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ABSTRACT

This training manual presents and examines alternatives in the use of instructional materials. The alternatives are based on a thorough knowledge of typical local district goals, school curriculum designs, and textbook selection policies and the way these factors affect the instructional process. An examination is made of how instructional strategies and materials complement each other and of how decisions are made relating student needs to the curriculum. Teaching styles and strategies are discussed, with recommendations for considering how the use of a particular teaching strategy affects time allocation and pacing, grouping, sequence of events, teaching style, and the need for supplementary materials. Teacher roles in the classroom are reviewed along with implications for effective use of classroom materials. The key to effective use is the ability of the teacher to monitor, observe, detect, supervise, determine quality, and advise students. The behaviors and procedures used by teachers make them the instructional leaders. A list of 24 recommended readings is appended. (FG)

EFFECTIVE USE OF INSTRUCTIONAL MATERIALS:

A TRAINING MANUAL

Prepared for
United States Office of Education
National Diffusion Network

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PREFACE

The purpose of "Effective Use of Instructional Materials: Training Manual" is to provide techniques, based on research evidence, to individuals concerned with classroom instruction. We believe that teachers and teacher trainers must become more knowledgeable concerning the impact that materials have upon the classroom as well as how teachers and students influence the effectiveness of materials. Teachers and students interact with materials continuously. Materials and their use influence the classroom's organizational scheme, the manner in which students' needs are met and decisions about what will be taught. In fact, there are those who argue that the materials are the instruction (Talmage, 1975). However, it is naive to believe that quality instruction will automatically result from the use of quality instructional materials.

This manual is the result of an extensive search and culling of research findings. By synthesizing these findings, it has been possible to build a set of guidelines for using classroom materials more effectively. The guidelines are steeped in our belief that teachers can be trained to be thoughtful decision-makers and that they desire such training. It is proposed that as teachers increase their knowledge and use of options related to decisions in the classroom that student learning will benefit.

Part I provides suggestions on how to use this manual as a training device and an overview of the various factors which contribute to the instructional process. Part II briefly reviews decisions typically made at the district level and how they affect the selection of instruc-

tional materials. Part III examines the teacher as the Instructional Leader in making decisions about the effective use of instructional materials in relation to the skill levels of youngsters, content to be taught, and methods of instruction. Part IV relates the use of instructional materials to teachers' classroom behavior. "Recommended Readings" provides supplemental references related to content found in the manual.

PART I

INTRODUCTION

Implications for Training

It has been found in typical school settings that between 80 and 90% of the time a child is involved in learning activities is spent interacting with instructional materials. A majority of teachers responding to a questionnaire about materials indicated that they had not received training in the use of the materials currently being used in their classrooms. Of those receiving training, 25% was provided by publisher representatives, 15% by a school district consultant and 14% by another source. Thus, it appears that teachers and students spend the bulk of their school day interacting with one kind of material or another; materials for which the teacher may have received little or no training in using effectively.

Materials often dictate what and how a teacher teaches and ultimately what a student learns. They may also help in motivating students and in keeping their attention. Studies indicate that teachers successful in promoting student gains use materials differently than less successful teachers. Teachers may need to modify or supplement the content found in published materials. Differential methods of using materials are effective at various grade levels. Therefore, there can be no one theory of effective materials use. What the evidence provides is a framework for the more effective

use of classroom materials. This manual has been designed to provide guidance for training teachers, not to familiarize them with the wealth of materials available, but to provide them with skills to use those materials with the most effective strategies for increased student learning.

This manual has been developed with the following implication in mind:

- Teachers need to be trained in a variety of alternatives in the use of materials.

Although the training of teachers has not been noted for its long-term effectiveness, more and more is being learned about the support systems needed to maintain newly acquired classroom behavior with teachers. As indicated in a study by Yarger (1978), teachers can be trained to use materials in a specific manner and to maintain such behaviors beyond a six-month lapse in training. Explanations about why this training was implemented and maintained in classrooms may be related to the materials themselves. The teachers felt that they made sense and were relevant to both teacher and student needs.

This training manual looks at the alternatives offered by materials. It examines how instructional strategies and materials complement each other, how decisions are made related to a child's needs and the demands of the curriculum. It relates various kinds of materials with their most appropriate use. Discussion concerning how time can be used more effectively, and how teachers can take charge of their instructional decisions are also included.

We do not assume that because you are taking the time to read this manual that you will automatically implement the recommended procedures. Indeed, a high degree of self-motivation and desire for self-improvement would be necessary for any individual to embark on such a task. Therefore, we recommend that a study group be formed to process the information in this manual and to develop procedures for implementation.

If plans for such a group are implemented, there are a number of considerations that we would like to share to enhance your success:

1. Change is a difficult process. This manual is asking you to abandon the security of using the text as an instructional leader and for you the teacher to assume that role. In a sense, we are recommending that you give up a level of security. At the same time, we offer you guidelines which will enhance your role as teacher and provide you an even firmer base for your feeling of security.
2. If your interest in this manual is due to the introduction of a new instructional program, then your acceptance of that program should be based on decisions recommended by this manual. Do not waive interest in a new program because of your discomfort with new teaching strategies. Examine the demands placed upon you as a teacher and make those adjustments that will best suit your classroom and that will not damage the intent of the new program.

3. Teachers can be trained to use materials more effectively and to increase the number of materials used but the demands on extra time and energy require that new behaviors be rewarded by pay-offs in the classroom and by the provision of outside assistance.
4. In changing current practices and/or materials, teachers need to understand their own attitudes toward learning and to what degree the changes will require their behavior to be modified in the classroom.
5. Teachers must be aware of the decisions they make concerning the use of materials. How do they decide to follow the text? What guidelines do they use to determine which questions or exercises to skip? Why use supplemental materials? What happens when materials are used inappropriately?
6. Teachers need to be trained in how to match student needs and materials. Teachers must keep up-to-date with improved methods of instruction, with innovations in their content areas, with new materials and with methods of both informal and formal diagnosis and prescription. Their abilities to make critical judgments concerning innovations must be enhanced.

Study groups may be led by teachers, administrators or outside consultants. The first few meetings might deal with identification of a teacher's teaching style, examination of district goals, curriculum guides, current texts, learning outcomes, etc. Procedures for accomplishing these have been included in the manual and additional references are

listed under "Recommended Readings." A variety of teaching strategies should be modeled by the group leader, both for purposes of effective presentation of the manual content and for meeting the learning needs of the teachers. Of particular usefulness would be opportunities for the teachers to peer-teach new strategies and materials. Another useful technique would be to provide video or audio taping in the teacher's classroom. Such an endeavor should be an exciting experience for all educators interested in enhancing their role as the Instructional Leader.

Overview of Instructional Process

When considering the instructional process, all too often the discussion is narrowed to what happens in the classroom. The fallacy of this position is that many factors other than classroom behaviors influence the final decisions made by classroom teachers. Ignoring these factors can lead to frustration and undesired or at least unintended outcomes for both teachers and students. Such factors include Organizational Decisions (i.e. district goals, curriculum, textbook selection) and Instructional Decisions (i.e. learning outcomes, instructional planning and of course, the actual delivery of instruction). The interaction of these factors will be referred to as the Instructional Process. Decisions made by educators as they procede through the Instructional Process greatly influence the selection of classroom materials and their effective use in the classroom. Therefore, we will examine the various component parts of the Instructional Process, as represented in Figure 1.

