failure and loss to society of so much potential.

Bloom and OBE proponents claim that we have used the so-called normal curve as our basis of measurement in school for so long that we have become accustomed to a prescribed number of failures. Bloom says, however, "there is nothing sacred about the normal curve (Bloom, p. 155)." He believed that if we were to use effective teaching methods, the curve would look much different because there would be many more high-performing students. Spady repeats Bloom's assertion in 1988 (p. 5). He proposed that mastery learning strategies would provide this change in approach and results. To develop his idea, he

drew from the five elements of any learning task proposed by Carroll in 1963. Bloom further defined each one, relating them to the view that, if the conditions are right, most students can learn at a very high level. Though several of the components are discussed in Chapter Two, they are reviewed here in light of Bloom's applications. The five elements follow:

First is the idea of aptitude for particular kinds of learning. Some teachers typically assume that students either have aptitude for a subject or they don't. Because of this assumption, teachers may believe that student success in a subject is beyond the control of the teacher, or even of the student, for that matter. In his discussion of aptitude, however, Carroll proposed that the amount of time necessary to master a task is, in fact, a measure of the student's aptitude for learning (Carroll, 725). Students who learn in a short amount of time are said to have higher aptitude than those who require longer. Given enough time, as many as 95 percent of students may achieve mastery (Bloom, p. 158).

Second is the description of quality of instruction. Bloom claims that schools generally operate under the assumptions that a classroom consists of one teacher and around 30 students, that most teachers teach in similar fashion, and that sooner or later, a single, best method of instruction will be discovered that will produce success in all students (Bloom, p. 159). In contrast to this common belief, Carroll (1963) found that the quality of instruction is a variable to be adapted to individual

differences in learning. Instruction is of high quality to the extent it meets the needs of different students, who themselves learn at different rates and respond to varying methods of instruction. Carroll places responsibility on the teacher for each student's learning when he states, "One job of the teacher. . . is to organize and present the task to be learned in such a way that the learner can learn it as rapidly and as efficiently as he is able" (p. 726).

The third element is the ability to understand instruction, which varies due to individual differences in learning. The practice has been that in any given course there is one teacher and one set of materials. If it is true that most instruction is based on verbal presentation and reading material, students who lack certain language skills are doomed to fail. Bloom found that many instructional styles may be employed to help students who may learn in different ways. Examples presented are group work, cooperative learning, tutoring, workbooks and programmed instruction, and audio-visual material (Bloom, p. 162). Each could assist students with various learning styles to master the learning tasks.

Fourth is perseverance, which was defined by Carroll as "the time the learner is willing to spend in learning (Bloom, p. 163)." Bloom asserted that perseverance may be related to the attitude which the student brings to the learning task, which may improve as appropriate materials and activities are provided. He believes that there is no point in making learning so difficult that only a few students can succeed, even though

some teachers seem to think that it's good for students to build up their endurance for unpleasant activities (Bloom, p. 164)!

Fifth is Carroll's most significant insight for OBE proponents, that concerning the amount of time allowed for learning. "For Carroll, the time spent on learning is the key to mastery" (Bloom, p. 165). Carroll and Bloom agree that each student should be allowed the amount of time necessary to learn the material, even though Bloom cites a study indicating that the amount of time spent on homework has a slightly negative correlation with achievement (p. 165). The amount of time necessary may be diminished by the other four elements. That is, if quality of instruction is appropriate, if aptitude and ability are high, and if a student is perseverant, then the time necessary to learn a task may be reduced.

Bloom, believing that any mastery strategy must take all five of Carroll's elements into account, developed an approach which became known as mastery learning. His ideas are adopted almost directly as the management system for OBE (Murphy, 1984, p.2). His strategy incorporates two practices which he says would be ideal: providing private tutoring for each student and letting students learn at their own pace (Bloom, 1981, p. 166). Knowing that both are unrealistic, Bloom described his approach: provide regular group instruction, stay within the traditional school term, and supplement the instruction with alternative materials and methods designed to bring all students to mastery of the subject (p. 166). This process became the basis for

mastery learning practices, and adopted as a major component of OBE.

Mastery learning researchers drew upon the work of Robert Glaser and others to develop evaluation techniques that would supply needed information regarding student performance (Glaser, p. 20). Bloom recommended the use of formative evaluation in order to provide feedback for teachers and students. Using Gagne's notion of task analysis (Gagne, 1977, Ch. 12), each unit or chapter would be broken down into manageable items, while utilizing Bloom's hierarchy of learning (Bloom, 1956) to organize the learning into ever more complex levels (Bloom, 1981, p. 169). In his Handbook on Formative and Summative Evaluation of Student Learning, (Bloom, et. al, 1971), Bloom stated that the purpose of formative evaluation is, "to determine the degree of mastery of a given learning task and to pinpoint the part of the task not mastered (Bloom, 1971, p. 61). Therefore, formative evaluation is diagnostic in that it reveals what deficits the student is experiencing, and what should be prescribed in order to alleviate them.

Bloom recommended that the formative tests should not count toward a grade, but be considered an indicator of student progress. Alternative resources should then be employed to serve as correctives to the deficits. Bloom recommended small group work for review, assigning workbook pages or readings, or using audio-visual material for remedial instruction. Following a period of remediation, a summative test would be administered, which would be, "an assessment of the

degree to which the larger outcomes have been attained over the entire course or some substantial part of it" (Bloom, 1971, p. 61). Proponents of OBE use Bloom's work and his terminology to describe the instruction and assessment phases of teaching (Murphy, 1984).

The influence of Bloom on the OBE process is particularly obvious to the extent that his theory of mastery learning is incorporated so thoroughly into it. His work started the process of challenging the traditional classroom structure and expectations, with the result that many researchers and reformers have based their work on his. Examples of these writers are J. H. Block and Robert Burns.

In 1971, J. H. Block published Mastery Learning, Theory and Practice, which included articles by Bloom and Carroll. Block's goal was to bring together the ideas developed and research that had taken place since Bloom's publication in 1968. Block further clarified the process of mastery learning in 1975, in Mastery Learning in Classroom Instruction. In this work, he and Anderson described the steps which he thought should be taken by the teacher to implement mastery learning. An explanation of the relationship between these steps and the process of OBE follows the description.

First, the teacher assumes that most of the students can learn well. Next, the teacher defines what exactly will constitute mastery of the subject to be taught. This is a list of what students will be expected to learn and these become fashioned into the objectives for the course. Determining what level will be considered "mastery level", the teacher

next prepares the final test based on these objectives. Following this, the teacher breaks down the course into manageable units, each lasting approximately two weeks. The final three steps in the process involve designing the diagnostic-progress test, developing alternative materials to be used as correctives, and teaching the unit (Block & Anderson, 1975). In 1977, Block and Robert B. Burns presented essentially the same steps, but with a new step. Following the formative test, the teacher is to certify which students have reached mastery. Students who have may pursue enrichment activities or assist the students who have yet to reach mastery. Those who have not reached mastery are assigned alternate corrective instruction designed to bring them to mastery on the final, summative test (Block & Burns, 1977).

Listing the steps typical of those found in articles about OBE demonstrates an even deeper relationship between mastery learning and OBE. A clear example is presented by Abrams (1985), when she stated that in 1979 Benjamin Bloom had recommended to her a "teach-test-reteach-retest" cycle (p. 30). To define just how this process is a part of OBE, she listed the following eight steps as a "Description of Outcome-Based Education" (p. 31):

Establishing instructional objectives.

Developing a plan for teaching to those objectives.

Using whole-class instruction.

Administering formative tests to determine which students need additional instruction.

Formative tests are not used as part of the children's grades.

Using formative test results to separate children into two groups: those who have mastered the objective and those who have not.

Providing additional instruction ("correctives") to those who have not shown mastery.

Providing those who have mastered the objective with enrichment activities ("extensions").

Using summative or mastery tests to establish pupil grades.

To further develop the mastery learning approach for use in traditional classrooms, James Block (1977), in "Individualized Instruction: A Mastery Learning Perspective," summarized observations which he and his students had made regarding individualized instruction (pp. 337-341). He claimed to have experienced considerable success using mastery learning approaches in the traditional classroom, as opposed to thoroughly individualized strategies. He offered four helpful guidelines to implementing mastery learning in the classroom. OBE proponents soon envisioned and incorporated its application in the OBE process (Murphy, 1984).

Block's first guideline is "Variety is not necessarily the spice of classroom life" (Block, p. 337). As a result of Carroll's and Bloom's work, some educators had begun to feel obligated to provide diverse resources, packaged to appeal to students' various learning styles.

Block's research indicated that variety in itself did not result in improved learning. Because of this, he recommended a "variety of effective ways" which keep our minds upon the intended goals of the instruction (p. 337). He advocated teaching techniques that will lead toward two main goals: high levels of achievement, and high rates of achievement.

Block's second guideline is the key to incorporating mastery learning into classroom settings, without individualizing each student's learning completely. It is, "Individualized classroom instruction need not necessarily be individual-based and student-paced" (Block, p. 338). He proposed that typical group instruction serves as the initial experience, or "springboard" from which teachers may individualize. Utilizing a formative, diagnostic test will indicate the direction for individualizing strategies.

Block's third and fourth guidelines pertain to the implementation of mastery learning strategies in schools. Here Block takes into account the limitations of the typical classroom. Guideline three recommends "Start small" (Block, p. 339). He suggests that since there will be opposition to mastery learning among some teachers, a few teachers begin in small ways to introduce such a program. As they experience small successes, they may encourage others to try.

The fourth guideline is, "Respect the ecology of the classroom; strive for what can be the case" (Block, p. 340). Recognizing that teachers have instructional materials in hand and that teachers already have goals and expectations, Block recommends that mastery learning

techniques be used, not necessarily to supplant what is already being done, but to supplement and enhance it. In this way, he thought, teachers would be challenged to implement a change that, to him, produces results, while at the same time preserving what they already were doing well.

