### **Lecture 1**: **FOCUSING AND ENGAGING STUDENTS'** **ATTENTION**

Lecture plan

1.1.Establishing set

1.2.Using variety

**1.1.ESTABLISHING SET**

Effective teachers are able to get students' attention at the beginning of a lesson and to hold their attention throughout the lesson. (Feden, 1994; Lunenburg, 1998; Wang, Haertel, & Walberg, 1993-94). To accomplish this, teachers must be skilled in establishing set (providing a context for the lesson and instruction) and in using variety.

Students learn more when teachers begin their lessons by establishing set, that is, by providing a context for the lesson and the instruction. This is variously referred to as set induction, providing advance organizers, or lesson entry. In this case, a teacher uses this skill at the beginning of an instructional segment and generally intends it to do one or more of the following:

1. Capture students' attention or provide them with a framework for the lesson.
2. Help students relate new material or information to what they have previously learned.
3. Determine students' entry-level knowledge prior to introducing new content.

When our purpose is to engage students' attention in a new instructional activity, we are establishing orientation set. This type of set may vary from a few minutes at the beginning of a single lesson to a full class period at the beginning of a new unit of study. When the primary goal of a set is to help students understand how the new material relates to what they learned previously, we are using transition set. This might include a brief review of previous lessons, a discussion to focus students on what they already know about a topic, or a single sentence that shows the relation­ship to previous material (that is, "Yesterday we learned two causes of the Civil War. Would someone name them for me?" . . . "Today we'll learn two more reasons .. ."). We use evaluative set to establish what students already know about a topic. The teacher might ask students questions about the topic or give a short quiz or pretest to make judgments about how best to teach the lesson.

The notion of establishing set before introducing students to new material relates closely to cognitivist approaches to learning and to what is often called "brain-based teaching" (Banikowski, 1999; Lock &Prigge, 2002; Perkins, 1993), particularly reception learning (see Chapter 4). Feden (1994) and others note that learning increases and becomes more efficient when new material is related to previously learned material. Meichenbaum and Biemiller (1998) and Brophy (n.d.) both report that students' achievement and long-term retention is greater when teachers deliberately establish set. Generally, establishing set seems to help students learn more by focusing their attention, improving their ability to self-monitor their understanding, and increasing the likelihood that new information is linked to existing knowledge or schema (Eby, 2001; Feden, 1994).

To be effective, information or activities used to establish set must be (1) at a higher level of abstraction or broader in scope than the content to be learned in order to encompass the specific concepts of the lesson and (2) related directly to students' prior knowledge (Camp, 1993; Rosenshine, 2002). Thus, the early min­utes of a lesson may be used to promote several goals and are critical to establishing a tone and instructional pattern that allow students to learn.

The beginning of the lesson should accomplish four goals. First, it should be more than a simple, dry introduction, an overview of the material, or a statement like "Open your math books to page 79." Establishing an effective set requires a con­figuration of several general characteristics (Arends, 2001). First, the topic should be introduced in a way that makes it novel, interesting, or relevant to students. Often teachers begin a lesson by performing a demonstration with a surprising or unexpected outcome in order to stimulate curiosity about the topic of the lesson. For example, one of the authors can still remember the beginning of a lesson on how we learn. The teacher began by having each of two mice begin at one end of a maze at the other end of which was cheese. One mouse (which had worked in the maze several times before) ran immediately through the maze to the cheese and the second (which had never been in the maze) tried various paths without success.

A second goal of the beginning of the lesson is to establish an interactive climate and tone. It is important that teachers immediately involve students in responding to questions or in thinking and talking about the topic. In the previous example, the teacher asked her students what they thought would happen before placing each mouse in the maze. After students witnessed each mouse, the teacher asked them to describe what they saw, what they believed explained what they had seen, and gradually guided them to the topic of the lesson.

A third objective of the lesson introduction is to direct students' attention to important aspects of the content or communicate the lesson objectives. Sometimes teachers will put a topical outline on the board to highlight important aspects of the lesson. Sometimes they use a demonstration, note the major reasons behind the events in the demonstration, and explain how the lesson will focus on these reasons. For example, after asking students to explain what they observed and to speculate about its causes, the teacher might use students' responses to note that one of the mice had learned how to get to the cheese, that several learning theorists had attempted to explain how this took place, and that by the end of the class they would be able to explain the behavior of the mice from two of these.

Fourth, the entry should link today's lesson with what students already know. "Remember yesterday we talked about. . . ? How might that explain what we saw in the demonstration? . . . Well, today we're going to talk about. . ."

**1.2.USING VARIETY**

Educators have long known that variety increases students' motivation and learn­ing, and researchers have supported this belief. Effective teachers use variety in virtually every aspect of their classroom behavior including nonverbal behavior, instructional approaches, classroom organization, questioning, types of assessment, and gestures. We have all experienced teachers who taught every lesson for the entire year in the same way, with the same activities arranged in the same order, using the same, monotonous voice patterns and few gestures.

This lack of variety in instructional patterns can negatively affect learning. Imagine a teacher (perhaps you can even remember one) who responded to every student's answer or con­tribution with, "Exactly!" The first few times you witness a student receiving this response, it seems enthusiastic and encouraging. However, eventually, even if every student's answer is correct, "Exactly!" is no longer effective and may, in fact, become annoying. The same holds true for many other teacher behaviors. Rosenshine and Furst (1971) identified variety as the second strongest predic­tor of teachers' effectiveness. However, variety probably does not directly improve learning. Instead, it has a positive effect on students' attention and involvement, thus making students more receptive to learning. Teachers who use variety not only prevent students from becoming bored, they also keep them interested and actively involved in the lesson. A teacher's knack for variety fosters interest and engagement on the part of students; this in turn leads to increased learning (Doyle, 1986).

Researchers have identified specific ways teachers can introduce variety into their classrooms (Ellis, 2001; Lock &Prigge, 2002). Their suggestions can be organized into two major categories: variation in instructional activities and materials, and variation in teacher-student interaction.

Instructional Activities and Materials As we discussed earlier, one way of establish­ing effective set in your lessons is to pique students' interest by presenting novel situations or problems. In addition, teachers can vary their instruction by using a variety of instructional alternatives: cooperative learning, discussion, seat work, direct instruction, inquiry learning, and so on. Ideally, every lesson should allow students to experience the content through several senses. You might tell students about certain ideas or have them read about them; ask them to conduct an experiment or activity in which they manipulate materials and can see, feel, hear, taste, or even smell the results of their manipulations; then organize them into small groups to write a summary of their observations.

Interacting with Students In addition to introducing students to content in a variety of ways, Grouws and Cebulla (2000) emphasize the importance of varying the ways teachers interact with students. Even having students work independently in small groups can become monotonous if used without variation. Ensuring that there are multiple and different steps to the groups' tasks, interjecting questions or encour­aging comments, and breaking up the task with some whole class conversation or discussion of groups' progress will help keep students involved.

Teachers should also vary the ways in which they reinforce or praise students for desirable performance or inform them about their progress. Smiling at students, maintaining eye contact, moving closer, laughing, and gesturing toward students often can be reinforcing and convey support and interest. More explicitly, you can give students rewards for desirable performance. Verbal praise, recognition of out­standing work, free time, or tokens are examples. Researchers note that, just as a single instructional alternative eventually becomes monotonous and ineffective, so too does a single form of reward. Likewise, teachers can and should provide students with information about their performance in a variety of forms—not just in written comments or grades on students' papers. Verbal information from the teacher, peers, and group are important ways of accomplishing this.