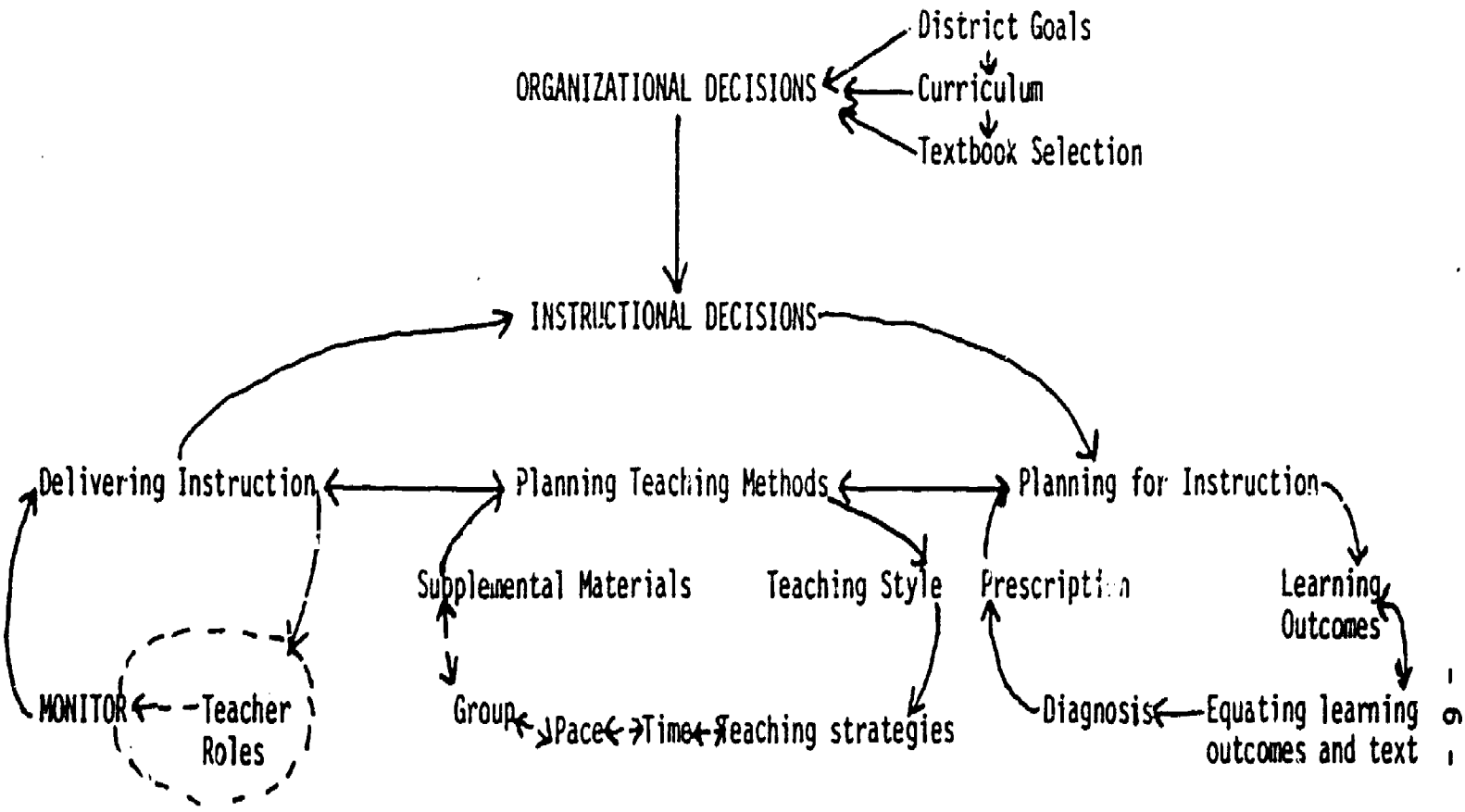

Figure 1

Overview of Instructional Process

for

Effective Use of Materials

PART II

ORGANIZATIONAL DECISIONS

The following discussion, related to Organizational Decisions, will be brief in scope since our primary concern is with Instructional Decisions and how they relate to the use of materials in the classroom. This section is included because HOW Organizational Decisions affect teachers' decisions about materials is often ignored.

District Goals

Throughout the United States, school districts have developed, revised and restated their goals in accordance with the times and the demands of their constituents. Goals have been as general as stating that the students will gain a good general education and as specific as stating that each child will be able to read at a certain grade level by graduation. Goals have focused on gaining skills in life-long learning and on specific content. Goals have been designed by specific vested interest groups in one district while another district may have attempted responding to the total community by involving administrators, teachers, school board members and parents. The important element, however, is that goals are a statement about what any specific district intends for its schools to accomplish. As such, goals serve to provide guidelines about what the community as a whole can expect of the schools and about the instruction that should be occurring in the various classrooms. With this in mind, it is slightly unnerving to talk with teachers who are unable to discuss their own district goals. In fact, many classroom teachers have expressed little or no interest in influencing decisions about district goals. Perhaps teachers are not aware of the influence that district goals play in the selection of curriculum and

textbooks for the classroom. For example, suppose that a district goal places emphasis on teacher control of discipline and learning activities. In such a situation, a classroom teacher who uses supplementary materials designed to provide student autonomy and self-directed learning could anticipate to be in conflict with district goals. To avoid a charge of being called naive, the authors acknowledge that teachers are very busy and prefer making decisions that are directly applicable to their own classrooms (Young, 1979).

Recommendation for action. We encourage teachers to seek out a copy of their district goals, to read and analyze those goals so that they are cognizant of the implication for classroom instruction. Determine whether the goals are stated as being ambiguous (i.e., all students will understand democratic ideals), as requiring precise skill mastery (i.e., all students will be able to list rules for correct punctuation) or as being classifications which can be translated into learning outcomes by the professional staff (i.e., students will develop ability to use scientific inquiry method). Ambiguous goals are of no instructional value, mastery goals allow few decisions for professional staff while goal classifications provide guidelines which allow the professional staff the opportunity to make a match between goals, materials and teaching strategies.

Curriculum Design

Curriculum will be defined here as being that which is "supposed to be" taught in the classroom. The phrase "supposed to be" is crucial to our discussion on the use of materials. For as the research indicates, (this will be discussed more thoroughly later), textbooks have a greater

influence on what is or is not taught in the classroom than do either the Curriculum Guide, student needs, or apparently teacher perceptions.

However, designing the curriculum is the second step in the instructional process. Unfortunately, teacher involvement seems only slightly higher in curriculum development than it does in determining district goals. With a long history of teachers' orientation being to their own classrooms, curriculum decisions have been primarily assigned to central office administrators. Teachers are infrequently involved in curriculum decisions at a continuous or ongoing level. Again, teachers prefer this situation since their focus is on how to teach rather than on what to teach (Young, 1979).

Why should teachers be concerned about curriculum development? Response to this question will be given after the following discussion. Teachers and schools have been withstanding the indignant outcries of educators and lay people alike who bemoan the fact that "Johnny can't read." In fact, Johnny can't add, complete a job application form or even write intelligibly. The finger of accusation points at modern education as being inadequate, permissive and inefficient. The solution being called for is a RETURN to the BASICS. Proponents of the Back to Basics movement support the premise that "Educational leaders should reduce the emphasis on differential goals and objectives for students and increase the emphasis on the mastery of basic skills by all students" (Brookover and Lezotte, 1979, p. 69). Professionals would be expected to focus on common but minimal academic goals for all students. To accommodate desired outcomes, most of the elementary school day would

be devoted to reading, writing and arithmetic; while English, science, math, and history would be stressed at the secondary level. The belief being that such an endeavor will bring about the return of all that's "good" which can be measured by higher scores on standardized tests. Such scores will prove that, indeed, Johnny can read.

It appears that educators have little room in which to maneuver. Conversations in some teachers' rooms bemoan the push back to BASICS because some teachers feel that such an effort would also mean a return to highly structured classrooms to lecturing, to drill and to sacrificing creativity, individualization and the pursuit of independent thinking. On the one hand, a group views the return to the BASICS as a cure-all for the improvement of learning, while on the other hand, a second group views the teaching of BASICS as a step backward and as a denial of individual differences in teaching and learning. Both positions reveal a lack of analysis being employed to solve an educational dilemma.

The dilemma is not grounded in the questions: "Should students be taught basic skills?" or "Must teachers give up less-structured classroom atmospheres in deference to the demand for basic skills instruction?" Rather the question should be "How can we provide instruction in the Basic Skills under the best possible instructional conditions?" We know students at all grade levels require skill development upon which to build conceptual understandings and to increase their abilities as readers, writers and problem solvers. We also know that highly structured environments provide for a strong academic focus and student aca-

demic gains. Sound like the end of the discussion? Not so! We also know that the key to directed instruction is the selection of materials which are matched to the student's ability. We also know that instruction can be directed using a variety of teaching strategies which place emphasis on different levels of teacher control and student responsibility. Therefore, decisions made by teachers related to the selection and use of instructional materials are crucial.

Consequently, curriculum decisions should be adopted only after thoughtful consideration. And now the answer to the previous question, teachers should be involved and/or knowledgeable about the process in reaching such decisions so they can:

- Expand their own roles as professionals
- Become initiators as well as implementers
- Extend their knowledge base for making thoughtful decisions
- Develop an independent value system
- Increase their participation in a decision-making group

It is important to note that evidence indicates that the selection and presentation of curriculum content may be the most important variable influencing student achievement (Walker, 1974). Therefore, careful attention should be given to the selection of curriculum content and how this impacts upon the effective use of classroom materials. Teachers who extend their role beyond the classroom and who develop the skills listed above will enhance their abilities to better translate curriculum through the appropriate selection of materials and methods of instruction.

Recommendation for action. Whether you are an active member of a curriculum committee or simply desirous of making wise instructional decisions, the following guidelines will assist you in analyzing curriculum guides for your grade level related to the various content areas (i.e., math, reading, social studies, etc.).

1. Identify the match between district goals and curriculum guides.

   Are the goals implicit in the curriculum congruent with stated district goals? Which content and activities best match these stated goals? Does the focus of instruction (concepts, skills, processes) match district goals?

2. Identify the relationship between the curriculum and the individual school's explicit or implicit endorsement.

   Are the curriculum guides readily available? Are they used as a reference? Is a particular sequence of content followed?

3. Consider the appropriateness of the content in terms of the age of youngsters, abilities, and previous experiences.

   Does the content build upon the previous programs experienced by the children? Are the content and activities adaptable to the needs and abilities of your students? Are suggestions given for meeting individual needs?

4. Identify similar content thrusts across curriculum areas.

   Are there areas of content which could be integrated or reinforced across curriculum subjects? Are there any

content areas at odds across subject areas?

5. Consider the influence of the curriculum on student access to content.

   How is the content being presented? Is an attempt made to present the content in a variety of modes to help ensure student access? What processes are necessary to ensure student access to content?