Another writer on the topic of mastery learning proposes four models by which it may be organized in the classroom or school building. Using mastery learning as a component of OBE, Robert Burns in 1987 classified the ways in which he had observed mastery learning strategies being applied (Burns, 1987). Since, as Burns asserts, in the OBE process, students advance only when mastery is confirmed (p. 8), the management of students may become problematic in that, at any given time, some students will have reached mastery, while others will not. Burns offers four models for such management summarized below:

1. Whole Class Mastery--The whole class is brought to mastery together, following the Bloom model referred to earlier: teach, test, reteach, retest; the whole class advances together to the next unit. The teacher paces the instruction.

2. Flexible Grouping--Instruction is paced by the teacher. Every 3-4 weeks students are reassigned to new groups or classes for which their skill and mastery levels have prepared them. This model assumes that several teachers are teaching the same units at the same time, in order for students to be reassigned to classes where the appropriate skill is being taught.

3. Flexible Grouping Continuous Progress--Student paces the instruction; students are reassigned to learning groups every 3-4 days. Teachers in each group work only on a few objectives at a time and need a computer and testing center to track the progress of students.

4. Continuous Progress--Students progress at their own rate; students work individually on very specific outcomes and with one teacher, but at their own pace. To administer this program, a computer is required.

The educational process just described became part of the OBE approach in the middle 1980s, when Rubin and Spady published an article describing how some of the obstacles to providing individualized mastery learning techniques could be overcome. They defined the need for a system of delivering instruction that would meet the following criteria (Rubin & Spady, 1984, p. 37):

1. Accommodates variability in student achievement and aptitude.
2. Increases the amount of time students receive instruction targeted to their particular learning styles and needs.
3. Enables teachers to focus their time and attention on reasonably large groups of students who can directly benefit from their instruction.
4. Reduces the serious burdens and distractions inherent in most "individualized" and "learner responsive" instructional systems related to testing, record keeping, and managing the

reassignment of students to new learning groups or tasks.

5. Enables students to receive the benefits of curricular units carefully sequenced according to hierarchy of skills and concepts, and diagnostic evaluation based directly on those skills and concepts.

Rubin and Spady continue by stating that "such an approach would enable students to receive individualized mastery learning instruction without compelling teachers to apply new and complex teaching, testing, and classroom management skills to large numbers of students individually" (p. 38). This approach they called "outcome-based instructional delivery" (p. 38). In the experience of this writer, schools seeking to apply OBE processes rely on mastery learning strategies to define outcomes, assess for achievements of the outcomes, and advance students toward exit outcomes.

OBE and SCHOOLS: How Is it Being Used?

There are many varieties of application of outcome-based methods using mastery learning strategies. This literature review will now be focused on reports from school districts in which these processes have been applied. A survey of recent writing reveals numerous U.S. school districts where OBE models are being applied in various stages. The districts selected for review here were chosen as examples from urban, rural, small, large districts, and represented various geographical locations in the country. Each district is described, emphasizing the OBE principles and showing how these principles are put into practice.

Johnson City, N.Y.: Robert Burns (Burns, 1987, p. 17) has described the Johnson City schools as being among the first to apply OBE and mastery learning strategies, beginning in 1971. The city (population 18,000) was at one time a center for shoe manufacturing, which was in decline. The student population was primarily middle and lower-middle class, and included some Asian immigrants at the time of Burns' report.

Following the usual OBE process, after exit outcomes were established, curriculum guides were written for each unit, complete with lesson guides and model lessons. Each lesson has four segments: cue setting and motivation, best-shot teaching, guided practice, and formative assessment. The plan is based on whole-class mastery, with students provided time for remediation following the formative tests. Remedial instruction is provided either during the school day or after school, with late buses running three or four times per week. In the middle school, an enrichment/remediation study hall is organized. Mastery is said to be at 80%, meaning that all students must attain 80% mastery of the material. No failing grades are given, but incomplete grades are issued if mastery is not reached. On elementary report cards, three marks are given: M for mastery, NM for nonmastery, or I for incomplete. In middle and high school, numerical grades are given (p. 17).

The Center School, New Canaan, CT.: The school principal, Stephen Rubin, and OBE promoter, William Spady, have described the mathematics program at The Center School (Rubin and Spady, 1984, pp

37-44), where sixteen teachers instructed 400 K-6 students from a middle-class background, using the OBE process. The Center School is organized around a flexible-grouping, continuous progress plan, where students are grouped according to the objective on which they're working. This has led to changing the boundaries of classrooms and teacher assignments to meet the needs of all individuals.

Rubin and Spady use an analogy to describe this system. They compare it to the "ski school concept", where students in a skill group may be of any age, economic or social class, or learning rate. They find themselves grouped together in order to master a particular skill, and when it is mastered, each may move on to another slope to learn the next step (Rubin and Spady, 1984, p. 39). Since all learning objectives are defined and coded in a hierarchical manner, student progress may be charted and individualized.

Whitmore Lake, MI: Believing that students graduating in the future would need skills and competencies different from those of today, school decision-makers undertook the outcome-based process to improve instruction. A planning team followed the OBE planning model: planning starts with desired outcomes; students, teachers, staff, parents and community members are involved in planning; the responsibilities of students, home, school and community are clearly spelled out (Stephens and Herman, 1984, p. 45). The planning team decided that the result of schooling in Whitmore Lake should be "graduates who would be *self-sufficient adults*--defined as individuals

who produce for society a greater amount than they consume (p. 46)." Ten outcomes were developed and became the goals for unit and lesson planning. One aspect of their planning involved mapping an instructional audit, which shows graphically each skill, and the relative responsibility for attaining the skill that rests with the individual, the home, the school, or the community. Each year one additional exit outcome was added to the planning process, anticipating that within five years the process would be complete.

Red Bank, NJ: Superintendent of schools, Joan Abrams, convinced the school board to approve an outcome-based approach after talking with Benjamin Bloom in 1979. In her article, (Abrams, 1985), Abrams listed three areas which she saw as pointing to a need for total school revision: eighth grade graduates were frequently two or three years below grade level on standardized tests; other improvement programs had widened the gulf between middle-class and minority students; low expectations ofteachers for minority students, who comprised 60 percent of the student population. While Red Bank's achievement scores were among the worst in the state, per-pupil costs were in the 93rd percentile (p. 30).

Following standard OBE models, teachers wrote instructional objectives and plans for teaching those objectives using a whole-class model. The plan included formative tests, use of "correctives" or "extensions" (Abrams, 1985, p. 31), followed by summative tests used to establish grades. With so many students functioning below grade level,

Red Bank schools made the somewhat difficult decision to place all students at grade level, and to expect performance at that level. The traditional emphasis on "readiness" was dropped, on the assumption that it served to allow for a slow rate of progress. All teachers at each grade level used the same objectives, materials, and tests, making no exceptions for students who may not have demonstrated the necessary "readiness" for the skills being presented. This standardization appeared to stimulate students' motivation to achieve (p. 31).

Alhambra High School, Phoenix, AZ: A school of 2,400 students and 135 faculty, Alhambra High School started OBE as a program for which teachers could volunteer (Briggs, 1988, p. 10). Initially, in 1987, 18 teachers began the process by defining outcomes for their courses and units, and by writing formative and summative tests, based on high expectations of student performance (p. 10). Briggs, the Alhambra principal, reports that the first year resulted in positive reactions from the faculty. The following summer, more teachers than he expected signed up for workshops to design OBE programs for their classes.

Sparta, IL: The Sparta school district is described as average, not wealthy, and struggling to overcome problems of teacher strikes, layoffs, and below-average test results The district of 2000 students is made up of several small consolidated schools in southwest Illinois. Approximately 400 students qualify for Chapter One intervention and 15% are minority students according to its superintendent, Alan S. Brown (Brown, 1988, p. 12). Following a mandate from the state of Illinois issued

in 1984, Sparta was approved as a model school for implementing an OBE plan. The planners for school change adopted four main strategies: the Hunter model of instruction, the mastery learning model, a discipline plan, and outcomes at each grade level. Participation by teachers was made voluntary, and no timetables were issued, in order to encourage participation without stress (p.12).

Pasco, WA: According to Superintendent Larry Nyland, in the late 1970's, Pasco School District was in trouble (Nyland, 1991, p. 31). A teacher strike, race riots, and board recalls had led to an investigation by the state. Teacher morale was low. Of the 7,000 students, half are members of minority groups, and almost half qualify for free and reduced lunch rates. A new superintendent and an OBE consultant were given the challenge of transforming the school. The OBE consultant was John Champlin, who had engineered the OBE process in Johnson City, N.Y. Superintendent Nyland, in encouraging the Pasco School District, pointed out that, "outcome-based education is the only systemwide school improvement process proven effective by the National Diffusion Network" (p. 31).

Convinced of its effectiveness, Nyland and planners followed the OBE process of setting exit outcomes by defining what skills the students of the next century will need. They chose self-esteem, concern for others, self-directed learning, process skills, and basic thinking skills (Nyland, 1991, p. 31). Teachers were trained in OBE principles, and mastery learning strategies were taught. It was believed that

innovations like empowering teachers would add unique strength to the Pasco system. Teachers worked in teams of two or four, and were given decision-making authority. As Nyland said, "We intuitively knew that investing in our staff was the best thing we could do" (p. 31).

Teams share planning, placement of students, and responsibility for student discipline. Teams have enrolled in master's degree programs offered on campus, and contributed their knowledge to others. In evaluating the program, Nyland claimed that the school had been transformed, "through outcome-based education into a district widely recognized for quality. Hundreds of people visit the district annually to see OBE in action" (p. 29).

These accounts are offered as examples of the widespread interest and enthusiastic reaction to OBE. They also portray a common thread of experience where OBE processess have been implemented. Though these reports do not provide research findings in the strict sense, their evaluative findings reported here do convey a picture of just how schools have undertaken OBE programs, the variety of schools implementing OBE, and the variety of ways that OBE has been applied.