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| **Establishing Set** |
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| 1. | Review previous material. |
| 2. | Ask a curiosity-provoking question or pique students' interest by using a unique problem or scenario. |
| 3. | Provide an overview of the major points or topics of the lesson. |
| 4. | Demonstrate the concept or ideas of the lesson. |
| 5. | Provide a visual schema that depicts the relationship of various aspects or concepts of the lesson. |
| 6. | Provide a problem (orally, visually, or by some other means! to engage students in processing the |
|  | concepts to be learned. |
| 7. | Convey interest, enthusiasm, and curiosity about the topic. |
| 8. | Inform students of the objectives or goals of the lesson, and point out its relevance to their lives. |

**Lecture 2:** **USING INSTRUCTIONAL TIME EFFICIENTLY**

Lecture plan

2.1.Optimizing time

2.2.Maintaining momentum

2.3.Making smooth transitions

The most effective teachers learn to optimize the time available for instruction. It's only reasonable that students learn more when they spend more time engaged in learning activities. Three factors contribute to more efficient use of instructional time: (1) time on task, (2) maintaining momentum, and (3) smooth transitions.

**2.1.OPTIMIZING TIME**

Research has shown that time on task is consistently related to increased learning. When teachers and students spend more time actively engaged in academic tasks, students learn more (Brush, 1997; Glatthorn, 2000; Good &Brophy, 2000; Grouws&Cebulla, 2000; Marzano, 2002; Schmidt et al., 2001; Yair, 2000). Interestingly, however, only a small percentage of available instructional time is actually used for meaningful instruction (Bracey, 2001; Glass, 2002). An examination of the reasons for this can show where time is lost and how to maximize the use of available time.

It is useful to think of instructional time in terms of four levels, somewhat like the target in Figure 1.



Figure 1

At each level, less time is used for instruction than is avail­able. For example, at the broadest level is mandated time; that is, the formal time scheduled for school or academic activities. The length of the school year, day, and periods determine the maximum time available for instructional activities. Teachers are compelled to work within the constraints and schedules established by their state, school district, and school. Schools in most states schedule approximately 185 school days; the typical school day is about 7 1/2 hours in length; and the typical high school period is about 50 minutes. It should be noted, however, that there is much disparity even in amounts of mandated time. In fact, Harnischfeger and Wiley (in Jeynes, 2003) found a difference of 45 minutes in the length of the school day for second graders within the same school district! In this school district, as in many others, the maximum available time for school-related activities is much greater for some students than for others.

Obviously, not every minute of mandated time is used for instruction. Some time is scheduled for lunch, moving from class to class, recess, homeroom, and other noninstructional activities. Thus, only a portion of mandated time is actually allo­cated to instruction.

 ***Allocated time*** is the amount of mandated time intended or scheduled for aca­demic activities. Research indicates that less than 75 percent of mandated time is allocated to academic tasks. Nonacademic activities (that is, convocations, field trips, pep rallies, special programs or speakers, and so on) and formal transitions (that is, passing periods, restroom breaks) take over 25 percent of mandated time. Based upon several studies, it would appear that only about seven of every 10 man­dated days is actually available for academic or instructional purposes. The remain­ing three days are consumed by the nonacademic activities cited above (Bracey, 2001; Glass, 2002; Smith, 2000).

The next circle in Figure 1 represents the amount of allocated time dur­ing which the teacher is actually conducting instructional activities. This is called academic instruction time. Just as allocated time is always less than mandated time, the amount of time spent in academic instruction is always less than is allocated. Less than 60 percent of allocated time in elementary schools and less than 45 percent of allocated time in high schools is spent in academic instruction. While allo­cated and mandated time are often beyond the control of teachers, maximizing the amount of allocated time spent in academic instruction is their responsibility (Clare, Jenson, &Kehle, 2000; Smith, 2000).

Most teachers do not realize how much class time they spend in noninstructional tasks and activities. For example, although a seventh-grade social studies teacher may have 50 minutes of allocated time five days a week, not all of the 250 minutes allocated to instruction will be devoted to it. Some timewill be spent socializing, organizing or preparing instructional materials, giving directions, or intervening in discipline problems. Additional time will be lost to absenteeism, administrative requests, and other disruptions. Using Doyle's data, of the 250 minutes allocated over five days, fewer than 145 minutes will be spent in academic activities.

 Returning again to Figure 1, let's now examine the smallest but most critical circle. This inner circle represents the amount of academic instruction time dur­ing which students are actively and successfully engaged in learning and is referred to as academic learning time (ALT), or engaged time. Two factors are considered in determining academic learning time. First is the amount of time a given stu­dent is actively engaged in the instruction/learning process. Rather than daydream­ing, doodling, or misbehaving, the student is attentive to the learning activity. This attention may be overt, such as answering a question, participating in a discussion, solving pencil-and-paper problems, manipulating concrete materials in an experi­ment, or talking to another student about the instructional task. It may also be less obvious, as when students are actively thinking about the academic task even if they do not exhibit any outward signs of engagement.

The second factor considered in ALT is a student's success at the activity. If a student is actively engaged in completing an academic activity incorrectly, she may actually be practicing and learning an incorrect process. For academic instruction time to be considered "engaged," or academic learning time, given learners must be actively engaged in meaningful academic tasks at which they are mostly successful.

Even though teachers may be conducting instruction, it is unlikely that every student will be engaged in the activity at any given time. In fact, no individual stu­dent is likely to be engaged 100 percent of the time. Thus, more time is lost. Borich (2004) suggests that an effective teacher probably maintains an academic engage­ment rate of 80 to 95 percent. However, Yair (2000) indicates that in most class­rooms, students spend about 30 percent of instructional time engaged in academic activity under the supervision of a teacher or aide. Students with special learning needs are likely to be engaged at even lower levels without direct attention by the teacher (Winter, 2001). If we consider these data in terms of our middle school social studies example, of the 145 minutes per week when the teacher was providing instruction, the typical student would be engaged for only about 50 minutes.

An examination of the tremendous loss of time between mandated and engaged time shows how critical it is for teachers to take full advantage of the time they have. As previously noted, while state and school officials generally set mandated or allo­cated time, teachers can increase their students' academic learning time through the skillful application of professional teaching skills.

One way to guard against loss of academic learning time is to be aware of poten­tial detractors (Hargreaves, 1994). At the district level, time is frequently lost to snow days, weather delays, and teachers' strikes. At the school level, fire drills, convocations, trips, passing periods, lunch, recess, and homeroom periods reduce time. At the classroom level, time is lost by starting class late or ending early, by providing unmonitored study time, by spending too much time on administrative tasks, by using films, computers, or games excessively, by spending too much time on discipline problems, by failing to monitor or making too many transitions, or by straying from the lesson at hand.

*How can teachers improve their use of time?* First, they should deliberately attempt to use most of the available time for instruction rather than other tasks. Begin and end each lesson on time. Have materials, equipment, and activities planned and ready so that you can begin as soon as the period begins. Establish and enforce rules requiring students to be on time and to be prepared for class. To avoid wasting time at the end of the lesson, plan more instruction than you think you will need. If you finish early, spend the remaining time reviewing with students rather than having them do individual seat work or giving them "free time." If indi­vidual seat work is assigned, monitor students to be sure they are engaged in the learning task. It is also helpful to use and enforce a signal that indicates to students that they may begin putting away their materials at the end of the lesson or period.