6. Examine the norms which the curriculum establishes.

   What types of student behaviors are rewarded? What types are punished? Are these desirable? What influence does the curriculum have over student-teacher relationships and classroom organization?

Textbook Selection

We anticipated that teacher involvement would be crucial in the next step of the instructional process, Textbook Selection. Unfortunately, 45 percent of the teachers responding to a national survey on instructional materials reported that they had played no role in selecting the major instructional programs they were using (EPIE Report: No. 76, 1977). Another report cited in the review of literature showed that teachers would like some input concerning decisions about the selection of texts but prefer not having to make the final decision (Lamiell-Landy, 1979).

Why do we feel teacher involvement is crucial during textbook selection? Because, much of the research indicates that what teachers teach and therefore, students learn, is determined by the curriculum

materials with which they work. Also, the type of materials used influence the amount of time spent on task while material characteristics interact with student characteristics (Evans and Byers, 1979). Additionally, content has been found to affect motivation and the desire to read (Blom, 1978). And, in the teaching of elementary science, the textbook is the predominant source of information for both teacher and student (DeRose, 1979). Actually, science receives very little time in the typical elementary classroom. The textbook, whether a single volume or an elaborate instructional system, has a great influence on content, pacing, grouping, management, motivation and instructional strategy. The influence of the text should not be ignored. These points will be discussed more thoroughly in Part III.

Recommendations for action. Textbook Selection committees may be representative of various schools throughout the district or may be educators from a single building. District-wide decisions about textbooks contributes to a tighter organizational system and makes it easier for students transferring between schools. Selecting textbooks by building allows for greater teacher involvement and ownership while taking into account the learning needs of youngsters attending a particular school building. Advantages and disadvantages exist for both methods. The main issue is that educators must use a thoughtfully critical process when selecting texts.

As a teacher or teacher trainer, you need to be aware of how content is derived for use in textbooks; that publishers have certain pressures and that their reaction to these pressures may or may not be in the best interests of the child. The selection process of some states

affects the content of textbooks published nationally (Bowler, 1978). This may influence the content available for instruction in your area. Textbook content is important in terms of opportunity to learn and motivation. It may also be the only source of information on a particular topic for an individual teacher. Therefore, it is necessary that you learn to examine the content of instructional materials with a critical eye.

1. Determine whether textbook selection should (or could be) accomplished district-wide or by individual buildings. Decisions could be determined by each curriculum area with a combination of both approaches being used.
2. If texts are selected at the building level, design sessions for teachers from various buildings to share strengths and weaknesses of selected texts.
3. Evaluate texts by making lists of strengths and weaknesses in terms of:
   - Content (cognitive, affective, psychomotor, social)
   - Vocabulary (level, relevance)
   - Illustrations (stimulating, distracting, motivating, geared to key concepts)
   - Reading Level (appropriate, challenging)
   - Level of questions in study guides (appropriate, mix of high and low cognitive questions, adaptable)
   - Biases (ethnic, sexual, socio-economic)
   - Objectives (nature, emphasis, congruence with goals)

- Instructional Orientation (suggested methods, teacher-pupil role, preparation or training necessary)
- Mode of Instruction (structured, programmed, inquiry)
- Management System (teacher directed, student directed, teacher/student directed)
- Student Involvement (reading, writing, responding, listening, reciting, active inquiry)
- Grouping Format (large, small, individual, flexible grouping)
- Time on Task (length of activities, level of difficulty)
- Evaluation (methods, texts included, adaptability)
- Research Base (concepts presented accurately, reputation of publisher and author)

4. Match text objectives to district curriculum and goals.
5. Do not ignore evaluation of workbooks and/or supplemental materials. They require as thorough an evaluation as the text. For example, workbooks have been found to be more difficult by as much as three grade levels (Fitzgerald, 1979)!
6. Additional questions to ask of supplemental materials matched to a text include, are they:
   - designed to be used independently or with assistance?
   - strengthening skills, providing practice, motivating for creative activity, providing for personal growth, and/or enriching?

7. What demands do the materials make upon the teacher's abilities and time?
   - What teaching strategies are recommended?
   - How will the teacher's time be used?
   - What roles will the teacher perform? (i.e., instructing, facilitating, evaluating, observing, participating, and/or diagnosing)
8. What type of inservice training will be required for successful implementation?
9. Are there sources of information residing within local school districts who have already tested the materials? What are their comments concerning the materials?

Summary

Part II has dealt with approaches to managing the decision-making process that takes place outside the classroom. The process suggested here emphasizes an organization which will enhance the potential use of instructional materials. If the educators in your district have not had previous opportunities for participating in such an organizational scheme, it would be wise to provide them training designed to increase or renew their skills as decision-makers. Such a recommendation for training is not intended to be degrading or facetious. In working with hundreds of educators, we have learned that precise training is not only extremely helpful but also necessary. Teams of teacher-leaders could be trained in process skills which would be useful to a school district or individual building in a variety of ways. Such process

skills would include: decision-making, problem solving, group dynamics, and change strategies.

PART III

INSTRUCTIONAL DECISIONS

Typically, the average classroom teacher comes in contact with curriculum materials after the selection process. If you are in this position and casually browsed Part I of this manual, we encourage you to return to Part I and to enhance your own knowledge/abilities in the areas of district goals, curriculum content, and textbook selection. If you enter the Instructional Process at this stage, you have missed an important discussion of how books are adopted, how this process is related to district goals and how the textbook affects what you teach in your classroom.

Influences of Organizational Decisions. District goals have been selected which meet the needs and interests of the various members of your school community. These goals influence district curriculum decisions. Teachers rely heavily on these curriculum decisions in determining which topics will be discussed in the classroom. The importance of the choice of topics cannot be understated; certain subjects are learned only if they are taught (Porter, 1979). Following the development of curriculum is the process of selecting textbooks.

Power of Textbooks. The power inherent in the use of textbooks is simply that students are more likely to learn what they have been taught. Variation of content included in different texts contributes to variation of content taught to different groups of youngsters enrolled in courses with the same title (Kuhs, 1979). Because textbooks are often the only instructional materials used, the text determines what students are taught (Talmadge, 1975). Although the teacher may be

the educational authority in the classroom, studies have shown that very often the source of the teacher's knowledge is the textbook in science, math, and social studies (Stake, Easley, et al.; 1978). At the secondary level, the text often defines the complete curriculum (DeRose, 1979). Classroom observations have produced data which indicate that during academic learning the text is used 55 percent (Yarger and Harootunian, 1977) to 82 percent (Cornbleth, 1979) of the time by teachers and students. Also common in frequency of use were text related workbooks or worksheets. Along with relying on the text for determining content, there is a tendency on the part of classroom teachers to follow the sequence of content offered by the text (Durkin, 1974), while relying on the teacher's manual for making instructional decisions (Rosecky, 1978).

Misuse of the Text. Teachers cannot be assured that relying on the text for sequence and instructional decisions will result in quality instruction. In one study, 75 percent of the 61 teachers, who responded to a questionnaire, indicated that they omitted learning activities designed for reading enrichment although they followed the text's sequence of content. Omission was due to there simply not being enough time (Rosecky, 1978). Although time is a factor which cannot be ignored, many of the enrichment activities provided are correlated with increases in reading achievement.

Publishers have taken extensive steps to enhance the power of the textbook by providing teachers with educational objectives, instructional strategies, supplemental materials and suggested activities for

reinforcement of newly taught skills. Such materials are often referred to as being "teacher proof." But, are they really? In discussions with teachers, it has been learned that they delete and/or add content, change the order and ignore recommended instructional strategies. Often, teachers resent having lost the power to make decisions related to the instruction of students. No matter what the power of the instructional package, what happens to their effectiveness when a teacher subverts the materials' intended use? What happens to the teacher who is left with no instructional decisions? What process does the teacher use in making changes in prescribed instructional packages?

Teacher Decisions. Individuals who accept the myriad responsibilities associated with being a TEACHER must make many instructional decisions. As indicated in Figure 1, making Instructional Decisions is an interactive process which occurs among many component parts. Sometimes this involves hundreds of decisions each day. The following discussion is designed to provide you with an overview of such decisions and guidelines to assist you in making these decisions so that you may use classroom materials more effectively.

Planning for Instruction

Determining an order for the following discussion proved to be a perplexing problem for us. We debated whether teachers should diagnose students' needs BEFORE or AFTER determining learning outcomes, whether they should select supplemental material before selecting a teaching strategy or whether a step-by-step process was even necessary.

After a long discussion, we felt that a step-by-step process is necessary so the decisions at each step could be delineated which relate to effective use of instructional materials. We also agreed that the order in which we present these steps does not represent a static condition. Rather, the steps are interchangeable, moving in and out of position as the teacher continuously gathers additional data about students and materials.

What about planning? Very little is actually known about how teachers plan. Studies related to teacher effectiveness indicate that the teacher's organization (Orlich, et al.; 1980) is an important teacher behavior and that the text and teacher manual have greatly influenced teachers' decisions about what to teach and in what order. In fact, Talmadge (1975) stated that "when a school system purchases a textbook series, it buys a philosophy of education, the learning objectives and a bag of instructional approaches." Recently, however, increasing numbers of teachers have been asking to be trained in the critical and selective use of materials so they can reclaim their role as the instructional decision-maker. We encourage such an effort.