CHAPTER FOUR

OUTCOME-BASED EDUCATION: INDIRECT ANALYSIS

The review of the literature reveals that there have been no direct research studies on OBE. This research, therefore, is limited to reviewing the writings of the proponents, investigating the theoretical underpinnings and examining descriptive school reports and research claims about those schools which have implemented OBE. Reports about three states where there is ferment about implementing OBE strategies have also been presented. The one significant final question for the present research was: Is OBE a good idea? The way this question was approached was by examining two major components of OBE: mastery learning and behaviorist theory. They are reported as their proponents view them, and then as they are viewed by critics. This has been pursued on the assumption that discussion of mastery learning and behaviorism is an indirect discussion of OBE itself. It is believed that the described dependence of OBE upon these two theories warrants such an assumption.

Since mastery learning theory and techniques have been shown to be an important component of OBE (see Chapter Three), arguments and evidence about their adequacy and effectiveness are explored. Three significant studies are discussed: the 1977 review of research on mastery learning by Block and Burns; the 1986 survey of mastery learning research by Guskey and Gates; and finally a study of mastery learning

research published in 1988 by Guskey and Pigott. Following the findings of these major studies is a discussion of mastery learning.

In their 1977 paper, "Mastery Learning", J. H. Block and R. B. Burns sought to summarize findings of numerous studies conducted to test mastery learning results. They reviewed what they believed were the best mastery learning research studies up to that time. For their survey, they sought studies, published and unpublished, which had a "substantial degree of external validity" (p. 13). For example, the studies had to have been performed in a typical school setting, using usual school materials. The studies had to be long and complex enough to provide internal validity.

From these studies on the degree of learning attained by mastery-taught students, Block and Burns reported that "on the average, the LFM (learning for mastery)-taught students scored .83, or approximately five-eighths of a standard deviation better than non-LFM-taught students on the achievement measures" (p. 21). From the studies which they surveyed, they concluded that, "mastery strategies had produced both significantly greater student achievement and significantly greater retention across classrooms" (p. 21).

Studies surveyed by Block and Burns also reported on the kinds of learning which students had acquired, which is a question about the quality of learning. Noting that the evidence was not overpowering, they concluded nevertheless that students may be helped by mastery learning strategies to acquire complex, higher order skills (p. 24). On the

question of learning time, Block and Burns concluded that "mastery strategies might eventually help slower students to learn more like faster students do" (p. 24).

Overall, Block and Burns concluded from their survey of research that "mastery approaches to instruction do work . . . (even though mastery strategies) have not yet had as large effects on student learning as their advocates propose are possible" (p. 25). The authors also caution that their findings are based on studies which may have some common flaws. For example, measurements used were constructed locally by teachers, and the researchers were unable to investigate these measurements. In addition, the strategies for mastery were not described in detail by teachers, so the actual techniques used were not available. The final caution by the authors is the awareness that the nonmastery approaches compared in these studies were not described in detail. The terms, "traditional" or "standard" were used to describe the nonmastery approaches.

In spite of these precautions, Block and Burns concluded that the most important implication of the mastery learning literature is alterability of student learning. They believe their review of research findings shows that student learning quantity, quality, and retention are improved by the use of mastery learning strategies. They believe this finding is very important because it may be instrumental in changing attitudes of some teachers who "believe that the learning of some students is *unalterable* under any instructional conditions" (p. 41).

Thomas R. Guskey and Sally L. Gates conducted a survey of research done about mastery learning and published their findings in 1986. Their goal was to evaluate the effectiveness of mastery learning as it was being applied in typical classrooms of 25 or more students, with teacher-paced instruction aimed at the whole group. They reported that Block and Burns had completed such a survey of the research in 1975, so the Guskey and Gates research surveyed studies from 1976 to 1986.

They found over a thousand titles suggesting studies of the effects of group-based mastery learning programs by searching the usual data bases and bibliographies. Narrowing the field by reading the abstracts, Guskey and Gates reduced their sample further after obtaining copies of the pertinent studies. They applied three criteria in order to make the final selection: the studies must show teacher-paced, whole group mastery learning techniques; second, reports must include control classes or "have a clear time-series design" (p. 74); third, the studies used must be free of procedural flaws. Finding 27 useable studies, they synthesized the data on five areas of interest: student achievement, student learning retention, time variables, student affect, and teacher variables.

Student achievement was measured mostly by teacher-made tests and denoted by letter grades. Of the 25 schools that reported achievement data, all reported positive results. No control class outperformed a mastery learning class. The results were positive in all

subject areas and at all grade levels (Guskey & Gates, 1986, p. 75). Student retention studies also showed the positive effects of mastery learning, though its effects on long-term retention were not as great as that for shorter term. For example, the effect size of retention of knowledge two weeks after instruction was .62, while after four months, the effect size was .52 (Guskey & Gates, 1986, p. 77).

Guskey and Gates reported on four studies which evaluated learning time. The time-on-task results of these studies found positive effects of mastery learning. Studies of the amount of time spent indicated that the longer students were involved with mastery learning strategies, the more time spent by slower learners on mastery tasks came to approach the amount of time required by faster learners (Guskey & Gates, 1986, p. 77). They reported that studies about time spent (as opposed to amount of time allowed) substiantiate previous claims that the difference in learning rate of faster and slower learners diminishes by employing mastery learning procedures (p. 77).

The one study of student affect reviewed by Guskey and Gates indicated that students' attitudes toward the subject and their self-concept as learners both showed positive effects of mastery learning. The study, by Anderson, Scott and Hutlock (1976), was about the attitudes of elementary students toward the subject they were studying, as well as their attitudes toward themselves as students. "Students who learned under mastery conditions generally liked the subject they were

studying more and were more confident of their abilities in it. . . " (Guskey & Gates, 1986, p. 78).

The survey of teacher variables was also found to indicate positive effects of mastery learning. After only three weeks of applying mastery learning, teachers reported positive attitudes about the strategies. Their expectations of student success became much higher, and it became more difficult to predict which students would do well in class. In one large study which involved 117 junior and senior high school teachers, Guskey (1984) found that, "teachers . . . begin to feel much better about teaching and their roles as teachers, accept far greater personal responsibility for their students' learning successes and failures, but express somewhat less confidence in their teaching abilities" (Guskey & Gates 1986, p. 78). They explained this lowering of confidence by saying that teachers may interpret the successfulness of mastery learning to imply that they had not been doing a good job as teachers prior to implementation.

Guskey and Gates summarized their findings by saying, "We found that group-based applications of mastery learning have consistently positive effects on a broad range of student learning outcomes, including student achievement, retention of learned material, involvement in learning activities, and student affect" (Guskey & Gates, 1986, p. 78).

The final study reviewed here is the paper, "Research on Group-Based Mastery Learning Programs: A Meta-Analysis" by Guskey and

Pigott (1988). Similar to the study by Block and Burns, the Guskey and Pigott study relied primarily on results of teacher-constructed tests. Letter grades given by teachers were the measurements used in some of the studies reviewed, while a few were based on standardized achievement tests. Guskey and Pigott selected 46 studies for their survey, using techniques identical to those used by Guskey and Gates in 1986.

Guskey and Pigott concluded from the 46 studies in their survey, that the overall effect consistently favored the mastery group, though the size of the effect varied considerably from study to study (p. 202). The effects of group-based mastery learning "appeared to be larger for younger students in elementary classrooms than for older high school or college students" (p. 206). They also concluded that mastery learning strategies have a positive effect on retention of material learned (p. 209), and reduce attrition rates (p. 209).

Measures of affective variables revealed similar positive results. Guskey and Pigott concluded that "students who learned under mastery conditions generally liked the subject they were studying more, were more confident of their abilities in that subject, felt the subject was more important, and accepted greater personal responsibility for their learning than students who learned under nonmastery conditions" (p. 211).

Studies about teachers' reactions to mastery learning were also surveyed by Guskey and Pigott. They reported finding that teachers

had a more positive attitude toward mastery learning and toward their students. Teachers who use mastery learning strategies were found to have a more positive attitude about teaching and the role of teacher (p. 212). There is a unique similarity in both methodology and conclusions between the Guskey and Gates study (1986) and the Guskey and Pigott study (1988).

In general, these reviewers of major studies of student performance in mastery learning classrooms indicate many positive results. The authors conclude that student achievement improves, along with retention of learning, and attitudes toward learning. In spite of such promising reports, there remain important questions about mastery learning.

Critics of Mastery Learning

Critics of the mastery learning approach have a major philosophical conflict with the proponents, which concerns the assumption that all students can succeed at academic work, given enough time. Carroll stated ("A Model of School Learning", 1963), "The learner will succeed in learning a given task to the extent that he spends the amount of time that he *needs* to learn the task" (p. 725). Marshall Arlin (1984) disagrees,calling this belief "an egalitarian dream: equality of opportunity (time) and of outcome (achievement) at levels of excellence" (p. 81).

Marshall Arlin, University of British Columbia specialist in time factors in teaching and learning, stated that "the more we provide

equality of time to students, the more we will obtain inequality of achievement; and the more we obtain equality of achievement, the more we will have to provide inequality of time to students. I refer to this as the "time-achievement-equality dilemma" (Arlin, p. 66). Patrick Groff, Professor of Education at San Diego State University, (1974) called some of the proposals of mastery learning "shocking" (p. 88). He challenged the assumption that almost all students will learn to mastery, or to the "A" level, calling these assertions, "glittering promises of success . . . (that are) too good to be true" (p. 88). He observed that there is not enough empirical evidence to support Carroll's claim. Both researchers appear to question the claim of mastery learning proponents that most students can achieve a high level of academic performance. (See, for example, Bloom, 1978, p. 565: "The typical result of the mastery learning studies in the schools is that about 80% of students in a mastery class reach the same final criterion of achievement--usually at the A or B+ level--as approximately the top 20% of the class under conventional group instruction.") Arlin and Groff appear to not accept Bloom's claim that most students are educable to an equally high level. This claim is a major premise of the mastery learning theory.