 This allows you to keep students involved for the maximum amount of time and prevents the problem created when students close their books or stand to leave while you are attempting to finish the lesson. Make sure, however, that you allow students sufficient time to put away materials before leaving the room or moving to another activity.

Establishing and maintaining rules and procedures for routine activities can also provide more time for instruction by reducing the amount of time needed for giv­ing directions. Briefly, though, you should teach and enforce procedures for obtaining or returning materials and equipment, checking homework, making up missed work, and completing group or individual seat work. Similarly, when you must give direc­tions, explain the tasks and procedures clearly and completely. Check for under­standing of these procedures, answer students' questions, and give them feedback before telling them to begin.

Another important factor in increasing students' engagement is to create and maintain a highly interactive instructional pattern. Use a variety of instructional behaviors and alternatives. Make assignments interesting, relevant, and at a level that allows most students to complete them successfully without your guidance. Spend the majority of your classroom time in teacher-directed activities where you can more carefully monitor students' engagement. Randomly circulate around the room, especially when students are working in small groups or at individual seat work. Reinforce students verbally and nonverbally for remaining on task, and quickly redirect off-task behavior.

2.2.Maintaining Momentum.

The concept of momentum is related to the effective use of time. Momentum refers to the flow of activities and to the pace of teaching and learning maintained in the classroom. The most effective teachers maintain a smooth, relatively rapid instructional pace. Their classroom activities are orderly, and changes occur easily without disrupting the instructional flow since these teach­ers have established effective routines and follow them. The speed at which they conduct instructional activities, while brisk, matches the difficulty of the content and the students' abilities.

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| ***How well are you able to monitor several activities or tasks at once?*** |

 Your skill in maintaining momentum is important when considered in light of the research on time. Your goal should be to maximize your students' engagement, to help them work through relevant materials and activities as quickly and as suc­cessfully as they can. By adapting the pace of your instruction to students' abilities and success and by working to maintain a smooth flow of classroom activities with few disruptions and little "down time," you help students learn more.

It is easier to maintain momentum in teacher-guided instructional activities than during seat work or small-group work (Brush, 1997; Grouws&Cebulla, 2000; Leather, 2000). Teacher-guided instruction allows the teacher greater control of the pace and flow of the lesson, whereas small-group or individual seat work relies heav­ily on students' motivation to maintain momentum.

You must consider how best to maintain momentum when planning and imple­menting instruction. The pace of instruction must be adapted to the difficulty or complexity of required tasks and to each student's ability or confidence. For exam­ple, you must plan for and use a slower pace early in the learning process or when the task requires higher-order thinking skills. For lower-order tasks such as rote practice or recitation, a quicker pace is more appropriate. Further, the pace should vary in your long-term plans, including your weekly and monthly reviews.

Effective teachers must learn to monitor and deal with concurrent classroom activities. While working with a small reading group in the back of the room, they must also be aware of and keep students working at their desks in the front of the room, at computers, or on projects. Momentum is enhanced when teachers orga­nize their classrooms to minimize disruptions and time lost to giving directions or reexplaining. Rules and procedures that enable students to complete tasks on their own help reduce disruptions. Teachers must also be careful to avoid getting "bogged down" in unimportant or minor aspects of the topic, digressing from the topic at hand, or spending too much time with a single student or group of students.

**2.3.Making Smooth Transitions.**

Instructional transitions are "points in instructional interactions when contexts change" (Doyle, 1986, p. 406). Instructional transitions require that teachers refocus students' attention on changes in the direction of a discussion or lesson. Transitions occur when you change the topic, its focus, or the activity at hand. Major transitions take place between class meetings or lessons (the time from the end of one class to the beginning of the next class), between lessons in the same room (particularly in elementary classrooms), and between dif­ferent instructional activities within the same lesson (changing from lecture to lab work). Because major transitions often involve changes in equipment or location, they take more time, and when poorly planned, they are a major contributor to classroom disruption.

Minor transitions occur within a lesson when the speaker moves from one aspect of the topic to another, when the speaker pauses, or when the speaker changes (a new speaker begins). These minor transitions are necessary and desirable because they help learners organize their thinking by signaling the move from one topic or aspect of the topic to another. They also allow more people to contribute to the discussion or lesson.

Transitions, particularly minor transitions, are frequent occurrences in class­rooms and largely determine the smoothness and momentum of the lesson. Poor transitions can greatly detract from effective use of instructional time. As a result, teachers should work to ensure that their transitions are few in number and that they are as well-organized and as brief as possible. Problems result when transitions are not well-structured, when students do not want to stop what they are doing or have not had sufficient time to complete the assigned task, or when the next instructional segment is delayed for some reason (Brown & Brown, 1999).

To make your instructional transitions smoother, you should practice the follow­ing routine. First, plan for the transitions. When preparing your lessons, you can predict points where changes in focus or activity will occur or when waiting is inevi­table. You should determine what materials and procedures you will need to begin the next segment as quickly as possible and what both you and your students should do during the transition. An important part of planning for transitions is having all materials and equipment prepared, readily available, and in working order. Also, you can routinize daily or frequent transitions through patterns or procedures. For example, students can be taught what they are to do when they finish a test early, while you take roll, or when they move from one area of the room to another. Establishing these patterns saves time that might otherwise be spent giving direc­tions and allows students to engage in constructive activities rather than just sit and wait. Table 1 below lists specific steps you can take to optimize your use of time.

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| Table 1. Optimizing Instructional Time |
| 1. | Have materials and equipment ready prior to class. |
| 2. | Begin on time. |
| 3. | Establish and enforce rules for entering the classroom and beginning class. |
| 4. | Establish and enforce procedures for routine tasks and transitions, like turning in work and obtaining or putting away equipment, so that students can do these chores without your direction. |
| 5. | Plan more instructional material than you think you will need. |
| 6. | Maintain a relatively brisk instructional pace, varying the pace as needed to accommodate learners and match the difficulty of the content. |
| 78 | If you finish your planned lesson early, use the remaining time to review with students. Avoid giving students "free time" or individual seat work.Establish a signal that informs students when they are to begin putting away their materials or when they are dismissed. |
| 9. | Maintain a highly interactive instructional pattern. Question all students, move frequently, use variety, and convey enthusiasm to help keep students actively engaged. |

 **Lecture** **3**: **Conducting Interactive Instruction**

Lecture plan

3.1.Using questions

3.2.Obtaining good answers. Following Up Student’s Responses.

3.3.Providing clear instructions.

3.4.Monitoring students’ progress. Providing feedback and reinforcement.

3.1.USING QUESTIONS

The most effective teachers establish and maintain highly interactive classrooms— classrooms characterized by student-student and teacher-student dialogue on content rather than simply teacher talk (Feden, 1994; Lock &Prigge, 2002; Marzano, 2002). Integral to this type of classroom is the teacher's ability to use questions effectively. Bellon, Bellon, and Blank (1992) state, "Questioning is the instructional process that is central to verbal interaction in the classroom. The questions teach­ers ask serve as the interface between teacher expectations and student responses". This interface in interactive teaching is critical because it shifts the focus from the teacher to the students.

Effective questions require students to actively process information and compose an answer. Good questions increase students' engagement, raise the level of thought, help students organize their thoughts, guide students more successfully through academic tasks, and allow the teacher to monitor understanding and provide feed­back. In spite of the obvious value of good questions, it appears that teachers sel­dom use questions as effectively as they could (Alexander, Jetton, &Kulikowich, 1994; Ornstein &Lasley, 2000). Most teachers' questioning patterns include giving information that is unnecessary or confusing, posing more than one question at a time, or failing to specify the nature of the expected answer (Sigel, 1990; Traver, 1998). What, then, do we know about good questions and questioning patterns?