There are other considerations concerning teacher planning. First, it has been concluded, "that teachers think ahead, that they consider planning to be an essential activity, and that designing a lesson is, for many teachers, one of the most interesting parts of teaching" (Morine-Dershimer, 1977). Second, planning allows the teacher an opportunity to anticipate how youngsters will respond to content, strategies and materials. Third, planning provides the teacher with

a systematic organization for making instructional decisions about such things as: learning outcomes, suitability of text, diagnosis, matching students with materials, and selecting teaching strategies.

For our purposes, instructional planning starts with teacher decisions about student learning outcomes.

Learning outcomes. The curriculum has been designed, the text has been selected and youngsters have been assigned to you for the coming school year. Now, as the teacher, you take over the major responsibility as decision-maker. This manual has been written with such a scheme in mind. Allow us to review our position: materials are to be used by teachers and students, materials should not be the instructional leader and training should be available for the more effective use of materials. Clearly, the power of the text is great. But, how teachers use materials actually determines the nature of the curriculum.

The process of determining learning outcomes should be guided by your careful review of the district goals, curriculum textbook selection and the abilities of your students. It is anticipated that the textbook selection process has included comprehensive decisions in matching the text to the curriculum. So your task should be one of becoming familiar with that match. You should be able to draw most of your long-term learning objectives directly from the curriculum and short-term objectives from the text. But this process must include teacher decisions based upon the match between your learning outcomes, the text and stu-

dents' skills/needs.

Already the fluidity of this step-by-step process is becoming evident. We have just mentioned that learning outcomes must be matched to the text and students' learning needs. These steps will be discussed shortly and you will discover that your learning outcomes will need to be re-evaluated as you proceed through these steps.

Equating learning outcomes and text. Seldom is there a text or a set of instructional materials that will provide the exact set of objectives outlined by your curriculum. Identify and list any discrepancies that you may find. Several types of discrepancies are most likely to exist: (1) the text may not include content to satisfy all the learning outcomes recommended by the curriculum guide, (2) the text may place different emphasis on learning than does the curriculum. For instance, the curriculum may call for the learning of precise skills in chemistry while the text may emphasize the process of learning through discovery. (3) The text may include skills or content that has been assigned to other curriculum areas or grade levels. A conscious decision will be required as to whether or not to include such material. (4) The cognitive levels (knowledge, comprehension, etc.) of the learning outcomes may differ from the cognitive levels found in the content and exercises provided by the text. For example, learning outcomes which focus on low level cognitive skills are best served by highly structured materials under highly structured conditions (Soar, 1977). You should be aware of the cognitive complexity of the materials you provide for students and how students will respond to them.

There are several reasons why identifying and listing any existing discrepancies will prove useful to you as you plan for instruction. If you intend to use the learning outcomes exactly as suggested by the text, perhaps the following list will cause you to have second thoughts.

1. Analysis of your desired learning outcomes and their match to those in the textbook will not only cause you to become more familiar with the intent of each but will provide you with a firmer conceptual understanding of what you will be teaching.
2. Such analysis will assist you in better defining your learning outcomes which will allow for more effective use of instructional materials.
3. Determining discrepancies between learning outcomes and the text will assist you later in the actual selection of appropriate supplemental materials and/or in adapting available materials.
4. Assessing students' learning needs will be simplified because you will be consciously aware of your instructional purposes and the available materials.
5. As mentioned earlier, teachers often do not have time to cover the entire text. When you omit parts of the text, your decision should be based on the relationship between the desired learning outcomes and the omitted content/exercises so that no process area suffers repeatedly.

Such procedures should be maintained throughout the school year as you continuously gather data about the learning needs of your students.

Our purpose here has not been to train you how to write learning outcomes or instructional objectives. If you are interested in improving your skills in this area, there are a number of excellent books available. You will find selected titles in a section at the end of this manual titled "Recommended Readings."

Diagnosis. To diagnose is to determine the nature of a problem. In this case, you will collect data concerning students' learning needs so that you can match students with appropriate materials and activities.

Some teachers determine the skill level of their students in September by simply checking individual skill levels from the previous June. Some teachers assume students have acquired or at least been taught certain sets of skills. Others base decisions on the previous text completed. As most of you already know, none of these methods is satisfactory. First, youngsters change over the summer months--some gain new skills, others lose. It is not unusual to find a student who finished ninth grade math on grade level but spent much of the summer working with a newly-acquired computer. He not only learned to read the training manual and how to enter programs but he also learned how to write his own programs for simple statistical formulas with a full understanding of what each measured! How will the tenth grade math teacher assess the student's present skill level and prescribe materials appropriately?

Second, it is a fallacy to assume that the previous year's teacher covered all the specified content. Many a teacher has been frustrated,

when making an assignment, to learn that part of the class had either never been taught a skill, had forgotten or were extremely competent. Ignoring differences in students' skill levels can lead to frustration for not only the teacher but also the students. If a teacher recognizes and tries to respond to differences in students' skills only after an assignment is given, that teacher may become overwhelmed by the effort to locate appropriate materials or the inability to make spur-of-the-moment adjustments in the text.

Third, teachers of science, social studies and math often ignore a student's reading level. Variations in students' reading levels become more widespread as they advance through the grades. An eighth grade science teacher may be working with youngsters who possess reading abilities that range from second grade to college level. To assign an eighth grade reading level science text to such a group is to ask for management problems. When materials are too easy, students are likely to spend less time on task and when materials are too difficult, students are likely to become confused. A major concern for the teacher is to locate appropriate science materials for the poor readers. The good readers have been found to adjust to materials below their abilities, although they do tend to spend less time on the task. Materials designed to enrich or extend the skills of the advanced reader are recommended.

Fourth, if your learning outcomes deal with more than cognitive skills, you should also assess the students' psychomotor, social and affective skill levels. One of these authors recalls an incident that

occurred during an observation of a first grade teacher. The teacher intended to have youngsters use scissors, colored construction paper and crayons as a reinforcement activity related to shapes (circles, triangles, rectangles). She placed the youngsters in groups of four and explained that each group was to draw and cut out the one shape assigned to them. The materials were handed out and the youngsters were told to go ahead. Small disturbances became evident in several groups. In one, a student did not know how to draw a rectangle and demanded the teacher's immediate attention. In a second, two students were arguing over who would use the red paper. In another, a student was crying because she did not know how to use scissors. Unusual? Not really. Many times we ask youngsters to complete tasks for which they are unskilled and in an environment with which they are unfamiliar. After the lesson, the teacher commented that she never should have tried group work with first graders. Actually, the problem was created because the teacher had not assessed the students' abilities and had not provided expectations for the youngsters either in how each should behave or in how to use the materials appropriately.

Fifth, individual learning styles require that diagnosis be a continuous process throughout the school year. As we all know, students will learn the content that you are presenting at different rates. Therefore, it is important that you constantly diagnose so that you are aware of which children are not gaining the skills being taught. Additionally, individual learning styles affect how students respond to different environments (high/low structure), materials presentation (visual, auditory) and interactions with the teacher and

other students. Many other factors have been identified which affect how a student learns; for example, level of noise tolerance, ability to work independently or in groups, etc. Your awareness that the student's interaction with materials varies on an individual basis will assist you in determining which materials and instructional strategies are best suited for each youngster.

Sixth, background knowledge causes learners to interpret the same text very differently because, often, they bring different sets of conceptual beliefs to the task of integrating new content. Negative or positive attitudes about the content will greatly influence the student's attitudes about the learning process and the materials. Recognition that students develop personal attitudes because they learn in a variety of ways, in a variety of locations and from a variety of sources will assist you in recognizing existing differences in attitudes. This will enhance your ability to anticipate how students may respond to materials.

What are some techniques for assessing students' skill levels/needs? There are the most obvious techniques which include formal test procedures; such as skill level tests, achievement tests, basal achievement tests and a wide variety of other commercial instruments. A book which you might find extremely useful is the Handbook in Diagnostic Prescriptive Teaching (2nd edition) by Mann, Suiter and McClung. This is listed under "Recommended Readings" and is specifically designed for educators who are trying to develop materials and adjust content for students with learning and behavior problems. Teachers have long used tech-

niques for assessing students' needs which have been referred to as informal assessment. Informal assessments include such techniques as daily observations, analysis of written assignments, individual conferences, group discussions and classroom interaction. Each of these procedures is useful in providing information to the teacher so that she/he can modify existing classroom materials.

Prescription. Once you have determined the student's learning needs, you should re-examine your original learning outcomes. Additional learning outcomes should be designed to either provide enrichment or prerequisite skills. The expansion of your learning outcomes should be directly related to the skill level of your youngsters. Often, several students can be grouped so that the teacher is not required to write individual learning outcomes. However, an individual who has clearly "skipped" a skill level may require individual assistance. At this point, the selection of materials becomes crucial because students will be required to work independently. The materials should provide instruction and motivation. Consider the following when matching students and materials.

1. Small groups and individuals seeking to learn missed skills should be assigned materials and activities in terms of the student's ability to perform the required tasks. Determine how students respond to various types of materials and which materials engage a student's attention. Engaged time on task is associated with increased academic learning (Rosenshine, 1976).
2. Those who are working with enrichment activities must be pro-

vided with materials which extend their thinking rather than providing them with "more of the same." Assign materials and activities by skill level rather than grade level and by what cognitive processes are required in order to successfully complete the activity.