More criticisms are based on questions in the following five areas: concerns about the education of the faster learner, concerns about the education of the slower learner, alleged effects of mastery learning on teachers, the adequacy of the grading system in mastery learning

programs, and, finally, a concern that mastery learning is "too behavioristic." Each of these questions is addressed in the order given.

Some critics believe that a mastery learning environment causes students who learn at a faster rate to wait for slower learners. Daniel J. Mueller, professor of educational psychology at Indiana University (1976), called this the "boondoggle" of mastery learning. Arlin (1984) added that "The faster student is thus held back on two counts: first, by sitting through unnecessary class instruction time, and second, by waiting while other students master their individualized remediation" (p. 79). Towers (1992) similarly noted that the result of students' having to "wait around" is that "higher-ability students are slighted" (p. 298) because teachers are obliged to spend more time with lower-ability students. One solution to this dilemma is proposed by Mueller (p. 44). He suggests that students who have mastered the criteria be allowed to progress to the next stage of learning. This would be following the "continuous progress" model of mastery learning (see Chapter Three).

Another concern about faster learners centers on the amount of learning which they could attain were they motivated to spend the same amount of time studying as the slower learners (Mueller, p. 45) He asserts that faster learners could learn as much as four times more in this way (p. 45)! Arlin (p. 79) cautioned that some might see the solution to the "problem" of faster learners as keeping them "away from instruction at which they might excel" (p.79). In both of these authors' views, the faster learners pay the price in terms of amount learned in a mastery

approach. Providing more instructional time for some results in reduced opportunity for others, which is the trade-off described by Arlin as the "time-achievement-equality dilemma" (p. 70).

Cox and Dunn suggested the possibility that faster learners, or in some cases, all learners, may apply the "principle of least effort" (Cox & Dunn, p. 26). When the usual mastery approach is followed, the instruction will be followed by a test, which will result in some students achieving mastery, while others do not. Those who have not reached mastery will undergo reteaching opportunities, while those who have reached mastery will engage in enrichment activities. A final test will be given, and the whole class will pass on together to new material. This is the "whole class mastery" approach described in Chapter Three. Cox and Dunn stated that students may easily take the first examination without even studying, merely to gain an idea of what will be tested. These students' lack of effort will be rewarded by success on the final examination (p. 26).

Some researchers have another set of concerns about slower learners. James M. Towers, associate professor of education at Saint Mary's College Winona, MN, suggests that "some students--no matter how hard they may try--will still be unable to do as well as most of their classmates in the time available"(1992, p.299). He appears to be questionning the major premise of mastery learning, that all students may achieve a high level of academic success. William F. Cox and Thomas G. Dunn, The University of Toledo, imply that some students can't

trust the promises of mastery learning (p. 26). For slower learners, "the reality of having to take the exam, and possibly the unit of instruction, over again" may become burdensome, or even a kind of punishment. They suggest that the failure to gain mastery may be interpreted as "an indication of intellectual inferiority" (p. 26). In addition, some students may rationalize away their failure by blaming the instructor or the system (p. 26).

Groff suggested that the possiblility of failure is "a danger inherent in mastery learning . . . (that) threatens the mental health of students" (p. 90). He describes the "bait" of mastery learning: "Try one more time and you will master it"(p. 90). He said that for students who are incapable of reaching mastery, this failure becomes just another sign of their "inferiority."

Some researchers also show concern for the role of the teacher in mastery learning systems. Mueller claimed that in the mastery learning model, the teacher assumes responsibility for the learning of the students" (p. 42). (Refer to Appendix A for the OBE motto, "schools control the conditions for success.") This assumption of mastery learning proponents represents a departure from traditional structures, in which the students are responsible for their own learning and graded accordingly. Cox and Dunn stated that the "responsibility to ensure successful learning is shifted from the learner to the instructor or instructional designer" (p. 27).

Groff (1974) expressed concern that under conditions in which it is assumed that the teacher is responsible for student learning, the teacher would experience feelings of "guilt . . . defeat and frustration" (p. 90) when students fail to reach mastery. He feared that these negative feelings would be transferred to students, with the result that "students subjected to such irresponsible goals could develop long-lasting negative attitudes toward school" (p. 90). Cox and Dunn referred to the teacher's "psychological trap", when they described being "burdened with the stigma of having broken a promise to the student" (p. 26). They feared that the teacher might adjust student expectations by lowering standards as a result. Arlin also expressed concern about lowering standards, when he stated, "By providing more time than the majority of students need, schools can move students toward a lower common denominator" (p. 82).

Additional major responsibilities assigned to teachers in mastery learning systems are the preparation of learning goals, a variety of tests for first and second attempts, reteaching material, and enrichment activities. Record-keeping and monitoring require more teacher time than they do in traditional systems. Towers concluded that, "clearly, it requires more teacher time and effort than conventional instruction" (p. 298). Groff stated that it seems "overly optimistic" to assume that all this would be easy. In fact, he said, "it is something of a slur on the work habits of present-day teachers to aver that hidden away in the normal school day is an unused deposit of teacher time, the extra time

necessary if teachers using mastery learning strategies are to give students *all the time* the students need to learn to mastery" (Groff, p. 90).

In a different vein, some writers question the respect shown to teachers when they are asked to reduce complex material to small, hierarchical steps (Ornstein, p. 92). Some teachers may consider it insulting to reduce the rich affective experiences they have developed for the students to behavioral objectives that are measurable. Groff said the subject matter must be "broken up into closely defined bits of information and rewritten as behavioral objectives" (p. 90). There may be several problems that result from the writing of behavioral objectives for mastery learning programs: (a) The affective realm is difficult or impossible to quantify, (b) the pieces of information may be "static" (Groff, p. 90) or lacking in interest, and (c) students are encouraged to "disregard any information that does not directly apply to the behavioral objective in question" (p. 90). There may be experiences which teachers wish to provide their students, for which no particular behavioral change is sought. In the effort to meet the requirements of a mastery learning program, teachers may be forced to give up such opportunities.

Cox and Dunn warned that exclusively relying on measurable objectives in the instructional process might prevent "students from being exposed to certain beneficial experiences that do not result in an immediate behavioral change, or at least do not result in a behavioral

change detectable to the degree demanded in a behavioral objective" (p. 25). Enriching experiences may be abandoned or overlooked when teachers are obligated to state each "learning" in prescribed objectives.

Groff stated that "when students learn enough of these pieces of static information, they are said to have achieved mastery" (p. 90), and Ornstein asks, "But is this really learning?" (p. 92). Groff said, "mastery learning underestimates the complex nature of the teaching act" (p. 91). Both Groff and Ornstein claim that there is more to teaching and learning than can be reduced to a simple list of behavioral objectives.

In addition to teacher time and effort, Mueller is concerned about the use of other instructional resources. "Not only do slower learning students have to study more than faster learning students, but a major proportion of instructional resources must be committed to the instruction of these students" (p. 45). These resources may include teacher aids or tutors, extra worksheets, workbooks, etc. He considers the use of these materials as "disproportionately large" for slower learning students (p. 46).

A fourth topic of concern about mastery learning involves the meaning and function of grades. Cox and Dunn say that when students are given an "A" for a grade, it is assumed "that they are fully competent" (Cox and Dunn, p. 27) in that subject. In fact, their teachers may know that given students required many retakes of tests in order to "master" the material and thus receive an "A". Cox and Dunn offered

the suggestion that teachers using mastery learning ought to make a notation of the number of retakes administered before a student reached mastery (p. 28). This would appear to amount to a new grading scale, merely replacing the traditional A-F standards with another similar scale that would indicate amount of time taken to learn, rather than amount of learning itself.

Relatedly, there is the question of just what a grade of "A" measures. Mastery learning practitioners believe that all students should be given "A," "B," or incomplete grades, the latter indicating that they have not yet reached mastery. Mueller (p. 48) raised the question as to just what the grade of "A" would mean under those circumstances. He expressed the belief, in fact, that a grade of "A" in a mastery learning system would be the equivalent of a lower grade, even a "D", in a traditional system, since the "A" merely reflects attainment of the basic skill or knowledge being tested. This is because the domain in mastery teaching programs is "closed or finite" (p. 48), and it cannot be assumed that the student has learned more than what is being tested. Only the basic skill or knowledge is important. Mueller proposed that more can be taught than can be tested (p. 48). In the traditional system, the "A" represents not only the basic achievement level, but also a high level of "performance in the larger domain" (p. 48). This larger domain might be the whole range of material taught in a unit, not just the basic skill or knowledge being tested.

William Spady himself even questioned the subject-matter emphasis in mastery learning programs when he separated OBE from the typical mastery learning curriculum orientation in a December, 1992, interview. Asked if OBE approaches can help students attain high-level achievement scores on standardized tests, Spady replied that, of course OBE can do that, "if that's what's important" (Brandt,1993, p. 70). Spady continued:

> The OBE classes in Glendale Union High School District in Arizona have blown the top off of the district's criterion-based subject matter tests that they've carefully developed and used for years. But is that the stuff we should be staking our educational system on? Even Glendale, with all of its traditional OBE success, is saying 'No!' Should subject matter test scores be the outcomes of an educational system for the 21st century, or are those the outcomes of the last century? If you define something else as your outcomes--like higher-order role capabilities--kids will learn a lot of that content anyway but have much more to show for their time in school (Brandt, p. 70).

These comments seem ironic, coming from the promoter of a system which relies so heavily on mastery learning for achieving the outcomes. What it seems to reveal, however, is that Spady believes there are limitations to mastery learning strategies when it comes to fostering the growth of complex life role competencies which he wished OBE to develop.

Overall, the research cited here indicates the need for continued vigilance regarding mastery learning. Serious questions have been raised about the equality of educability, the needs of faster and slower learners, the responsibilities placed on teachers, the potential constrictions upon curricula, and the validity of the grading system. The research findings of mastery learning proponents are generally positive, but topics worth researching have been suggested by the comments of others.

Concerns have also been raised about the theories of the original proponent of mastery learning, Benjamin Bloom. In his 1968 article, "Learning for Mastery" (republished in Bloom, 1981, All Our Children Learning), Bloom stated, "Most students (perhaps over 90%) can master what we have to teach them, and it is the task of instruction to find the means which will enable our students to master the subject under consideration. As described in Chapter Three, Bloom proposed a plan of instruction that became known and promoted as mastery learning.