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| ***When you teach, do you ask lots of questions? Do you ever get nervous about asking questions when you are in front of a group? Why?*** |

Questions comprise about one-third of the classroom interactions between teachers and students, and educational research has shown that effective question­ing directly and indirectly influences the amount, level, and type of learning. Good and Brophy (2000) reviewed research on questioning and concluded that students learn more when teachers ask frequent questions and include a variety of questions in their lessons. Further, research on questioning suggests that teachers' use of higher-order questions promotes students' higher-order thinking (LeNoir, 1993). Good and Brophy (2000) conclude that questions are important because the more frequendy students interact with the teacher and their peers about the subject, the more they learn. The following discussion organizes what researchers know about questioning into three areas: asking questions, obtaining answers, and following up questions or reacting to student responses.

***How to Ask Questions***. If teachers want their questioning to be effective, they must be sure to phrase questions clearly and concisely. Too often, teachers ask questions that are almost impossible for students to answer accurately. They fail to make clear what it is they want to know of students or how they want them to answer. Clear questions use natural, unambiguous language appropriate to the level of the stu­dents. They are also concise, including only the words, terms, and information students need in order to answer the questions. They convey the specific points students should attend to, but they do not include unnecessary words or parentheti­cal expressions. Finally, they are directed toward academic content or the objectives of the lesson.

To be effective, questions should require students to process or think about what they are learning and to compose an answer. This means teachers should avoid ask­ing rhetorical questions or questions that have only one answer. Closed-response questions, which can be answered with a simple yes-no or true-false response, allow students to guess at the answer without processing the content. Even when stu­dents process what they have learned in order to answer a closed-response ques­tion, they can still select a response rather than compose one. It is easy to reword closed-response questions to require students to create more thoughtful, detailed responses.

Rhetorical questions, that is, questions asked for effect rather than to generate students' responses, are problematic because they can, over time, inhibit students' responses. Students become unsure whether a question is merely rhetorical or whether they are supposed to respond. For similar reasons, teachers should avoid including the answer within the question or answering a question themselves.

In addition, teachers should take care to ask only one question at a time. Many times teachers ask multiple questions without realizing it. While asking a question, they think of another aspect of the content they also want to address. As a result, it may not be clear whether one answer is expected for all the questions or whether a different answer is expected to each question. Similarly, students probably are con­fused when their teacher asks a question and then immediately rephrases it. This creates two problems. First, students' thinking about the original question is inter­rupted and, second, the rephrasing is often sufficiently different from the original to make the students wonder if it is a separate question.

An additional consideration in formulating and asking questions is the type of question or level of thought required of the students. Questions can be of several types or levels and are intended for a variety of purposes (Barden, 1995). Questions may be lower- or higher-order, convergent or divergent, narrow or broad, and con­tent or process.

The lower- and higher-order delineations refer to the level of thought required in order to answer the question. Lower- order questions require students to respond at the knowledge, comprehension, and sometimes application levels of the taxonomy. Students can generally answer these questions using existing knowledge, either by recalling and then restating them, by rephrasing them, or by performing a task. Higher-order questions require the cognitive skills of analysis, synthesis, or evaluation and thus require more complex and original thinking.

Questions can also be categorized as convergent or divergent—labels that refer to the direction of thought required to reach an answer. In answering convergent questions, students' thought processes proceed from broad or general to narrow or specific. These questions require one or a small number of correct responses. Factual questions asking who, what, when, or where as well as closed-response (yes-no) questions are examples of convergent questions. These questions are most appro­priate for helping to reinforce specific, important aspects of the content.

Divergent questions require thinking that moves from the narrow or specific to the broad or general. They require students to identify or generate several poten­tial answers—any of which might be accurate. The difference between convergent and divergent questions is easy to see in mathematics instruction. Suppose students are presented with the numeric statement 7 X 9. A convergent question might be "What is seven times nine?" Students are expected to arrive at the one correct answer. This example is also a lower-order question. However, the same numeric statement (7 X 9) might also serve as the basis for a divergent question like "How many different ways could you determine what seven times nine is?" To answer this question, students might use simple addition, commutative property, combinations of mathematical principles, manipulative solutions, or other creative methods to generate answers to the question.

Rather than focus on the single correct answer, as in the convergent question, students must expand on or diverge from the initial facts to generate the answer.

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| ***Could a teacher use so many questions that studens learned less? Why or why not?*** |

Questions may also emphasize content or process. Content questions deal directly with the information being learned and make up about 80 percent of the ques­tions teachers ask (Borich, 2004). The question and the expected answer are drawn directly from the content of instruction, and the teacher generally has a "correct" answer in mind. Content questions are often associated with lower-order cognitive processes. However, because they focus students' attention on important aspects of the content, they have been found to improve students' achievement (Borich, 2004). On the other hand, teachers use process questions to stimulate students' thinking. Although these questions deal with content, they place less emphasis on the "correctness" of answers and more on pushing students to think about the con­tent in different, creative, or complex ways (Mencke& Pressley, 1994). Thus, pro­cess questions are generally higher-order and divergent. These questions are used much less often than content questions and are less closely related to achievement. However, they do appear to promote students' abilities to think at higher levels and to solve problems (Blythe, Allen, & Powell, 1999; LeNoir, 1993).

Several common recommendations for improvement apply to each of these types of questions. First, just as in other aspects of instruction, you should use a variety of question types. Although most teachers rely heavily on lower-order, con­vergent questions, the importance of developing students' thinking and problem- solving abilities requires that you deliberately incorporate process, higher-order, and divergent questions into your lessons. Second, you should match the type and level of questions you ask to your objectives and your students. When teaching toward lower-order objectives, lower-order questions make sense. When your objec­tives include higher-order processes or when you want to promote students' critical thinking, you must integrate higher-order, divergent, and process questions into your lessons.

To ensure good phrasing and appropriate types of questions, you should con­sider your questions and questioning patterns when planning your lessons. After all, good class discussion and interaction don't just happen. Some questions emerge spontaneously from the lesson as a result of students' comments or ques­tions. These you cannot plan in advance. However, you can write many of the criti­cal questions into your lesson plan. There are at least four important reasons for doing this.

 First, integrating planned questions into your lessons increases the likelihood that you will conduct an interactive lesson. Second, when you prepare questions in advance, you are more likely to focus them on the major objectives of the lesson. If you rely totally on spontaneous questions, you can easily get side-tracked and ask too many questions on one aspect of the lesson while neglecting others. Third, includ­ing some pivotal questions in the lesson plan makes it more likely that you will ask a variety of questions at a variety of levels. Divergent, higher-order, and process ques­tions are more difficult to develop than are convergent, lower-order, and content questions. That may partly explain why teachers use them less often (Glickman, 2002). Preparing some of these questions in advance, even if you don't use them all, directs your attention toward more advanced levels of thinking. Fourth, writing pivotal questions in advance makes it more likely that you will phrase the questions clearly and concisely.

**3.2.OBTAINING GOOD ANSWERS**

**Obtaining Good Answers**. After teachers have developed and phrased their ques­tions, they must get students to respond to them. As mentioned, asking clear and varied types of questions at a variety of levels promotes students' participation. Research also suggests that soliciting answers in certain ways can enhance the effec­tiveness of questions and the quality and quantity of students' responses. It is par­ticularly important that teachers use wait time and that all students participate.