3. The relative difficulty of the material affects students' classroom behavior (Jorgenson, et al., 1977). "As material becomes more difficult for students, students comprehend less of what is happening in the classroom and are more reliant on persons other than themselves for assistance" (Jorgenson, 1977, p. 28). Assignment of inappropriate material may relate not only to a student's classroom behavior but also to academic achievement.

The sub-heading Prescription could have easily been labeled Matching. For that is what you are actually attempting at this stage of your planning.

Recommendations for action. The last few pages provide or imply the following recommendations:

- Develop clearly stated learning outcomes.
- Determine if your learning outcomes represent district goals.
- List the skills that must be mastered by all students.
- Examine your learning outcomes to be sure that they are written in terms of student outcomes. Having worked with many classroom teachers over the past years, we have learned that classroom teachers (actually, educators at all levels tend to do this) commonly write objectives for themselves rather than the students. Another common error is that they list the activity

the student will complete rather than the skill or learning outcome. Therefore, review your own learning outcomes to determine if they state clearly and precisely that (1) the student is the focus of the statement and (2) the student is to display the learning outcome through observable behavior. (3) You may want to include a level of competence, too.

- If you are having difficulty writing your own learning outcomes, seek help from another teacher, consult a book from the "Recommended Readings" or contact a local "expert"--an individual recommended by your peers.
- Determine the cognitive complexity of learning outcomes, text and activities.
- Analyze and list discrepancies between your learning outcomes/required skills and the text.
- Complete formal/informal testing before assigning materials to youngsters.
- Become familiar with a variety of techniques for continuous assessment of students' abilities.
- Diagnosis and assessment is a continuous process, a process which provides a teacher with special information to more wisely select and use instructional materials effectively.
- Assessment of cognitive skills is important. But, if your learning outcomes deal with social, psychomotor or affective skills, these too should be assessed. Share the information that you have learned about various instructional materials with other teachers and expect them to do the same. The vol-

ume of materials available is overwhelming. The more we can assist each other, the better equipped we will be to provide the best possible instruction.

- Re-design your learning outcomes as you become more familiar with students' learning needs.
- Assign materials according to ability and needs of the youngsters and not on grade level designations.
- Do not assume that any single text or instructional material will meet the learning needs of all youngsters.
- Remember that there is no one best method of materials use--materials should be adjusted to the needs of the students.
- Omitting parts of the text must occur only after you have determined how such an omission will affect the desired learning outcomes and student motivation.
- Become intimately familiar with your materials so that the flow of instruction can continue unimpeded and so that student confusion will not occur.
- Provide instruction for students in how to use materials correctly. (Further details follow in upcoming sections.)
- Provide information to the students about the learning outcomes and the operations required for each activity. This will enhance the learning/teaching relationship and provide the students with a set of goals to be accomplished.
- Adjust materials to the reading abilities of your students.

Planning Teaching Methods

At this point, you should be familiar with district goals, curriculum guides and the assigned text(s). You have read about the relationship between estab·ishing your own learning outcomes, determining students' learning needs and identifying discrepancies between the text, learning outcomes and student needs. You also should be aware of how decisions related to each process influence your use of instructional materials. Glancing back at Figure 1, you will note that the next step in the instructional process is Planning Teaching Methods. Remember, that we are still at the Planning stage. The following discussion will focus on decisions about Teaching and the use of materials prior to actual implementation.

Teaching style.

> As students have individual learning styles, teachers also have individual teaching styles. To prescribe one style for all teachers is as mistaken as to affirm a single learning style best for all students. Methods and organizational patterns and media are not panaceas. Teachers should be eclectic pragmatists, selecting those methods and materials which seem to work best at a particular time for a particular student or group of students working with a particular concept. There are times and situations for which large group instruction is still appropriate, just as there are situations, teachers and students best suited to small group or to independent work. Perhaps the optimum, judicious mix of all these modes is what the conscientious teacher sees. It is unlikely that real educational progress results when groups lose all balance in passionate proclamations of their favorite teaching/learning patterns as The Way, exclusive of other patterns. The PR, ballyhoo, bandwagon approach to educational experimentation is counter-productive (Conference Board of Mathematical Sciences, 1975, p. 95).

Because teachers have preferences concerning teaching styles, it is important that you be aware of those styles and how they and their associated behaviors interact with characteristics inherent in instructional

materials. Just as instructional materials influence the curriculum, they also, if followed uncritically, may influence your style of instruction and the atmosphere of the learning environment. A teacher's awareness of various teaching styles and of characteristics in the materials will allow the teacher to make thoughtful decisions for the successful use of those materials. For example, materials based on small group interaction may cause great frustration to a teacher who prefers to be the primary provider of content and to maintain high teacher control. Materials that rely on common tasks which are intended to be administered to a large group will decrease the ease with which a teacher can individualize instruction (Bossert, 1977).

Teaching styles vary according to how the teacher relates to the students and materials. Providing categories will assist our discussion by making distinct characteristics and examples. Caution must be advised, however. Try not to classify yourself. This system is for discussion purposes and provides us a vehicle for identifying important variables.

Teaching styles have been characterized by the way teachers handle information and apply sanctions. Four ways of handling information and of applying sanctions have been identified. Teachers may (1) give information to students; (2) may summarize, develop conclusions or express their own opinions; (3) may ask narrow questions requiring specific information from students; (4) or may require the students to draw conclusions or to express their ideas. In applying sanctions, teachers may sanction or reward (1) the student's search for a solution to a problem; (2) the correct answer itself; (3) the student's ability to conform to

rules; or (4) the student's relations with others in the classroom. Differences in characteristic ways of handling information and applying sanctions appear to be stable and consistent (Murphy and Brown, 1970).

In thinking about the preceding, you may conclude that certain teacher behaviors are more controlling than others. This next set of categories will emphasize that point because teaching style is directly related to the amount of influence the teacher exerts in the classroom. In the first category, the teacher exerts high control and believes that the teacher's responsibility is to systematically teach standards and content to the students. The second category provides for a reciprocal relationship between student and teacher so that each assumes equal responsibility in the classroom. The belief here is that students learn through encountering the world of objects and people. The third classification allows for high student control and low teacher control. Teachers who function in this category believe that individuals who are given the opportunity to learn and appropriate support will seek out their own learning (Glickman and Tamashiro, 1980).

Additionally, teaching style has been linked to a teacher's conceptual level. Conceptual level is defined as a personological characteristic which indexes both an individual's cognitive complexity and interpersonal maturity (Harvey, Hunt and Schroeder, 1961). The theory has been extended by David Hunt (Hunt, 1966, 1971). Low conceptual level (LCL) persons are categorical, dependent upon external standards, have difficulty generating their own concepts and benefit most from high structure. LCL teachers are more restricted in teaching styles and

tend to be more concrete. High conceptual level (HCL) persons are capable of generating new concepts, have internal standards, can handle different frames of reference and can accommodate either high or low structure but tend to profit more from low structure (Hunt, 1971). HCL teachers concern themselves more with the learner's frame of reference, and are more abstract. Only two studies have specifically focused on the linkage between CL and the use of teaching materials. One study looked only at the use of the intended, rather than actual, use of materials. Its results supported the hypothesis that HCL teachers design materials and strategies to be used as a primary instructional source and LCL teachers design materials to be used outside the existing curriculum (Yarger, 1976). The second study reported that HCL teachers had fewer materials available in the classroom; planned for more media modes for use in their instruction; used more non-textual material; used a greater number of sources in setting up reading groups, by grouping students on their assessed skills, past achievement, and informal assessment; relied less on the text in their teaching; and focused more on the needs of the children. The interesting aspect of this study was that although LCL teachers had more materials in their classrooms, they did not use those materials for instruction (Harootunian and Yarger, 1978).

Have you identified which category best fits you? Recognizing your own behaviors and identifying your beliefs about how children learn is crucial to your role as teacher. One of these authors recalls an incident where a teacher was anxious to try individualized instruction. She

enrolled in a graduate course by that title, proceeded to identify students' needs, made supplemental materials and prepared to introduce the procedure to her students. After a few weeks, she asked me to visit her classroom to help her identify the reasons why the process was not working. As I observed, it became apparent that the teacher's teaching style and belief system did not coincide with the belief system of individualized instruction. The teacher provided assignments from various parts of the text to three groups of youngsters, the teacher handed out materials as needed, youngsters proceeded to complete assignments on their own at their desks and the teacher spent her time checking on students correctly following the directions. As the students completed the assignment, each one would come to her to have the assignment corrected. As a grade was given, the teacher held up the student's paper and would say, "Look at what I've just given Jane's paper." In our discussion later, the teacher verified that students had been grouped according to how quickly they could proceed through the text. She also stated that she was uncomfortable when youngsters left their seats to select their own materials and that she could not tolerate talking in the classroom. She concluded by saying, "I should have known that individualized instruction wouldn't work! I've wasted so much time!" It was some time later, after many discussions and hours of viewing videotape observations of her own classroom, that this teacher finally realized that she had never implemented individualized instruction.