Since then, a number of concerns about Bloom's work have been raised. Two published articles are discussed here. Karen Harvey and Lowell Horton, Northern Illinois University education professors, said that, "one problem with Bloom's work is that it is not a full-blown theory, in the sense that it is capable of providing a complete theoretical undergirding to educational practice" (Harvey and Horton, 1977, p. 192). Their concern is that school personnel may rush to develop mastery learning practices before solid research supports it. They noted

that if Bloom's model is taken seriously, massive transformation of schools would have to take place in order to implement mastery learning practices. They said that a "stronger form of the theory" would be needed to bring about that transformation.

Another writer, Sandra Anselmo, Assistant Professor in the School of Education, University of the Pacific, Stockton, CA, reviewed Bloom's book, Human Characteristics and School Learning (1976). She questionned Bloom's research, which he uses to support his claims about mastery learning. She said that, "some of his own research is plagued by logical problems that compromise that support" (Anselmo, 1980, p. 278). For example, he changed his own definitions when evidence was lacking to support them; some of his studies were done by graduate students on very small samples; in addition, Bloom drew "quotable but very misleading quantitative conclusions" (p. 278) about mastery learning.

These two articles indicate that major questions about mastery learning endure. Without solid research to support it, mastery learning proponents, and, by implication, OBE proponents, may have difficulty convincing large numbers of teachers as to its efficacy. Solid, believable proof is needed, not just fluent phrases and mottos. When workshop presenters and educational consultants seek to convince teachers to make changes, they need reliable evidence.

The final challenge to mastery learning is the allegation that it is "too behavioristic" (Groff, p. 91). Groff said, "it (mastery learning) aims to

impose yet another behavioristic doctrine on the schools" (p. 91). Ornstein agrees, describing mastery learning "as being too 'behavioristic,'" emphasizing "cognitive elements of learning at the expense of affective elements of learning . . . " (p. 92). Kenneth Strike would appear to agree with Ornstein's observation about more complex learning being deemphasized by mastery learning techniques. His article, "Knowing and Learning" (Strike, 1974, pp. 75-88), describes the process by which a student acquires "weak" learning that is easy to specify and easy to assess. In contrast, "strong" learning is much more complex and difficult to measure. Strike states that writing behavioral objectives for complex learning is "most difficult if not quite futile"(p. 88). Strike states that, "an excessive demand for such behavioral translations is, therefore, likely to end up ignoring such goals, with a subsequent trivialization of educational objectives" (p. 88).

Ornstein and Strike seem to agree that the result of behavioral goals may be to emphasize the simple recall of factual information and that this activity would be regarded and rewarded by teachers and schools as successful learning. A danger here is described by Strike, who distinguished between "knowing" and "learning." "It has been frequently noted that to claim that a person has learned something does not in most cases commit us to holding that he knows anything" (p. 78). Here lies the danger in behaviorism, mastery learning and OBE: as the small steps of behavioral objectives are written in hierarchical increments by school staff, they become more and more difficult to

define in other than extremely narrow and confining increments and to measure. The culminating objectives, then, may be particularly difficult to assess. No doubt, Spady has attempted to distance himself somewhat from the mastery learning and behavioristic tendencies of OBE to avoid just such dilemmas.

For example, Spady said in a December, 1992 interview (December, 1992, p. 67) that, "today, outcome-based educators are talking about complex roles (sic) performance in real situations with real demands." He fails to define just how these performances might be measured, however. Since OBE processes depend upon student demonstration or mastery of specified outcomes, it seems inconsistent that Spady would now advocate the adoption of exit models which are nearly impossible to define, outcomes which are concurrently behavioral, affective, and of a widely inclusive nature. (See examples of exit outcomes in Chapter Three, figures one, two, and three.) Because OBE proponents assert that a student should not receive a diploma unless these performances are demonstrated, measurement of the performances is a crucial factor, one which Spady evidently leaves to others to develop.

Groff described the process by which the teacher determines the behaviors that will be tested, sets the terms of the measurement, and controls the evaluation of the student performance (p. 90). This process suggests that the teacher and the school are in very powerful positions, setting the standards, and determining who succeeds or fails,

as in OBE processes, where performance objectives must be attained before students may advance. That power may tend to be misplaced if the OBE goals themselves prove to be unassessable, or the goal-writing process results in implementation of unworthy goals.

OBE and Behaviorism

Since some researchers suggest that mastery learning, and by implication, OBE, are behavioristic, a discussion of comments about behaviorism applies here. Our tracing of the roots of mastery learning revealed its link to the work of B. F. Skinner, a preeminent behavioral psychologist (see Chapter Three). In their 1977 paper, "Mastery Learning," James H. Block and Robert B. Burns reported that Skinner's work evolved into a program for individualized instruction, which they applied to whole classrooms (p. 9).

Skinner suggested that a whole society could be molded according to a preconceived plan. As in his futuristic novel, Walden Two, children are shaped into perfectly behaving citizens for a trouble-free society, so Skinner would direct schools to mold student development by shaping their behavior toward the goals established with the good of the whole society in mind. Leaders of schools and society are seen as being in control of students' and citizens' minds and behavior. Individual freedom and personal choices are unnecessary and even risky and undesireable in this authoritarian existence.

Even though the subjects in Skinner's experiments are said to be acting "voluntarily" to get the reward, one may ask to what extent

individuals are freely exercising their will when they are manipulated and controlled to meet the will of an external power. There is also the suggestion that a hierarchy exists in a Skinnerian society, where power is in certain hands upon whom the rest of the society is dependent. This mode of influencing thought and behavior would be more characteristic of a totalitarian society than of a democracy, where freedom of expression and pursuit of individual goals are the ideal standard.

Philosophically, behaviorism is a" realistic" approach. The individual is subject to external controls, but this is for the good of society. There is a need for structure and order, and the individual gets power and inspiration from doing things in a prescribed way. If individuals do not relate to the structure, they get left behind. Skinner may say that, since few wish to be left behind, most students will voluntarily seek to meet the prescribed standards and get the rewards. Mastery learning proponents would agree, it would seem, and would claim that the results of implementing mastery learning in schools would bring mostly positive results, which justify any coercion involved in the setting of goals.

Critics say that the behaviorist approach regards the individual as passive, and easily motivated by short-term payoffs. Students may "play the game" just to get a reward (Strom, p. 478), without really learning. The teacher in a behaviorist system is responsible for the learning, which must be stated in measurable steps leading to the fulfillment of an

educational goal. The result of this student passivity and teacher responsibility tends to be relatively short-term learning of material that is not complex (p. 478). This may also lead to a lack of intrinsic motivation on the part of the learner, as teachers take most of the responsibility for learning.

In conclusion, there seems to be a fair amount of evidence that mastery learning is effective for bringing students to achieve high levels of academic success in subject matter that is easily dissected and tested. This approach would seem to be very appropriate for learning particular subjects or parts of subjects, such as spelling, mathematical tables, or historical facts. For more complex learning, particularly in the affective domain, however, its limitations and behavioristic tendencies seem to suggest that it has shortcomings too serious to ignore.

To the extent that OBE depends on mastery learning and behavioral objectives, it may be subjected to similar scrutiny. It is helpful to organize the concluding remarks of this indirect analysis in the context of the three premises frequently repeated by OBE proponents: all students can learn and succeed; success breeds success; and schools control the conditions of success (see Appendix A). Each premise has a basis in mastery learning and behaviorist theories, and, therefore, corresponding cautions regarding each premise have been raised.

The first premise, that all students can succeed, has its basis in the work of Benjamin Bloom, who asserted that, "What any person in the world can learn, almost all persons can learn if provided with

appropriate prior and current conditions of learning" (Bloom, 1978, p. 564). He stated that his observation applied to 95 percent of school students. The findings of Block and Burns, Guskey and Gates, and Guskey and Pigott (see pp. 53-57) were cited by these authors as support for Bloom's claims that all students can achieve equally. Other researchers have questioned this premise and do not accept it as proven reality. If it were true that all students can succeed, as OBE and mastery learning proponents assume, then just what students can succeed at should be definable and measureable in order to promote students through the hierarchical system and to grant diplomas at the end.

Critics of mastery learning have cautioned that definable and measureable goals tend to be of a simple nature and rely primarily on recall of facts. Cognitive goals are emphasized over the affective realm, partly because they are easier to measure and thereby demonstrate success. The grading system in mastery learning and OBE systems tends to degrade the value of "A" or "B" grades if all students achieve them. Therefore, the first premise of OBE is subject to several questions: can all students really succeed? At what will they succeed? Who will determine the standards for success? How will this success be measured?

Another question about OBE outcomes regards exit outcomes, which are described in Chapter Three. These tend to be of such a general nature as to be unmeasureable. For example, how can success be demonstrated for an outcome stated as "Understanding of

past and present culture" (see Figure 1)? In the OBE process, the classroom teacher must "design down" through the curriculum all the component parts of such an outcome, or task-analyze each step. It is apparently in this stage of the OBE process that mastery learning strategies are employed to bring students from lower level mastery of factual recall to the broad exit outcomes proposed by school districts and state departments of education. Just how this process is to be accomplished is not described in the OBE literature. When William Spady was asked personally by this researcher to describe how this may be done, he dismissed the question. In effect, he said, "That's a difficult question" (January 11, 1993, Practitioner's Paradise, Rochester, Minnesota).

The second premise of OBE, that success breeds success, is related to the claims of mastery learning that students' test scores improve, that retention of learning is improved, and that slower learners tend to require less time for learning as they succeed (refer to Chapter Three). Critics of mastery learning raise questions that apply to the OBE assumption that this is true when they report that slower learners feel burdened by the necessity of achieving success. Some may become defeated by the OBE system and drop out if they fail to achieve the success that is promised.