Wait time refers to the pauses that effective teachers use when they solicit and react to students' responses. Rowe's (1987) work has served as the basis for most subsequent research on wait time. The early research of Rowe and others focused on the importance of asking a question, pausing, and then calling on a student to respond. Investigators have determined that in addition to pausing after the question is asked, it is also important to pause before reacting to the student's answer or call­ing on a second student to respond (Tobin, 1987). Thus, wait time includes (1) the pause between the teacher's question and the student's response and (2) the pause between a student's response and the teacher's reaction. Figure 2 depicts this sequence.



Figure 2

Most teachers pause for less than one second before calling on a student to respond. In contrast, the most effective teachers include pauses of from three to five seconds after asking a question and before reacting to a student's response. Research on wait time has found that those three- to five-second pauses produce the following desirable and important outcomes: students' responses are longer and more thorough, the cognitive level of students' responses is higher (for example, they display more analysis, synthesis, and evaluation), students volunteer more infor­mation to support their responses, and students' confidence in their responses is greater. In addition, more students respond to questions, particularly those labeled as "slow." Finally, positive interactions among students and between students and the teacher increase, as do the number of relevant questions students ask (Grouws&Cebulla, 2000; Rowe, 1987; Tobin, 1987; Traver, 1998; Walberg, 2003).

Increasing wait time seems a simple thing to do, but, especially for beginning teachers, it often proves difficult. A pause of five seconds can seem like an eter­nity when you are insecure about the effectiveness of your instruction or unsure whether anyone will answer your questions! Still, as you learn to incorporate these pauses, they become easier, and they give all students increased time to think and participate.

You can do several things to make your use of wait time more effective. First, you should adopt a policy restraining students from shouting out their answers. Allowing callouts prevents you from controlling the length of the pause after your question and reduces wait time. After asking a question, count to five in your head while scanning the room, then call on a student to answer. Do not repeat, rephrase, or add to the question until at least several seconds have passed. Doing so inter­rupts students' thinking and may interfere with their ability to respond. When stu­dents respond, it is important you do not interrupt before they have completed their answers, even if they are absolutely correct. When they are finished answering, pause, use a few seconds to think about their answers, allow other students to think about the answer, and consider how best to react or follow up.

The use of wait time must be balanced against the brisk pace needed to maintain the momentum of a lesson. Specifically, teachers should match wait time with the level or difficulty of the question asked. Lower-order, convergent questions gen­erally require shorter pauses than higher-order, divergent, and process questions. Vary wait time to accommodate the students' need to process the question, gener­ate an answer, or consider the response of another student.

The second factor to consider during the response phase of questioning is how to maximize student participation. Students' learning and affect are related to the number of opportunities students have to participate in the lesson and to respond to questions. Thus, a goal of your questioning should be to ensure that all students have an equal opportunity to respond successfully. Questioning can help you moni­tor understanding, keep students engaged, and serve as a measure of the success of your instruction, but it is imperative that you ask all students to respond to your questions. This is especially difficult but important in a class with diverse abilities or cultural backgrounds.

Mastering the effective use of wait time will increase participation in your ques­tioning. However, most teachers still call primarily on volunteers to respond to questions. This practice results in an unfair distribution of questions and unequal opportunities to respond (Coladarci& Gage, 1984). Effective questioning requires that you call on all students, especially nonvolunteers. A good practice is to ask a question, pause to allow all students to think about the question and develop a response, and then select a student to respond. To ensure an equitable distribution of questions, it can be helpful to use a pattern in selecting students to answer. For example, you might write each student's name on a note card and then randomly select from the students' cards for participation. Using a pattern enables you to know which students have already been asked to respond. To keep all students alert, even when they have already answered a question, it is a good idea to vary your pat­tern and to call randomly on students to make follow-up responses.

Incorporating wait time and equitably distributing the opportunity to respond work together to improve the effectiveness of your questioning. Wait time allows more students the opportunity to process an answer. While some students can do this relatively quickly (usually those who volunteer most frequently), others require more time to arrive at an answer. Thus, wait time increases the number of students who can respond accurately to the question. Calling on all students, even when they do not volunteer, maintains students' engagement. It allows all stu­dents some opportunity to interact with you and to be successful and provides you with a more complete assessment of how well students understand the material.

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**Following Up Students' Responses**. After a student has responded to your ques­tion, you must respond or react to the reply. This phase of the questioning pro­cess is called follow-up. Your follow-up behavior will either encourage or discourage thoughtful, successful participation in your lessons and, thus, the long-term success of your instruction (Latham, 1997).

The most frequent though ineffective teacher's reaction is "OK" or "uh-huh" (Sadker&Sadker, 2001). Instead of such routinized and meaningless responses, you should attempt to clarify, synthesize, expand, modify, raise the level of, or evalu­ate students' responses. The effective use of follow-up is based upon the accuracy and confidence of the students' responses (Good, 1988; Sternberg, 1994). They can range from correct and confident to wrong and careless. Research suggests the fol­lowing responses and reactions:

1. When a student responds correcdy and confidently, accept and acknowledge the response and move on. Do not overpraise.
2. When a student responds correctly but hesitantly, provide feedback to the stu­dent or use additional questions that encourage the student to determine why the response is correct. Before moving on, be certain the student understands why the answer was correct.
3. When a student responds confidently but incorrectly, reinforce the initial effort, then use additional questions to help the student arrive at the correct answer. Avoid giving the student the answer or calling on another student to respond. You may give reinforcement for participation and effort, but there should be no confusion regarding the fact that you are reinforcing participation, not accuracy.
4. When a student responds incorrectly and carelessly, provide the correct response and move on. You should never avoid following up or correcting an incorrect answer.

Generally then, follow-up is used any time the student fails to respond accurately and/or confidently. These follow-ups can be divided into four types: providing the correct answer, probing, redirecting, or rephrasing. Providing the correct answer is advisable only when a student has responded carelessly and incorrectly. The remain­ing three follow-up methods deserve discussion.

Probing means asking additional questions of the responding student to help expand or raise the level of the response (Danielson, 1996). Probing questions are often intended to focus attention on important aspects of the question that enable the student to improve the response (see Table 2).

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| Table 2. Examples of Follow-up Questioning Techniques |
| Probing (to raise the level of a student's response) |
| Teacher: | "Why might President Ford have pardoned former President Nixon?" (Pause) "David?" |
| David: | "To prevent embarrassment of the Republican party." |
| Teacher: | "Can you explain how the pardon might prevent embarrassment?" |
| David: | "Well, if the investigation had continued, they might have found that there were a lot of other |
|  | people, mostly Republicans, who were involved." |
| Teacher: | "Why do you think that might be true?" |
| David: | "Hmmm. Well, because since then some others have admitted being involved or named |
|  | people who were." |
| Teacher: | "OK, so let's say President Ford doesn't pardon Nixon and all of this is revealed, what do |
|  | you think would be the result?" |
| Probing (to help a student answer correctly) |
| Teacher: | "Ball, bed, bug, baby. These are all words that begin with the b sound. What are some other |
|  | words that begin with the b sound?" (Pause) "Danielle?" |
| Danielle: | (Silence) |
| Teacher: | "Okay, does Danielle start with a b sound?" |
| Danielle: | "No, it's a d." |
| Teacher: | "Right. What about Brittany? Does Brittany start with a b sound?" |
| Danielle: | "Yeah!" |
| Teacher: | "Okay, Danielle. Think of the sound. What words do you know that start with that sound?" |
| Danielle: | (Pause) "Bunny!" |
| Teacher: | "Right! Bunny!" |
| Redirecting (after an incorrect response) |
| Teacher: | "What was the name of the Watergate special prosecutor?" (Pause) "Trevor?" |
| Trevor: | "Strom Thurmond?" |
| Teacher: | "No. Thurmond is a senator. What was the name of the special prosecutor?" (Pause) |
|  | "Steve?" |
| Steve: | "Archibald Cox." |
| Teacher: | "Yes." |
| Rephrasing (to clarify a question) |
| Teacher: | "Why did Gerald Ford pardon Richard Nixon?" (Pause) (No student responses) "What was |
|  | the reason Ford gave for the pardon in the speech we just watched?" (Pause) "Kassandra?" |
| Kassandra: | "He said he thought the country needed to put the issue behind us and move on." |

In this case, probing should include convergent questions phrased in simple but not condescending terms. Frequently, more than one question is needed to address particular aspects of the original question or response and to guide the student toward a more correct or complete answer.