How do learning styles affect the use of materials? If you are an individual who prefers structure and to be in charge, then the materials

in your classroom could be expected to have the following characteristics:

--Class sets of texts and materials

--Textbook dominates instruction

--Teacher distributes materials

--Seatwork consists of individuals doing worksheets or workbooks

--Bulletin boards contain commercial or teacher-made materials

--The blackboard is used as a major instructional material

--Teacher makes sure the materials are being used as directed

--Students expect teacher to correct and return their work to them

--Lessons and materials are given to students as a whole

--Instruction and materials are based on the grade level of students

--Supplemental materials are used during free time or as a reward for youngsters who complete their assignments early

Teachers who are less structured would tend to use and present materials in the following way:

--Many different materials in use at one time

--Children working individually or in small groups using materials of many modes

--Diversity in available instructional materials

--Students grouped and re-grouped according to activity, ability and demands of materials

--Materials are readily available

--Students' activities, products and materials are evident in abundance around the room

--Teacher is supportive: assists, advises, coordinates, recommends different materials when necessary

--Teacher keeps collection of work for use in assessing each student's progress and development, evaluation is diagnosis

--Students are actively involved in what they are doing

--Supplemental materials are an integral part of learning outcomes

Teaching style is very individual and personal. Just as some individuals prefer to entertain at home rather than going out, some wear dark clothing rather than bright, and some prefer the opera while others prefer sporting events; some teachers prefer a particular style of teaching. Each of us is different and we should identify these differences and the beliefs upon which they are based. This will be useful to us in understanding the decisions we make about our own behavior in the classroom as well as decisions about youngsters.

Teaching style should not be confused with teaching methods, teaching patterns, or teaching strategies. Teaching style is a personological variable while teaching patterns, strategies and methods are techniques for presenting information.

Teaching strategies will be the focus of our next discussion.

Teaching strategies. The teaching strategies that you select should be compatible with your teaching style. Being compatible does not imply a perfect match (more about this later). As previously mentioned, many texts recommend one or two teaching strategies for each lesson. Your awareness of the behaviors required for the various approaches will assist you in determining (1) if the recommended strategy will work for you,

(2) if another strategy should be selected and (3) if the strategy and materials can be adjusted to fit your style or (4) if you can adjust your style to meet the behaviors required for the strategy. Obviously, the greater the number of strategies that you are able to implement, the greater are your abilities as a teacher.

At this point, you have determined WHO will be taught and WHAT will be taught. Now, it is time to determine HOW the information will be delivered. Determining HOW you will deliver the content brings together the decisions made to this point about learning outcomes, students, the text and your teaching style. Let's turn now to decisions about the selection of a teaching strategy and how these decisions will affect your use of instructional materials.

A teaching strategy is a plan for reaching a specific educational goal. In Models of Teaching, Joyce and Weil (1972) have identified four families of teaching models. Each model places emphasis on different frames of reference for reaching an educational goal. Each model presents several strategies or guidelines for organizing and delivering instruction. If you are unfamiliar with this book, we highly recommend it to you.

Selection of a teaching strategy should be based on a variety of teacher decisions. Remembering your learning outcomes, the needs of students and your cognitive understanding of the content to be taught, a teaching strategy should be selected after considering how inherent characteristics of the strategy will affect: (1) time allocation/pacing, (2) grouping, (3) teacher style (i.e., low/high control), (4) sequence

of events and (5) need for supplemental materials. Let's share a brief discussion about each of these items.

Time allocation and pacing--a variation has been found between classes and the way time is used even when the same curriculum materials are in use. Typically, materials do not specify an allocated time or pace (Filby, 1977). Decisions about time allocations and pacing appear to reflect the complexity of the classroom, the characteristics of the instructional materials and students and the teacher's focus.

Although little research is available concerning pacing, the following may prove useful as you make decisions.

1. Using materials at a sufficient and continuous pace is an important aspect of student achievement (Good and Grouws, 1977).
2. Pacing refers to the number of textbook pages covered, activities completed, etc.
3. Teachers encourage more capable or highly motivated youngsters to move through required materials more quickly as a way to "individualize" instruction.

Only slightly more evidence is available about time and the use of instructional materials. However, these results are most impressive. But first let's look at these definitions about time:

1. ALLOCATED time is the time a teacher provides for instruction in a particular content area.
2. ENGAGED time is the time a student is attending to instruction in a particular content area.
3. ACADEMIC learning time is the time a student is <u>engaged</u> with

instructional materials or activities that are at an easy level of difficulty for that student. A low error rate occurs when about 20% or fewer errors are noted for a student engaged with workbook pages, tests or classroom exercises (Berliner, 1979).

Strategies used by teachers provide for student engaged time, involvement with the appropriate curriculum content, which leads to student achievement in that content area.

What do we know about time and the effective use of classroom materials?

1. "Time spent on reading and mathematics instruction and time spent using reading and mathematics materials were positively related to achievement" (Rosenshine, 1976, p. 368).
2. Qualities inherent in materials influence the amount of time youngsters will spend on task (Arlin and Roth, 1978).
3. Qualities of materials and their acceptance by students play a major role in students' sustained on-task behavior.
4. Decisions about the allocation of time should be related to the student's needs and the teacher's priorities (Silberstein and Ben-Peretz, 1979).

When making decisions about time allocation and pacing, remember the following points: (1) even when the same curriculum materials are used, teachers spend differential amounts of time using those materials and stress different content areas, (2) materials intended to be used by students during engaged time should be at the appropriate learning level, (3) students do not have to be engaged all of the time, rather the crit-

ical variable is on the total number of academically engaged minutes (Rosenshine, 1979). Using appropriate materials matched to the student's ability and directed by teacher pacing will promote student attention and engagement which is necessary for learning.

Grouping--Three group structures; whole group, small groups and individual; are commonly used during academically engaged time. Often, the availability of instructional materials influences teacher decisions concerning group structure. For example, having workbooks for phonics may lend itself to grouping while boardwork and dittos may favor whole group instruction (Barr, 1974). Rather than having the materials dictate group structure, group structure should be determined by you.

Again, our goal is not to instruct you in the advantages and disadvantages of grouping per se. Our purpose is to help you make conscious decisions about the size of groups and the effective use of classroom materials. Decisions about group size must be related to other planning decisions. Specifically, decisions about grouping should be based upon the cognitive level of the content to be learned, desired learning outcomes, skill level of students and intended teaching strategy. No single structure is appropriate for all students, nor for any student all of the time. Be sure to plan for a balance of instructional structures which include time for individual, small group and large group instruction.

Teacher style--we have discussed teaching style in a previous section of this manual. At this point, we would like to stress that the teaching strategy you select should be compatible with your preference for structure. This does NOT mean that YOU should lock yourself into rigid be-

haviors. Instead, you should seek to extend your abilities. It is not a matter of high teacher control vs. no teacher control but rather of you the teacher making decisions about selecting the most appropriate level of control.

Sequence of events--this refers to the step-by-step process of presenting the content to students. For example, a strategy for the introduction of basic skills might involve (1) the teacher introducing each skill to be learned, (2) students' verbal practice of skill, (3) low level questions to reinforce and establish mastery, (4) immediate correction of any errors and (5) independent seatwork to maintain skill. A step-by-step strategy for critical thinking might include (1) presentation of problem to be solved, (2) analysis of problem, (3) data collection, (4) hypothesis, (5) hypothesis testing and (6) final solution.

Supplemental materials--decisions about the selection and use of supplemental materials are directly determined by decisions about HOW you plan to deliver instruction to the students. Allow us to STRESS this point--choosing supplemental materials is a process that follows your decisions about HOW to deliver instruction which follows decisions about WHO will receive the instruction and WHAT content/skills will be taught.

Having carefully examined the text, diagnosed the learning needs of your youngsters, developed learning outcomes and tentatively selected a teaching strategy, you have provided yourself with a guide for selecting supplemental materials. The use of supplemental materials is important for several reasons. First, whether or not you discover discrepancies

between the text and the learning objectives, differences do exist in students' reading abilities at all grade levels and in all subject areas. An especially acute problem develops when youngsters with reading deficiencies are assigned to science, math and social studies texts which are beyond their reading ability. Second, readability levels of workbooks do not necessarily match the textbook. In one study, only three of forty-two workbooks examined showed a grade level match with the designated grade level. Workbooks designated as third, fourth, and fifth grade level deviated from their grade designations by three whole grade levels (Fitzgerald, 1979). Third, every child has the right to interact with instructional materials which match his/her learning style. Students respond differently to printed, visual, auditory and manipulative materials. In responding to learning style, materials should vary in level of structure, rate of pacing, and amount of work required.

Our emphasis on supplemental materials infers that you intend to use such materials as an integral part of your instruction, that you select materials based on pre-determined learning outcomes and knowledge of students' needs. Merely having you bring interesting or fun-looking materials into the classroom is not our goal. Materials selected for these reasons are likely to be (1) placed on the shelf, only to collect dust; (2) used by students during free time when their "work" is completed, or (3) designed as a management technique to keep students busy. Please do not interpret this last remark as meaning that supplemental materials should not be used for classroom management. Just the opposite is our intent. We do discourage "busy work" but are extremely supportive of deci-

sions that will cause students to be actively involved with learning. On-task behavior should be enhanced by materials matched to learning outcomes and needs of students.