The effect of the OBE approach on faster learners may be the opposite. They may too easily achieve the outcomes and remain unchallenged. Others may learn quickly how to "work the system" and

use their time in meaningless pursuits. It is possible that faster learners may in fact not learn as much in an OBE system as a result. As mastery learning critics claim, students may become passive learners, doing only what is required to meet the required objectives. The result could be reduced quantity and quality of learning.

The third premise of OBE is that schools control the conditions for success. Behaviorists would readily agree that the school and teacher should define the terms for student learning and behavior, and students should and will be motivated to comply with these terms in order to receive the long-term rewards of education. Critics, however, caution that such control by schools and teachers is overwhelming, representing a totalitarian affront to the democratic processes inherent in United States society. In a traditional United States school, the school and teacher present education as a challenge to be achieved and graded, based on the extent to which the student succeeds at meeting the challenge. The student has the right to question and discuss possible differences of viewpoint, to choose whether to succeed, and to receive or seek help when success isn't achieved. The OBE system would determine the end products of education and apply various controls to see that the ends are achieved and at high levels (grades of "A" or "B"). The questioning student has little choice, except to leave the system. Some would see this as a highly authoritarian approach not acceptable in a democracy.

The suggestion of this premise is that the responsibility for learning rests with the teacher and school, not with the student. If the student fails, it is up to the teacher to provide numerous repeated opportunities for success, and to devise methods to assure success. The student remains somewhat passive in the process. This assumption represents a major shift in the thinking about the responsibility of schools. Benjamin Bloom stated that mastery learning represents a "shifting of responsibility for learning" (Cox & Bloom, 1979, p. 365). It carries with it a burden of work on teachers, including the devising of all the necessary success-building mechanisms required in order for some students to succeed. One result may be the lowering of standards and degrading of the overall quality of school learning.

It has been argued that the challenges to mastery learning and behaviorism apply directly to the three OBE premises just described. The challenges indicate the many areas in which OBE may be questioned indirectly through analysis of mastery learning and behaviorism.

CHAPTER FIVE

SUMMARY,CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Since it was found that there exists little or no empirical research about OBE, this researcher was compelled to review what literature does exist and indirectly analyze the OBE "cause" through two of its major underlying components. Defining and describing OBE and detailing reports and research on its underlying assumptions are seen as important contributions of the present research. The three questions for this research are here restated and the findings reviewed. The question, What is OBE? was reported in Chapter Two. The question, What are its underlying theories and assumptions? was discussed in Chapter Three. Is it a good idea? is the question explored in Chapter Four. Each of these questions is summarized below.

First, research into the initial question, What is OBE?, revealed that it is an amalgam of theories and practices. Because of the variety of available definitions, it has become necessary for each individual school district interested in its implementation to say just what it means to them. Each variation, however, must include some form of the three major principles: clarity of focus on outcomes, expanded opportunity for students to learn and demonstrate that they have learned, and high expectations for success by all students. Programs following these principles frequently use criterion-referenced testing, mastery learning

strategies, and bahavioristic practices as vehicles for arriving at outcomes.

On January 11, 1993, William Spady addressed teachers assembled at the annual "Practitioners' Paradise" held in Rochester, Minnesota. He stated that now there exists a "new OBE". Calling it a "reinvention" of OBE, he stated that OBE makes no sense if we continue to think, talk and act about curriculum and programs, credits and grades, classrooms and seat time. His vision of schools for the future requires exit outcomes that will reveal exactly what a student can do, apart from scores and numbers on tests. The student must be able to perform meaningful life-related tasks.

In a December, 1992, interview (Brandt, p. 66), Spady distanced OBE from mastery learning to some extent. Asked if OBE sounds a lot like mastery learning, Spady replied, "Yes and no". He explained that mastery learning focuses on "creating more success for all learners on whatever the individual teachers were teaching. OBE focuses on defining, pursuing, and assuring success with the same high-level culminating outcomes for all students" (p. 66). It would appear, then, that OBE, in Spady's interpretation, is thoroughly removed from traditional course and subject content.

We may conclude, then, that the definition of OBE, at least as far as Spady is concerned, is evolving. At the present time, however, the definitions seem inadequate to explain fully just what OBE is. Does the term refer to the process of arriving at outcomes, or does it refer to the

outcomes themselves? The writing and speaking by Spady and other proponents leave us unsure. This lack of clarity and consistency leaves room for conflict as schools and communities seek to engage in the challenging activity of preparing students for the next century.

The second question is about the assumptions and theories upon which the OBE proponents rely. The significance of Carroll, Bloom, and Skinner for OBE have been described, and concerns were expressed about how that emphasis is used by OBE proponents. In the literature review, it was noted that writers about OBE typically cite Carroll and Bloom, without fully detailing just what is being assumed from their work. Describing those links became a major component of this research, as a result. It should be noted also that the OBE proponents not only assume that Carroll and Bloom are correct, they also assume and expect that their audiences will believe the same.

Since OBE proponents do not provide a thorough review of previous research, they proceed as if no questions exist about behaviorism, mastery learning, and time as the main factor in school learning. They offer no forum for discussing those assumptions, and teachers who may challenge their underlying assumptions are not given opportunity for questions. (These observations are based on the author's experience in OBE workshops on August 25, 1992: Maryellen Knowles, Coordinator of School Transformation, State of Iowa Department of Education; January 11, 1993: Practitioner's Paradise, sponsored by Minnesota High Success Consortium, Inc. and Rochester, MN,

Independent School District; May 12, 1993: Bruce Floyd, Staff Development Specialist, Keystone AEA.)

Carroll's work was discussed in Chapter Three, where it was noted that he described five factors in school learning: aptitude, ability to understand instruction, perseverance, opportunity (time allowed for learning), and quality of instruction (Carroll, 1963, p. 729). Of these five, mastery learning proponents and OBE advocates refer only to the amount of time allowed for learning. They assume the finding to mean that schools should allow as much time as a child needs to master each skill. One may ask if mastery learning and OBE proponents have slighted Carroll's remaining four qualities. Some teachers and parents may believe that the other attributes of the learning model are just as important. A subject for future study may be the additional factors which affect school learning.

Finally, the third question, Is OBE a good idea? School district reports emphasized the perceived successes of OBE processes, while questions were raised by teachers, parents, and citizens in general. Conflicts were reported from states in which statewide OBE outcomes have prompted citizen protests. Two major components of OBE were reviewed and discussed in Chapter Four, with the goal of examining OBE indirectly through mastery learning and behaviorism. As a result of these findings, a number of questions and observations about OBE are raised.

Initially, most school officials and parents may agree that OBE principles and practices sound like a good idea. Presentations about this approach typically begin by convincing the audience of the need for change, based on the changing global economy and the arrival of a new millenium. Schools of today are based on models which are appropriate for the19th century, not the future, they say. Teachers are particularly vulnerable to these assertions, which suggest to them that they may be irresponsible, even backward, if they do not agree, or if they raise questions. Then it would seem that a false choice is presented: either be left behind with the model of the past, or join the future with OBE transformations.

This seems like a false choice because, while no one wishes to become a relic of the past, there may be other ways to prepare students for life in the future. The OBE model seems to propose a dream world, thus raising the expectations of participants. State legislatures, school boards, and administrators seem easily persuaded that OBE practices will provide the answer to school performance issues. These heightened hopes have the potential of being crushed as the realities of implementation begin to dawn. Following are several of the concerns which may undermine attempts at OBE transformation.

First is the question of who will write the outcomes. While OBE proponents call for participation by all community members, school employees (including support staff), and students, some may question such broad input. The question may be raised as to how these

individuals will know what outcomes are important. This process runs the risk of individualizing districts, which may run counter to the belief by U.S. society for the past century that education should be as standardized as possible, with all children being provided to a roughly equal curriculum. If we now wish to change that belief, it should be presented as part of the debate.

Questions may also be raised about the particular agendas desired by individuals who participate in the outcome-writing process. Various religious groups have particular goals, such as those commonly referred to as the "religious right". Other groups have political intentions. The "politically correct" movement may have a powerful voice, with their aims which might offend some. Others seek to emphasize the psychological "feel good" outcomes which have already become part of the U.S. school culture. If certain groups block the outcomes advocated by others, how will the outcomes be written? Should the outcomes merely reflect a sampling of what every group desires, a "something for everyone" approach? Do we really want to make the education of our children subject to so many influences?

A second category of concerns is about the goals themselves. An examination of exit outcomes typical in an Iowa community school (see Appendix C) reveals three exit outcomes: Students will demonstrate productive and responsible participation in society; demonstrate concern and respect for self, others and the environment; demonstrate competency in thinking critically and communicating

(Iowa Department of Education/ Linn-Mar Community Schools, 1991, p. 3). These resemble examples of statewide outcomes listed in Chapter Three. Several questions may be raised about these outcomes.

It would appear that, for many students, these three goals would be relatively easy to demonstrate. If that is so, are the goals so easily attainable as to be irrelevant? How do they relate to the curriculum content traditionally being taught in schools? Will the attainment of these outcomes prove that students are really prepared to be good workers, as the business community desires?

A further question about the outcomes or goals would be about measurement. Who is to certify that a student is truly able to perform them? Who will devise such "authentic assessment" that will prove their achievement? In the OBE system, assessment plays such an important role because advancement through the system depends upon achievement of outcomes. It may be a false claim of OBE proponents that, in fact, these outcomes can be demonstrated. Evidence of the veracity of such an assertion is lacking, particularly as it applies to the complex, affective exit outcomes of a general nature.

Another question concerning the goals themselves may be whether they are truly the best outcomes we can expect for our students. For example, the exit outcome, "Verbal, quantitative, and technological literacy" (see figure one) is the only reference to mathematics or science skills in the list of expectations for graduates of Township High School District 214. Does this district expect students to

merely demonstrate basic computational skills in mathematics? By defining the outcome in such general terms, does the school fail to challenge more gifted mathemetics students? Under pressure to compete internationally against test scores in standard curriculum subject areas, such as mathematics, will U.S. students subjected to OBE systems come up short?