**Probing** can also be used to raise the level of a student's response. As noted earlier, teachers generally ask convergent, content questions at the lower cognitive levels. Further, most students respond with lower-order, convergent answers, even when the teacher has asked a higher-order or divergent question (Sternberg, 1994). Probing can be used after such a response to prompt the student to use higher- order processes. Simple ways of doing this include asking students to explain why they responded as they did, to provide an example that supports their answer, or to describe how their response would change if a particular aspect of the original question had been different.

**Redirecting** is another way of following up an incorrect response. When redirect­ing, the teacher asks another student to answer the same question. This method of follow-up is highly effective with students whose academic self- concepts are strong. It appears that students who are academically confident are challenged by this technique and motivated to work harder. However, redirecting is not effective with students whose academic self-concepts are weak. In fact, redi­recting following an insecure student's incorrect response is likely to reduce the student's self-concept, motivation, participation, and learning.

**Rephrasing** simply means restating the same question in different terms. When students fail to respond to a teacher's question, it is often due to poor phrasing of the initial question. Thus, rewording the question may make it clearer, simpler, or focus students' attention on critical aspects. Rephrasing generally is not an effective follow-up technique and should be avoided. A better technique is to elicit some type of response, then use probing questions to help the student arrive at a correct response. While all teachers occasionally ask poorly stated ques­tions, careful consideration of questions during planning, monitoring their effec­tiveness during instruction, and questioning with confidence will eventually reduce the need for rephrasing.

To summarize, questioning is a vital aspect of effective, interactive teaching. It promotes a number of desirable outcomes and can be used for several purposes. Table 3 provides an overview of correct and incorrect questioning techniques.

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|  TABLE 3. **The Do's and Don'ts of Effective Questioninq** |
| Do | Don’t |
| 1.Match questions to the objectives and use a variety of question levels and types. | 1. Emphasize only lower-order or convergent questions. |
| 2.Ask lots of questions throughout the lesson. | 2. Use questions mainly to review at the end of the lesson. |
| 3.Ask a question, pause, and then call on a student by name to respond. | 3. Allow callouts or fail to include pauses after your questions. |
| 4.Ensure that all students get equal opportunities to successfully answer questions. | 4. Rely on volunteers. |
| 5.Follow up lower-order, inaccurate, and incomplete answers. | 5. Overlook or allow to go uncorrected inappropriate or incomplete answers. |
| 6.Write questions, especially critical questions, into your lesson plan. | 6. Rely solely on your ability to generate spontaneous questions during interaction. |
| 7.Keep questions clear, brief, and to the point.  | 7. Use long questions or ask multiple questions simultaneously. |
| 8.Ask questions to keep students engaged. | 8. Ask questions as a punitive, disciplinary tool. |
| 9.Write the objectives and summary of the lesson as questions. | 9. Devise questions only on major points. |
| 10. Match nonverbal behavior with the questions you ask. | 10. Convey disinterest in asking questions or in students' responses. |

**3.3.PROVIDING CLEAR INSTRUCTIONS.**

Instructional clarity has been the focus of much research ever since Rosenshine and Furst (1971) identified it as the "most promising teacher variable related to student achievement". Instructional clarity refers to the teacher's ability to provide instruction that helps students come to a clear and accurate understanding of impor­tant concepts or ideas. Thus, clarity is something students achieve, not something the teacher does. However, research has identified specific teacher behaviors that students say help them achieve this clarity of understanding (Hines, 1981; Hines, Kennedy, & Cruickshank, 1985). For students with learning disabilities, the clarity of the teacher is of critical importance (Banikowski, 1999; Winter, 2001).

According to students, clear teachers emphasize important points by repeating them, writing them on the board or in presentations, pausing after stating them, and reviewing them. They monitor students' clarity of understanding by asking questions and providing students with activities and experiences that allow them to apply their knowledge. When students do not understand, clear teachers repeat, review, or rephrase important points. Not surprisingly, teachers who most often and most proficiently use these behaviors to help students understand are associated with significantly greater student learning and satisfaction than teachers who do not (Chesebro&McCroskey, 2001; Halpin, Easterday, & Elrod, 1994; Hativa, 1998; Metcalf, 1992; Metcalf & Cruickshank, 1991).

The teachers' behaviors that make instruction clear apply not only to the abil­ity to explain content clearly, but also to the ability to structure presentations. Importantly, this lesson-structuring problem applies to both teacher-directed and student-directed instruction (Feden, 1994; Metcalf, 1991; Rosenshine, 2002). These specific behaviors involve (1) preparing and entering the lesson, (2) introducing and emphasizing content, (3) elaborating on important ideas or concepts, and (4) monitoring students' understanding and remediating when students fail to understand. The following discussion of teacher clarity will be organized around these four topics.

**Preparing and Entering** the Lesson Clear instruction is logically organized and is con­ducted in a way that helps students see the relationships between major concepts or ideas. Accordingly, clear teachers organize their lesson content and activities logi­cally, inform students of the objectives of the lesson, and introduce the content or activities step by step. During planning, these teachers determine the most logical way to introduce content based upon their students' abilities, previous learning, interests, and the natural structure of the content. For logical organization to make instruction clearer, the organization must be obvious and logical to students.

At the beginning of the lesson, teachers should inform students of the lesson objectives. As noted in our discussion of establishing set, teachers should provide an overview of the lesson to help students establish a mental framework for the concepts or activities and to enable them to monitor their own understanding. Students find instruction clearer when the teacher gives it step by step. In other words, teachers should provide instruction and instructional activities in a way that helps students understand the relationship between the concepts. Doing so helps students incorporate the new learning with previous learning more accurately.

Introducing and Emphasizing Important Points. Beyond planning and organizing, clear instruction focuses students' attention on important aspects of the instruc­tion. A common way to do this is to write the major points on the board and/or have students record them. It is important, however, that you monitor your use of the board to ensure that you do not overuse it for minor or unimportant points. Students will perceive things you write on the board as important. Consequently, if you fill the board with minor points or fail to put some or all of the major points on the board, the effectiveness of this technique is reduced.

Another way to reinforce important aspects of the lesson is to point them out through verbal structuring or cuing. Enumerating important points helps struc­ture them. For example, "The first point we will discuss is . . ." "Second, . . ." and "Finally, . . ." enables students to organize their thoughts and the contenL. Likewise, comments such as, "It is important for you to remember this" or "Listen carefully because this is an important point" alert students to pay close attention to what you are about to say. Repeating important points also cues students. You might combine these reinforcers into a pattern in which you state a point, pause or write it on the board, and then repeat it. To provide even more reinforcement, you could note that this is an important point, state it, write it on the board, and then repeat it.