What do we know about the use of supplemental materials in the classroom? One study had as its purpose to evaluate the effectiveness of planned variation in follow-through programs and to look for effective teaching behaviors. One-hundred-and-five first grade classes and 58 third grade classes were observed using a variety of instruments. Findings relevant to our discussion about the use of supplemental materials include:

1. Independent children (children engaged in a task without direct adult supervision) were more likely to be found in classrooms where a wide variety of exploratory and audio-visual materials were available. They were not as likely to be observed in classrooms where textbooks and workbooks were used more frequently.
2. Task persistence (child engaged in self-instruction over a period of time) occurred most often in classrooms where textbooks and workbooks were observed more frequently. Less task persistence was observed in third grade classrooms which had more audio-visual and exploratory materials available.
3. Greater cooperation was observed in classrooms where exploratory materials were available than in those classrooms where textbooks and workbooks were more frequently used.
4. Children showed greater verbal initiative when a wide variety of materials were used. Less verbal initiative was shown in classrooms where textbooks were used frequently.

5. Children in classrooms with a number of exploratory materials showed greater self esteem.
6. Children were absent from school less in classrooms that had a number of puzzles and games available (third grade).
7. Problem solving ability was greater in classrooms that had a variety of materials available than classrooms that tended to rely on textbooks and workbooks.
8. Reading and math scores were higher in classrooms that used textbooks and programmed reading workbooks frequently (Stallings and Kaskowitz, 1972-73). Also, the use of programmed materials, cuissenaire rods, or Montessori materials contributed to higher math scores.

Another study looked at the relationships between teacher behavior and student achievement. Twenty second and twenty fifth grade teachers were observed in their classrooms. One of the discriminating variables of teacher effectiveness was defined as teacher-provided instructional materials other than textbooks and arranged for their use by students (Berliner and Tikunoff, 1977). Teacher-made materials does not limit those materials to teacher-made dittos. Rather it refers to materials other than the dominant text. What is important here is that the teacher offered additional practice to her students when providing such materials. You may recall that this is an important component of the direct instruction model. Also, the greater the variety of materials (in terms of modality, interest, etc.) the greater the chances of meeting the needs of individual students.

Allow us to remind you that in our discussion on delivering instruction to the students, we emphasized the fact that the delivery method would dictate how you and the students use the materials. This is true for supplemental as well as assigned materials. We also emphasized that a mix of instructional strategies is extremely beneficial for both student and teacher. Do not interpret the use of supplemental materials to mean that students suddenly have freedom of choice in what their learning assignments will be. Again, how you and the students use those materials will be related to the instructional decisions that you have made. Not to be repetitious but to provide a brief review: the teacher has determined the learning outcomes based upon the needs of the students, the teacher has a conceptual understanding of the content and the text, the teacher has made decisions concerning how the content and text will be used in the classroom. Therefore, the selection and use of supplemental materials should fit into the instructional plan of the teacher.

Ask yourself the following questions when selecting supplemental materials:

1. What are the materials intended to accomplish? Often instructional games, tradebooks and audio-visual materials provide their own learning outcomes. Match these with your own set of learning outcomes. If there are none available, you will need to determine the outcomes for yourself. Reject the materials if you feel they will not deliver the type of outcomes required by your students.

2. How much time will be required to adequately use the materials? If too much time is required, you may reject the material on the response to this question alone.
3. Do students possess adequate skills to use the materials successfully? If not, should the skill be taught at this time? If the student is missing a basic skill, would it be possible for a more capable student to assist? Remember, social skills are as important as cognitive skills; especially, if group or individual activity is associated with the use of the material.
4. Will the material be used for conceptual understanding, application or practice?
5. How will this material affect classroom structure, management and your own behaviors in the classroom? Anticipate possible side-effects which may interfere with your design for successful instruction. If you prefer a structured setting, will use of this material require more involvement than you are willing to allow?
6. How does this material differ from the regular text or instructional package? Does it provide a different mode (i.e., manipulative rather than printed)? If it is the same mode, does it present the content in a different way?
7. Is the material content, process or skill oriented?

You may think of additional questions that will assist you in making decisions about the selection and use of supplemental materials.

What do we know about instructional behaviors and the effective use of classroom materials? We know that more effective teachers:

(1) Present materials clearly. Because the teacher has thoroughly examined the content and materials to be used, the teacher should be able to translate his/her cognitive analysis into precise guidelines for the students.

(2) Tell students WHAT to do with the materials, WHERE they should complete the task and HOW much time is available. This process trains the students in the use of materials. Whether students are completing dittos at their desks or activities at learning centers, they should be informed about the organization and expected use of materials.

(3) Engage students with the materials. This step requires that the teacher causes the students to be actively involved with instructional materials. Many times the directions are given as indicated in Step 2 but then the teacher moves on to his/her next activity before confirming that every child IS engaged with the assignment. Instead, take a few minutes to observe that every child is attending to the assigned materials.

(4) Structure student's involvement with the material. The involvement may provide the students an opportunity to individually practice newly learned skills or require the students to work in small groups to solve a problem using the inquiry process. In either case, it is the teacher who structures student involvement based on the characteristics of the materials.

(5) Match the difficulty of the materials with the ability of the students and vary the level of difficulty as necessary (Brophy and Evertson, 1977). This process is facilitated by your continuing diagnosis and prescription.

(6) Provide content specific feedback. In providing praise or other types of feedback to students, comments should directly reflect the content or materials being used and not be a reflection on the child's ability.

(7) Provide closure. Summarize! This provides clarification and review of newly learned skills, concepts or processes. The teacher may Tell the students in very concise terms or Ask the students "What did you learn?"

As you review the above list of seven items, please keep in mind that these steps do not represent a teaching strategy. Rather, they are representative of teacher behaviors which function successfully with any strategy.

In this section, we have been discussing the variety of teacher decisions required when selecting a teaching strategy. In selecting a teaching strategy, you must consider how the strategy will affect (1) time allocation/pacing, (2) grouping, (3) teaching style, (4) sequence of events and (5) need for supplemental materials. In taking a look at how such decisions could relate to the effective use of classroom materials, we present two analyses of the effects taeching strategies have on materials use. The first example consists of a non-directive strategy

requiring an unstructured setting which focuses on affective learning outcomes. Each of the preceding considerations will be discussed individually.

(1) Time allocation and pacing.

Although time allocation will fit within the demands of the curriculum, decisions are made jointly between the teacher and student concerning time limitations. Students pace themselves through the learning materials. Student contracts may be designed to provide structure and guidelines.

(2) Grouping

The learning sequence is introduced to a large group. Then the students are placed in small groups according to interest and learning needs.

(3) Teaching style

Teacher control is at a minimum. The teacher acts as a facilitator, resource and guide. The students'ideas are considered equal to the teachers. Students assume responsibility for their own learning.

(4) Sequence of events

- Teacher sets theme by introducing problem for study.
- Student defines the problem.
- Student determines what to learn and how to reach goal.
- Student explores problem and seeks solutions.
- Student evaluates progress.
- Teacher interacts/interviews on individual level for final

evaluation and progress.

- Student reaches decision.

(5) Need for supplemental materials

This strategy requires that a wealth of materials related to the topic be made available. These should include books, articles, audio-visual equipment, maps, films, tapes and human resources. The materials must be readily available and must offer variability and difficulty to match students' skill levels.

In contrast, our second example has been labeled "direct instruction." Direct instruction is a teacher-structured strategy which is especially useful for learning outcomes dealing with basic skills, lower cognitive level content and review.

(1) Time allocation and pacing

Recommendations for time allocation include 30 minutes of small group work, 25 minutes of large group work and 70 minutes of seat work. Pacing is rapid with hundreds of group and individual questions being presented during the time allocated for group work (Rosenshine and Meyers, 1979).

(2) Grouping

Students are grouped according to skill level for small group work. Large group instruction and individual instruction also function in this strategy.

(3) Teaching style

The teacher is in CONTROL and makes all the decisions.

(4) Sequence of events

- Focus student's attention to the task and learning outcomes.
- Presentation of material in small steps followed by low level content specific questions.
- Verbal student response as group or individually.
- Teacher determines if any students need to be re-cycled through content.
- Teacher reviews and assigns material to be used during seat work.

(5) Need for supplemental materials

The text should be sufficient in supplying the appropriate content and practice exercises. If you discover discrepancies between the text and your learning outcomes, you may need to locate materials to supplement your planning. If youngsters require practice beyond those provided, you will need to develop your own practice sheets or locate practice sheets from a different source.

We purposely selected very diverse strategies so that we could stress a few additional points concerning the relationships between teaching strategies and effective use of instructional materials.

1. Effective teaching implies the use of a variety of teaching strategies. Direct instruction may be used for the teaching of basic skills under a high level of teacher control for part of the school day. A strategy requiring less control may be used during other parts of the day which allow students an opportunity to interact with a variety of materials. For example, the introduction and demonstration of a set of skills

through direct instruction could be extended and practiced in learning centers. This would require varying levels of materials use and of teacher control.