A final question for OBE proponents is about the reality of scarce resources, particularly in light of the fact that school boards, state legislatures, and the general public have begun demanding limitations in spending for education. It has been noted in the mastery learning discussion that without adequate materials, tutors, secretaries, computers, and teacher preparation time, such a system may lead to frustration and failure. Another possibility is that school personnel, being asked to compromise quality with lack of resources, will cut corners and sacrifice standards just to survive. The same questions apply to OBE. Given the requirement that many teacher hours must be spent writing outcomes, preparing activities, designing authentic assessments, reporting achievement of each outcome for each child, giving portfolio conferences for parents, andmeeting in committees, it seems reasonable to expect that teachers would be forced to compromise somewhere. Is it possible that, in a time of staff reductions, school performance may decline, rather than improve?

Further research remains to be done, especially in the area of defining and measuring achievement of outcomes. An important

contribution would be to investigate and report how measurement is being done in school districts, and to compare achievement against verifiable standards. Another investigation might study drop-out rates in schools where OBE processes have been implemented. Still another important question for investigation may be to study OBE school districts thoroughly enough to determine how they do and do not differ from traditional schools in actual practice, if in fact they are so different.

These are some of the serious questions raised in response to the investigation of OBE. Is it a good idea? The answer at this time would appear to be a qualified "yes." OBE is just that, a good idea. The main problem is in the implementation, which seems to be difficult under current school practices. Even if implementation were possible, however, questions remain as to its undemocratic assumptions, burdensome workload for teachers, lack of measureability, and the potential for reducing breadth and depth of learning. Perhaps because of these concerns, it is better to improve the processes that we already know, traditional practices for which reliable evidence is available, for which goals are already in place, and for which teachers have already made a commitment and limited resources are available.

REFERENCES

Abrams, J. D. (1985). Making outcome-based education work. Educational Leadership, 43(1), 30-32.

Block, J. H. (1971). Mastery learning theory and practice. New York: Holt, Rinehart and Winston.

Block, J. H. (1977). Individualized instruction: A mastery learning perspective. Educational Leadership, 34 (5), 337-341.

Block, J. H., & Anderson, L. W. (1975). Mastery learning in classroom instruction. New York: Macmillan.

Block, J. H., & Burns, R. B. (1977). Mastery learning. Review of research in education, 4, 3-49.

Bloom, B. S. (1981) . All our children learning. New York: McGraw-Hill.

Bloom, B. S. (Ed.) (1956) . Taxonomy of educational objectives. New York: Longmans, Green and Co.

Bloom, B. S., Hastings, J. Thomas, & Madaus, George F. (1971). Handbook on formative and summative evaluation of student learning. New York: McGraw-Hill.

Briggs, D. A. (1988). Alhambra High: A "high success" school. Educational Leadership, 46 (2), 10.

Brown, A. S. (1988). Outcome-based education: A success story. Educational Leadership, 46 (2), 12.

Burns, R. (1987). Models of instructional organization: A casebook on mastery learning and outcome-based education. San Francisco, CA: Far West Laboratory for Educational Research and Development. (ERIC Document Reproduction Service No. 318117)

Burns, R., & Squires, D. (1987, October). Curriculum organization in outcome-based education. The OBE Bulletin, 3. (Available from Far West Laboratory for Educational Research and Development, San Francisco, CA.) (ERIC Document Reproduction Service No. 294313)

Carroll, J. B. (1963). A model of school learning. Teachers' College Record, 64, 723-733.

Erickson, W., & Others. (1990). Outcome based education: A Minnesota vision. St. Paul, MN: Minnesota State Dept. of Education, Division of Instructional Effectiveness. (ERIC Document Reproduction Service No. 329364)

Gagne, R. M. (1974). Essentials of learning for instruction. Hinsdale, IL: The Dryden Press.

Gagne, R. M. (1977) . The conditions of learning. New York: Holt, Rinehart and Winston.

Guskey, T. R. (1983). The theory and practice of mastery learning. ATSS/UFT-Journal, 39(1), 1-15. (ERIC Document Reproduction Service No. 244869).

Guise, T. R., & Gates, S. L. (1986). Synthesis of research on the effects of mastery learning in elementary and secondary classrooms. Educational Leadership, 43(8), 73-80.

Hymel, G. M. (1990, April). Harnessing the mastery learning literature: Past efforts, current status, and future directions. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA.

King, J. A., & Evans, K. M. (1991). Can we achieve oucome-based education? Educational Leadership, 49 (2), 73-75.

Lenning, O. T. (1977). Previous attempts to structure educational outcomes and outcome-related concepts. Boulder, CO: National Center for Higher Education Management Systems.

Magoon, R., & Garrison, K. (1972). Educational psychology: An integrated view. Columbus, OH: Charles E. Merrill.

Minnesota State Department of Education. (1991). Office of educational leadership interim legislative report. St. Paul, MN. (ERIC Document Reproduction Service No. 334651)

Murphy, C. (Ed.). (1984). Outcome-based instructional systems: Primer and practice. San Francisco, CA: Far West Laboratory for Educational Research and Development. (ERIC Document Reproduction Service No. 249265.

Nyland, L. (1991). One district's journey to success with outcome-based education. School Administrator, 48 (9), 29-35.

Proposed Secondary Graduation Outcomes. (1991, February 5). Minnesota Department of Education, Division of Learning and Instructional Services.

Rubin, S. E., & Spady, W. G. (1984)). Achieving excellence through outcome-based instructional delivery. Educational Leadership, 41(8), 37-44.

Skinner, B. F. (1984). The shame of American education. American Psychologist, 39 (9), 947-954.

Spady, W. G. (1988). Organizing for results: The basis of authentic restructuring and reform. Educational Leadership, 46 (2), 4-8.

Spady, W. G. (1981). Outcome-based instructional management: A sociological perspective. American Association of School Administrators, Arlington, Va. (ERIC Document Reproduction Service No. 244728)

Stevens, G. M., & Herman, J. J. (1984). Outcome-based educational planning. Educational Leadership, 41 (8), 45-47.

Strom, R. D., & Bernard, H. W. (1982). Educational psychology. Belmont, CA: Brooks/Cole.

APPENDIX A

Key OBE Premises

ALL STUDENTS CAN LEARN AND SUCCEED

SUCCESS BREEDS SUCCESS

SCHOOLS CONTROL THE CONDITIONS OF SUCCESS

Key OBE Purposes

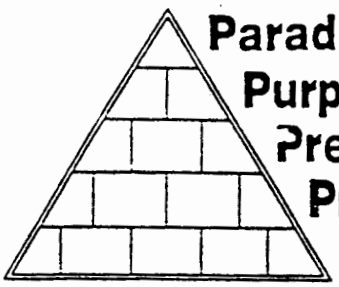
EQUIP

ALL students with the knowledge, competencies, and orientations needed for future success.

IMPLEMENT

programs and conditions that maximize learning success for ALL students.

The OBE Pyramid



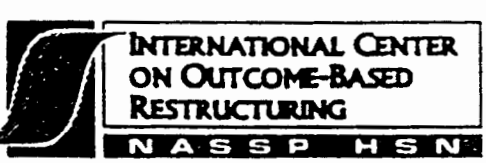
Paradigm
Purposes
Premises
Principles
Practices:

Define Outcomes
Design Curriculum
Deliver Instruction
Document Results
Determine Advancement

INTERNATIONAL CENTER ON OUTCOME-BASED RESTRUCTURING
NASSP HSN

TRANSFORMATIONAL PARADIGM FEATURES

Outcome Defined
Expanded Opportunity
Performance Credentialing
Instructional Coaching
Concept Integration
Culminating Achievement
Inclusionary Success
Cooperative Learning
Criterion Validation
Collaborative Structure



APPENDIX B

Keystone Instructional Services

ASSESSMENT

As It Applies To The Transformation Agenda

Outcome-Based Education and Assessment

Keystone Instructional Services Division Area Education Agency

R.R. #2, Box 19
Elkader, Iowa 52043-9791
Telephone (319) 245-1480
Wats # 1-800-632-5918

OUTCOME-BASED EDUCATION AND ASSESSMENT

Many educators are stating that a new paradigm is necessary in education and it must be success-based in philosophy and outcome-based in practice. This would equate to Outcome-Based Education (OBE). If you are at all interested in OBE, you, no doubt, are interested in assessment. The models consistently speak about assessing results both in the classroom and upon graduation. Outcome-Based Education rests upon three important principles:

1. All students can learn and succeed-(but not necessarily at the same rate and same way)
2. Success breeds success.
3. Schools control the conditions of success.

Outcome-Based Education is evolving into different patterns in an attempt to insure learning and competencies for the 21st Century. There are three approaches which focus on Outcome-Based Education and assessment. These are: Traditional, Transitional, and Transformational.

TRADITIONAL OUTCOME-BASED EDUCATION

Most of the Outcome-Based Education programs in operation can be characterized as traditional. The starting point for almost all district efforts has been the existing curriculum. It could really be called Curriculum-Based Outcomes rather than Outcome-Based Education. Teachers take existing content and structure-lessons, units, etc. and determine what is truly important to learn. Once these priorities have been set, they are used as the basis of curriculum, instruction, and assessment design and alignment. After teachers begin to apply OBE's principles in their classrooms to these aligned instructional components, they routinely experience major increases in student learning success.

The downside of this Traditional OBE approach involve five issues:

1. This approach is usually limited to individual units or small segments of instruction, which makes each unit or segment an end unto itself and its substance and processes quite specific.

2. Outcomes are synonymous with traditional, content-dominated categories that, in many instances, do not relate to real-life demands and living experiences.