Finally, you reinforce major points when you review or summarize them. Upon com­pleting the lesson or important segments of the lesson (immediately preceding a transition), you should summarize or have students summarize the major ideas of the lesson segment. This serves to repeat major points, further identify them as important, help achieve closure, and prepare students for a smooth transition to the next segment.

**Elaborating on Important Ideas or Concepts**. In addition to identifying and reinforc­ing major points for students, you can deepen their understanding of the content by providing examples, explanations, and elaborations. Examples and nonexam- ples (items that do not fit the concept) that illustrate the major points can be vital to students' understanding. Examples can be verbal, written, pictorial, or concrete depending upon the content and the level of the learners. For instance, if learners are familiar with ants, merely noting that ants are an example of an insect may be sufficient. They do not need to see an ant for the example to be useful. However, if you were to use a potentially unfamiliar example of an insect, such as a walking stick, a concrete or pictorial example might be necessary. Further, you would need to make clear how or why the example relates to the concept—in this case, what characteristics classify a creature as an insect. Adding non-examples, such as a scor­pion, would further clarify the concept.

Relatively, clear instruction helps students see how things are similar or different. You can describe, demonstrate, explain, or show students how two ideas, concepts, examples, or ways of doing things are alike and how they differ. Again, this type of instructional behavior helps students assimilate new information more accurately. When the lesson involves learning a task or skill, it is important that you demon­strate the task and, while doing so, explain what you are doing and why. For exam­ple, if you were helping students learn to draw circles with a compass, you might place the pointer and explain why you put it there; explain that the pointer must be kept securely in place with one hand, and show them how to do so; place the marker end of the compass solidly on the paper; and then demonstrate and explain how to turn the compass, ensuring that the mark is complete.

Students also note that clear teachers explain unfamiliar words, whereas unclear teachers often fail to do so. A good rule of thumb is to assume that all new terms are unfamiliar to students and explain or define them before using them in the lesson. Finally, students' understanding is enhanced when you briefly pause after introduc­ing something important. Just as wait time allows students to think about a ques­tion, pausing after introducing an important point allows students to think about it. It also signals the importance of the ideas.

**Ensuring Students' Understanding**. The final aspect of instructional clarity involves monitoring and correcting students' understanding by providing opportunities for students to apply the concepts or ideas. Critical to this is your ability to use frequent questions at a variety of levels. In addition to asking questions that assess students' understanding, you should build time for student-generated questions into the les­son. Often, if you have established an open and interactive climate, simply including a long pause after a lesson segment will prompt students who do not understand to ask for clarification. You may also call for students' questions by asking "Are there any questions?" However, in such a general call for questions, extended wait time is critical. Many students will have to think through the content to determine whether they need to ask questions, some will need time to formulate the question they want to ask, and some will need time to work up the courage to ask. Thus, after inviting questions, it would not be inappropriate to pause for as long as five to ten seconds while scanning the room. A better alternative would be to ask for specific questions, such as "What questions do you have about the three points we just discussed?" and then follow up to see how well students understand.

In addition to allowing time for questions, you should include activities that allow your students to apply or use their new understanding, then closely monitor their performance and provide corrective feedback as needed. You can have students work individu­ally at their seats, in small groups, or at the board with the entire class contributing. When a student cannot answer a question, cannot accurately apply the concepts to the examples, or asks a question indicating misunderstanding, it is important that you correct the misunderstanding. Several of the earlier mentioned behaviors, like repeating things, rephrasing, probing, or providing additional examples and fur­ther explanation, may help clear up confusion.

To summarize, instructional clarity refers to a broad and important set of teach­ers' behaviors. The major focus of clarity is on helping students understand what you have taught. Remember, clarity is something the student, not the teacher, achieves. However, by learning to use behaviors that make instruction clearer to students, you can greatly improve the effectiveness of your teaching. Table 4 summarizes 10 specific behaviors related to clear instruction.

**3.4.Monitoring students’ progress.**

Effective teachers are adept at monitoring students' understanding, not just their behavior (Marzano, 2002; Walberg, 2003). They carefully and continually assess students' performance and progress and check for understanding in a variety of ways. If students seem to lack understanding, it cues effective teachers to review and possibly adapt their instruction. Monitoring also conveys teachers' interest in their students' progress and task orientation. If the teacher has established an interac­tive environment in which students participate freely by asking and answering ques­tions, many opportunities will be available for monitoring understanding.

As noted earlier, monitoring is an important element of instructional clarity. It is also closely tied to the effective use of instructional time and to effective feedback, each of which has been found to influence students' learning.

Monitoring is especially critical in the early stages of learning when misun­derstandings or lack of background knowledge are most likely to affect students. Monitoring during this time allows teachers to correct students before they learn and habituate improper patterns of thinking or behavior. As we will discuss in detail later, it also allows teachers to provide feedback to help students understand why their performance is correct.

You can monitor student understanding in numerous formal and informal ways. Tests, quizzes, homework, and projects are examples of formal monitoring. Although formal monitoring is important, particularly in determining grades, infor­mal monitoring is more frequent and immediate, and it can impact more directly on instructional behavior and learning. Good teachers are constantly aware, or "withit" (Kounin, 1970). They ask questions of all students, provide a supportive, open envi­ronment in which students feel free to ask questions or clarify misunderstandings, and watch for verbal and nonverbal indications that students do not understand.

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| Table 4. Behaviors That Characterize Clear Teachers |
| 1 | . The lesson is planned and implemented in an organized manner. |
| 2  | . Students are informed of the lesson objectives in advance. |
| 3 | . The lesson is conducted step by step. |
| 4 | . The teacher draws students' attention to new or important points by writing them on the board, by repeating them, by reviewing them at appropriate points in the lesson, and by incorporating deliberate pauses that allow time for processing and reflection. |
| 5 | . The teacher presents and works examples that explain and support the concept or ideas being taught. |
| 6 | . The teacher explains unfamiliar words before using them in the lesson and points out similarities and differences between ideas. |
|  | 7. The teacher asks students lots of questions and gives application exercises to find out if students understand the content.8. The teacher carefully monitors students' work for understanding. |
|  | 9. The teacher encourages and allows time for students to ask questions. |
| 1 | 0. When students do not understand, the teacher repeats main points, presents additional examples or explanation, or elaborates until the students achieve clear understanding. |

Specifically, you can improve your ability to monitor students' understanding in several ways. Establish set and use advance organizers at the beginnings of les­sons to help students understand the task and monitor their own progress. Get to know students and call on them by name. Move around the room to monitor attention and stay in closer proximity to all students. Maximize interactive, whole- group instruction and minimize small-group or individual work, especially when no additional adult help is available. Use good questioning techniques: Call on all students—notjust those who raise their hands; ask questions at a variety of cognitive levels; and allow wait time. Maintain eye contact with all students by scanning the room for both understanding and misbehavior. Convey openness and availability for help. Spend very little time sitting at your desk, even when students are engaged in individual seat work. Instead, move around, scan, avoid turning your back to the class, and be careful not to spend too much time with any one student or group of students.