2. The crucial aspect of using any strategy, especially if they vary in the amount of student responsibility, is that the teacher provide the appropriate structure by:
   - Focusing the students on the appropriate materials to match the strategy.
   - Explaining the learning outcomes and how the materials will assist in reaching those goals.
   - Providing expectations of what the students are expected to produce.
3. Materials can be adjusted to meet your instructional decisions. Different strategies imply the need for a particular style in using classroom materials. To make such adjustments, you must be intimately familiar with your materials, content and teaching strategies. You must not make decisions in a haphazard fashion.

Recommendations for action. This has been a rather lengthy section which has been designed to focus your attention on the relationship between Teaching Methods and the effective use of instructional materials.

- Determine your level of teacher control in the classroom. Experiment with strategies which will extend your level of comfort.
- Match your classroom characteristics to your expectations of how students will interact with materials. This includes teacher

control, student ability and the complexity of the content. It is important to determine the intent of the materials before matching. Printed materials may be designed to provide basic skills or may require higher cognitive processes but they are direct in their presentation. Films and slides intend to provide visual experiences while symbols and charts are abstract. Each requires varying levels of ability on the part of the student.

- Prepare students for seat work and verify that they are on-task.
- Provide guidelines for students about the HOW, WHAT, WHEN, WHERE, and WHY of using materials effectively.
- Read about teaching strategies and practice using a variety of techniques.
- Adapt strategies and materials to meet the needs of your classroom.
- When selecting a teaching strategy, consider how its use will affect time allocation/pacing, grouping, sequence of events, your teaching style and the need for supplemental materials.
- Provide ample time for students to read independently. Students who spend more time actually reading are better readers. Poorer readers need time to practice reading and not just filling out worksheets.
- Provide materials that will keep the students engaged and that diminish that wait time. As stressed earlier, many students spend more time with materials than with the teacher. Therefore,

the materials should keep the students on-task. Also, materials should diminish the amount of time that students must wait for the teacher to provide the correct answers or new directions.

- Determine student's error rate while working independently with materials. If the error rate is consistently greater or less than 20%, the teacher should adjust the assigned materials.
- When planning for the use of materials by students, determine whether the students will be asked to read, respond, write, listen and/or recite. The teacher should provide opportunities for a variety of student responses to materials.
- Observe the youngsters; write down how much time each student spends working with you the teacher and working independently.
- Supply appropriate supplemental materials. Randomly selected games and multi-media materials may fragment learning. Select and use only those materials that you have thoughtly matched to your learning outcomes and the student's needs. Supply materials that match the skill to be taught!
- Assess student's interest. Matching materials to interests and learning needs acts as a motivational factor and will encourage on-task behavior.
- Learn how to adapt materials. For example, discuss review questions BEFORE students read the content or cue the students to be on the alert for specific content under each chapter sub-heading.

- Do not consistently eliminate enrichment activities. Such activities are designed to enhance the students' appreciation and expertise.

Summary

Part III has presented an overview of the decisions a teacher must make when planning for the effective use of instructional materials. Although we strongly encourage each teacher to give thoughtful consideration to each step in the planning process, we do not expect that each step will be documented in writing. In fact, one of these authors manipulates various strategies in her mind while gardening or driving the 18 miles to work. This author anticipates which method will best suit the students, the desired learning outcomes and the content to be taught. Then materials are sought to fit the decisions reached during the "mental acting-out" of the strategies. Next, notes and expected allocated times for each learning activity are jotted. This helps to keep delivery of instruction on target while allowing for flexibility. Notes also serve as a guide for reminding the teacher about what was completed and the degree of success (2) what needs to be recycled and (3) what should be taught next. Many of you may already have such a system.

The important factor of this process is that you the teacher are making the decisions.

PART IV

DELIVERING INSTRUCTION

Teachers perform many roles in the classroom. Our focus will be on those roles performed while the teacher or students are using instructional materials. Decisions made during the stages of Planning for Instruction and Planning Teaching Behaviors will now be translated into classroom behaviors. The consistency between the PLANNED behaviors and the OBSERVED behaviors bear directly on the effective use of instructional materials.

Teacher Roles

Let's take a look at the various roles and implications for effective use of classroom materials.

Giving directions. Giving Directions is a major role in preparing students for the use of materials. During this period, the teacher should focus the student's attention on the materials, the task to be accomplished, how it should be accomplished, the time allocated and the desired learning outcomes. From a previous discussion on planning, you may recall that as a teacher, you should have anticipated what you will say and what you expect from yourself and the students.

Instructing. Teacher acceptance of this role and willingness to allocate significant teacher time to this role have been identified as important to student achievement. Success in this role is directly related to the decisions made during the planning of Teacher Behaviors. Although we do not recommend rigid adherence to any set of plans, observable deviance from your planned teaching strategy might lead an observer to

question you as to WHY? Your response might indicate that the students were not responding or that the materials would not be manipulated. If so, you will better appreciate the recommendation that you consider an alternative strategy for every lesson. Many times teachers switch from an intended strategy because they feel uncomfortable and unfamiliar with the process. As a result, they revert to a more comfortable strategy. In such a situation, the materials may no longer be appropriate.

Observing. Observing student involvement, task persistence and class interactions provides the teacher with information for making future decisions. Through observation, the teacher can determine which students respond accurately and which students require further instruction, which students work best with various types of materials and in what settings. Learn to mentally record which students respond to factual questions, to higher order questions; which students move around the room repeatedly; which students continually require teacher assistance during seat work and which students become frustrated with certain types of assignments. As an observer, the teacher is actively involved in watching students as they use materials. The teacher may occasionally tutor, ask questions or use diagnostic techniques. However, the primary focus is on observation of students using materials.

Diagnosing and prescribing. Your diagnosis role continues throughout the school year. By observing specific errors in a student's work or by collecting data as you observe, you determine the student's learning

problems. Once the problem has been identified, you may need to make adjustments in the materials and activities provided to individuals or groups. The role of prescribing also occurs when a child demonstrates that a skill has been learned; then, the teacher discusses with the student(s) what will be learned next and what materials will be used. Rather than giving directions the teacher is preparing for what will be taught next.

Participating. Occasionally, a teacher will step out of the role as instructional leader and become a participant. This occurs when the teacher turns instruction over to another, maybe even a student who is more knowledgeable,and joins in the learning process. Some teachers sit with youngsters to play a game, allowing the game to become the instructor. This behavior would most likely be observed in classrooms which share control between the teacher and the learner.

Evaluating. This describes the teacher who is involved with the correction of student materials such as workbook sheets or other written assignments. This becomes the active involvement while classroom management and instruction has been temporarily diminished.

What do we know about the roles that teachers play while using materials? Evidence indicates that the most used role for both primary and intermediate teachers is the role of Instructing, that primary teachers spend more time in the role of instructing than do intermediate teachers and that intermediate teachers perform more roles than do primary teachers (Yarger and Harootunian, 1978).

MONITOR

The important aspect of the various roles can be summed by the word MONITORING. The key to effective use of classroom materials is the ability of the teacher to observe, to detect, to supervise, to determine quality and to advise students regarding the use of instructional materials. To be successful the teacher must be in charge of the materials and must monitor their use by students--the teacher is the Instructional Leader.

Recommendations for action. Let's look now at behaviors and procedures that you should use to enhance students' use of instructional materials:

- Monitor your teaching role. Try to structure your time so that the role of instructing receives the greatest majority. Allow for a balance of other teaching roles.
- Work on giving complete and concise directions. Do not continue with the learning activity until you are sure everyone understands the task requirements, the amount of time available for completion and the desired learning outcomes. One way of doing this is to ask students if they understand the directions and have them repeat them to you. Adjust your explanations to student concerns.
- If students appear unable to follow the assignment, be flexible; adapt the materials to their needs. Try to catch any problems before they occur so that they do not interrupt the flow of instruction.

- As instruction occurs, constantly evaluate the quality of student participation. Keep the instruction moving at a steady pace with minimal interruptions and maximal student participation.
- Take the time to observe both during active instruction and when you are performing other roles. Checklists may help focus your observations. Pick up cues which may signal problem areas and adapt materials accordingly.
- Provide immediate assistance when students are having difficulty with the materials they are using independently. Setting up routines to handle such problems will decrease interruptions. These routines should be reinforced as you give directions so that students understand the procedure to follow if they should have a problem.
- Diagnose your ability to focus students. Examine how you alert students to the beginning or ending of an activity. Are your transitions from activity to activity smooth and understood by all? LOOK at the quality of your directions by observing student behaviors. What types of questions are common when students are working with materials? How do they reflect on your ability to focus and give directions?
- Continually assess the way in which students are using materials. Are they rushing through their work? Is the error rate appropriate? Ascertain when and if materials should be adapted to meet student's needs.
- Set-up routines for evaluating the student's use of materials.

Provide relative feedback as quickly as possible.

- Allow the students to comment on the nature and difficulty of the materials. Use these comments.

Summary

This final section has focused on the observable behaviors that you as teacher should display in the classroom to enhance the effective use of materials. Consciously identify your present behaviors. Refine those behaviors while integrating desired new behaviors. Feel the power of confidence grow as you become increasingly aware of how you the teacher are in charge. Your behaviors indicate that you ARE the Instructional Leader.

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