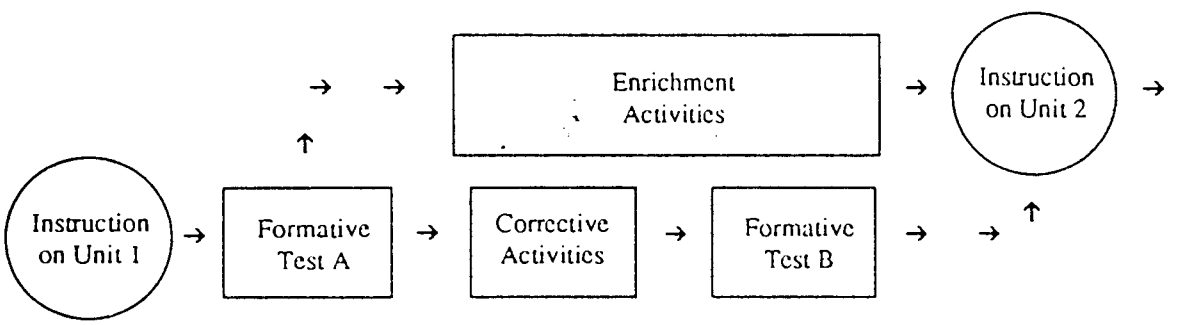
3. The school and classroom are assumed to be the only contexts in which preparation, performance, and assessment are to occur.

4. These approaches rarely are driven by a framework of exit outcomes or a clear concept of the graduate as a total person. It emphasizes academic progress with traditional paper and pencil assessment.

   The focus for this model is that students will demonstrate the knowledge and skills associated with:

Language Arts	Mathematics	Fine Arts	Physical Education
Technology	Social Studies	Science	

   The model that some districts use for traditional OBE and the assessments involved is as follows:



TRANSITIONAL OUTCOME-BASED EDUCATION

Transitional Outcome-Based Education lies between the Traditional subject-matter processes and the future-role priorities inherent in Transformational OBE. It is a viable approach for districts seeking to extend their vision beyond existing subject area content. This approach is primarily concerned with students' capabilities at graduation time and the assessment is designed around higher-order exit outcomes. It asks the question, "What is most essential for our students to know, be able to do, and be like in order to be successful once they have graduated?" Schools in Transitional OBE give priority to higher-level competencies. The students will demonstrate their ability to:

Communicate Effectively
Work Cooperatively
Set and Pursue Goals
Problem Solve
Think Critically
Use Cooperative and Independent Learning Strategies

(These are all within Content Areas)

The above concepts guide all curriculum and instructional decisions. Content is adapted to the explicit development of the higher-order competencies and orientations in the exit outcomes, rather than to foster subject matter knowledge in isolation. Teachers try to focus on these type of outcomes and assess them with their existing content as the base. Interdisciplinary work becomes much easier because people with different specialties can jointly integrate their work and address the same outcomes.

Prepared by:

Dr. Paul Fitzgerald, Inservice/Staff Development Consultant
Keystone AEA - Instructional Services Division
Dubuque, Iowa 52001
1-800-942-4668

April 1992

Another message about ASSESSMENT as it applies to the Transformation Agenda

Sent to:

026026
*VALLEY, RICHARD
T. ROBERTS DECORAH SR HS
CLAIBORNE DRIVE
DECORAH IA. 52101

ROUTE: 0 DROP: 160
NO. OF TEACHERS: 45

Distributed to: Superintendents, Principals, Building Contacts, Curriculum Directors
Additional copies available by contacting: George Wm. Holland
Coordinator for Curriculum Services
Keystone AEA
1473 Central Avenue
Dubuque, IA 52001
319-556-3310 / 800-942-4668

TRANSFORMATIONAL OUTCOME-BASED EDUCATION

This paradigm represents the highest evolution of the Outcome-Based concept. The basis for this approach is to equip all students with the knowledge, competence, and orientations needed for success after they leave school.

When viewed from this future-oriented, life-role perspective, success in school is of limited benefit unless students are equipped to transfer that success to life in a complex, challenging, high-tech future. It is grounded on the question, "Why do schools exist in this day and age?"

Transformational OBE takes nothing about schooling today as a given; no existing features are considered untouchable in carrying out a curriculum design. The main focus of Transformational OBE are the Exit Outcomes. The criteria for these are:

1. Future Orientation
2. Life Role Focus
3. Product Orientation
4. Capacity to Drive Curriculum
5. Capacity to Impact Instruction

Some examples of Exit Outcomes would be:

1. Involved Citizens
2. Self-Directed Achievers
3. Adaptable Problem Solvers
4. Perceptive Thinkers
5. Collaborative Contributors
6. Innovative Producers
7. Participate Productively and Responsibly in a Rapidly Changing Society
8. Respect Self, Others, and the Environment

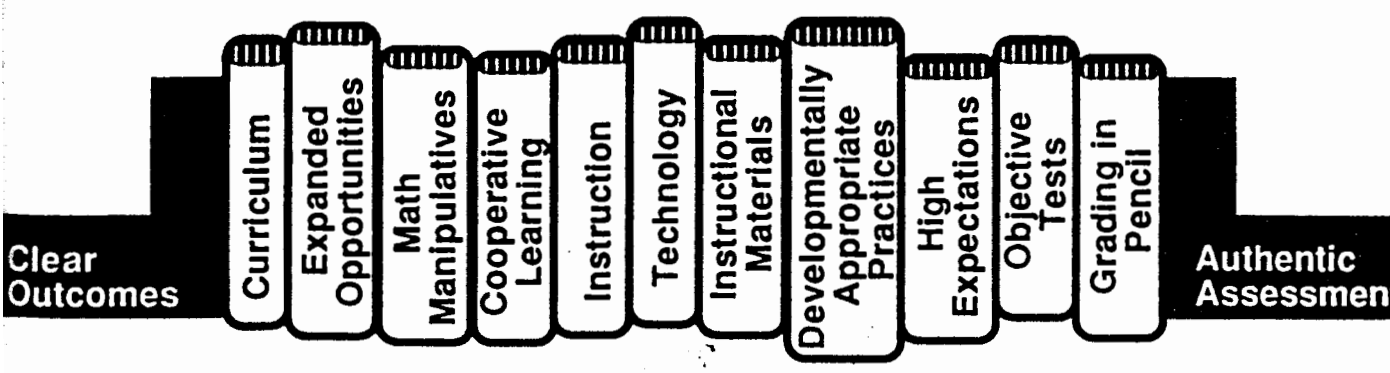
The job of the school in Transformational OBE would revolve around these Exit Outcomes. Its implications for curriculum design and the structuring of schools is profound.

The process to develop an Outcome-Based program in a district is challenging and time consuming but can be rewarding for both students and teachers.

APPENDIX C

Iowa Department of Education
Linn-Mar Community Schools

August 30, 1991



Board of Education Philosophy

The Board of Education of the Linn-Mar Community School District believes that learning is an unending process of dealing actively and purposefully with new information and experiences. Learning occurs best in a safe, caring, and supportive atmosphere which promotes diversity. The educational environment should allow all people involved (adults and children) to continually change and reach their potential.

Linn-Mar learners have diverse learning styles, learn by doing, and progress developmentally. Due to the culture in which they live, Linn-Mar students are committed to educational excellence.

The purpose of education at Linn-Mar is to draw out the whole child as a literate, responsible member of society who is equipped to be a life-long learner. This can be achieved by offering a broad base of educational experiences which are not constrained by time or age barriers. These should include real-world experiences as well as the involvement of the whole community. Learning experiences should be developmentally appropriate and interdisciplinary, while providing for individual differences and diverse learning strategies. These experiences should be characterized by clear goals and high, yet reasonable, expectations for success.

Adopted by Board of Directors 3/91

Vision

We envision a school district that enables all students to achieve ongoing success. The school district will have certain characteristics:

a. The school's educational program will be built around a series of aligned exit outcomes based on developmentally appropriate skills, knowledge, and attitudes necessary to increase the individual's success outside of the school environment. Within this educational program, individuals will progress at a pace that meets their needs and fits their abilities. This will encourage a variety of teaching styles and means of assessment.
b. Expanded opportunities will be provided for students through correctives and enrichments.
c. Time will be provided for learning based on individual needs. The school building and staff will be available during expanded / flexible hours and throughout the year.

Adopted by NCA Steering Committee 5/90

Mission

Born from a dream that would establish an educational community where "excellence is a tradition," our mission is to prepare life-long learners to meet the challenges of the present and the future. Learners will be empowered to demonstrate: concern and respect for self, others, and the environment; competency in thinking critically and communicating effectively; and productive and responsible participation in society.

Adopted by Board of Directors 3/91

Exit Outcomes

Linn-Mar Students will:

- Demonstrate productive and responsible participation in society.
- Demonstrate concern and respect for self, others and the environment.
- Demonstrate competency in thinking critically and communicating.

Adopted by Board of Directors 5/90

Outcomes based education is a tool for...

- **encouraging us to develop the new paradigms which will be necessary for successful school transformation efforts.** Our schools must be transformed to reflect the reality of the diverse, information society we've become; our schools must be transformed to prepare students for success in a future we cannot describe.

- **helping us change the purpose of schooling from sorting and selecting to success for all.** Developmentally appropriate practices at all age levels will increase the likelihood that students will experience success.

- **helping us develop a common understanding of what we want students to do and be like.** Outcomes of *significance* are developed by consensus of stakeholders.

- **helping us determine important learning experiences.** Organized abandonment of unrelated learning experiences will result.

- **helping us measure student progress toward desired outcomes through authentic assessment tasks.** Real- world products or performances will increase learner motivation.

- **changing the entire organizational structure of the district.** Change will occur in all parts of the organization -- not at the classroom level alone.

- **giving learners multiple opportunities to experience success on complex outcomes of significance.** It is *not* mastery learning, *not* breaking learning into lower-order discrete skills and moving learners through an invariant sequence.

Linn-Mar Educational Outcomes

Linn-Mar students will:

- Demonstrate concern and respect for self, others, and the environment.
- Demonstrate competency in thinking critically and communicating.
- Demonstrate productive and responsible participation in society.

Linn-Mar NCA Targets

Linn-Mar staff will:

- Identify specific indicators/behaviors which demonstrate each exit outcome.
- Demonstrate an increased knowledge, understanding, and acceptance of Outcome-Based Education and its four principles.