**Providing feedback and reinforcement.**

During the instructional process, effective teachers frequently provide students with information about their academic performance (Walberg, 2003). They most com­monly do this through feedback and reinforcement. Although similar, feedback and reinforcement are not the same. Reinforcement is meant to improve students' motivation, while feedback is intended to inform students about the accuracy of their performance. In order to use these skills effectively, teachers must understand each of them and how to apply them. Both reinforcement and feedback are ways of responding to students' perfor­mance. They are skills that teachers employ after a student has done something—for example, answered a question, contributed to a discussion, turned in homework, or completed a project. In a classroom where the teacher has established an inter­active tone, opportunities for teachers to provide feedback and reinforcement arise naturally and almost constantly. Zahorik (1987) indicates that about one-third of classroom interactions are teachers' responding behaviors. Thus, a teacher's ability to respond appropriately can greatly influence students' performance and motivation.

**FeedbackFeedback** (sometimes called knowledge of results, or KR) is primarily in­tended to (1) inform students about the quality and accuracy of their performance and (2) help them learn how to monitor and improve their own learning. For example, teachers use feedback on students' papers to inform them of how well they did in comparison to some standard, what could be improved, and how to improve. The information teachers provide through feedback relates directly to the quality or accuracy of the student's academic performance (Glickman, 2002; Walberg, 2003).

For some students, feedback can also provide reinforcement by helping them feel more secure in their ability to complete the task successfully. However, feed­back is not always reinforcing, nor is it intended to be.

Teachers must be able to use both feedback and reinforcement effectively. However, skill in providing feedback is more important in helping students learn than ability to provide reinforcement, particularly praise (Chall, 2002). While feed­back helps the learner to accurately understand and successfully complete neces­sary tasks, it does not necessarily reinforce or reward the student's performance.

Effective feedback includes information about (1) the criteria used to evaluate per­formance, (2) how the student's performance relates to the standard, and (3) specifically how the performance can or should be improved (Behets, 1997; Chesebro&McCroskey, 2001). Most people think of feedback as verbal or written comments from the teacher. However, students often learn about the adequacy of their perfor­mance simply by observing or comparing their own performance with some stan­dard. Thus, while students can learn from feedback provided by the teacher or peers, they can also learn by examining their performance using rubrics, peer evaluation and feedback, self-reflection, or other methods. The immediate goal of feedback is to improve students' understanding and performance. A long-range goal is to enable learners to judge for themselves the adequacy of their own work or performance.

**Several principles can make teachers' feedback more effective**:

* 1. Provide feedback as frequently as possible—every day for every student, if pos­sible. It is important that you plan and maintain a highly interactive environ­ment providing a variety of opportunities for students to practice or perform, and that you monitor and provide feedback on these performances.
	2. Provide feedback as soon after performance as possible. For example, return papers quickly, try to grade immediately following performance, and provide verbal feedback while monitoring students' practice.
	3. Make your feedback specific rather than general. For example, use students' names and comment specifically on their performance instead of simply saying "good job" or writing "weak here."
	4. Focus feedback on the quality of the student's performance, not on his or her intentions or motivations. Good feedback can convey confidence in a student's ability without giving the impression that incomplete or inaccurate work is acceptable and without appearing cold and impersonal. One way to do this is to include feedback on the process (how to do it better) along with the adequacy of the performance.

Design and use feedback that teaches students how to gauge their own pro­gress and performance. Gradually allow students to assume more and more responsibility for assessing their progress. Allow them to score their own or each other's papers and provide mutual feedback, to engage in peer editing as a part of the writing process, to watch or listen to recordings of their performances, and so on.

**Reinforcement**. Reinforcement is intended to strengthen and increase the fre­quency of a desirable behavior or response, usually by providing some type of reward. Reinforcement lets students know when they have done something well in the hope that they will do it again or with greater frequency. When a normally quiet student voluntarily responds to a question, you might attempt to reinforce him, perhaps through a smile or gesture, in the hope that he will contribute more often in the future. Your focus should be on rewarding the student for his participation (that is, his behavior), not necessarily on the accuracy of his response.

In contrast to feedback, which is directed toward improving the quality of stu­dents' performance, reinforcement is directed toward increasing motivation. Often reinforcement is provided through verbal praise, but it can take many forms. Repeating or paraphrasing a student's comment or answer or including it in your discussion can be reinforcing. Nonverbal expressions like nods or smiles, eye con­tact, gestures, or proximity may also reinforce students. More tangibly, reinforce­ment can take the form of free time, candy, tokens, or other rewards.

Reinforcement, particularly in the form of praise or rewards, is only marginally effective in increasing learning (Chall, 2002; Monk & Walberg, 1991). In fact, the relationship between learning and the use of praise seems to be curvilinear. That is, increasing the use of praise will help students learn more only up to a point. After that, increased praise will probably diminish learning. One reason for this may be that praise and other rewards are reinforcing only if the student perceives them to be. If the reward is embarrassing or of no interest to the student, the reward is likely to diminish rather than increase learning (Kennedy, 1997). A second problem with praise and reinforcement is that teachers often unknowingly reinforce the wrong behavior (Callahan, Clark, &Kellough, 2002).

For example, to get an unsuccessful student to contribute more often to class discussions, teachers may praise an incor­rect or inappropriate contribution rather than the behavior of participating. The result may be that the student does contribute more often, but also learns inaccu­rate content.

Because reinforcement focuses on students' motivation and self-concept, it is most important early in the learning process and with low-achieving students. However, teachers seldom use it in these situations (Kennedy, 1997). Reinforcement is most likely to be successful (1) when it specifically identifies the behavior or performance being rewarded, (2) when it is contingent upon desired behavior or performance (it is not offered when students respond or behave incorrectly), and (3) when it is believable.

Criticism (the opposite of praise) can be effective with high-achieving students when used in moderation. Generally, however, it is not effective in promot­ing learning, and it often is counterproductive, diminishing students' self-concept and motivation (Chall, 2002).

Although a powerful tool, reinforcement should be used sparingly and with caution. Brophy (1998) notes that teachers should try structuring the classroom in order to elicit good student performances in the first place rather than on rein­forcing good performance after it has been elicited. Teachers should provide heavy reinforcement and feedback to all students early in the learning process and to low- achieving students throughout. Especially with older students, reinforcement and praise should be low-key, private, and specific to the student's performance.

Reinforcement can and should focus on both motivation and outcome. However, it should be keyed to desirable performance, and the teacher should make clear the specific behavior being reinforced. Although some students should be rewarded for participation even if the response is incorrect, make clear that the reward is for participation, not incorrect performance. When offering reinforcement or praise, be certain to match verbal and nonverbal behavior. That is, don't tell a student she did a nice job with a scowl on your face! Closely monitor the effectiveness of your rein­forcement of each student. Remember, although you may intend your actions to be reinforcing, the student may not perceive them that way. Finally, allow yourself to be somewhat spontaneous with your use of praise; it is more sincere.

### **Lecture 4 : INCREASING STUDENT INVOLVEMENT: TEACHER**

**Lecture plan:**

4.1.Functions of teacher questions. The Influence on Student Thinking

 4.2.Elements of effective questioning

Teacher questioning is the single most effective and most generally applicable strategy teachers have for promoting student involvement. Regardless of grade level, content area, or topic, being able to guide your students with questions is the most important teaching skill that you can possess.

Research supports this assertion (Wang, Haertel, and Walberg, 1993). Effective teachers ask more questions than their less effective colleagues (Hamilton and Brady, 1991; Henderson, Winitzky, and Kauchak, 1996), and large numbers of questions are in­dicators of effective organization and clear goals (Shuell, 1996; Good and Brophy, 2000).

Because questioning is so essential for involving students, we are devoting the rest of the chapter to this topic.

**4.1. Functions of Teacher Questions**

The effectiveness of questioning can also be explained by the functions they perform. These functions include:

* Assessing current understanding
* Increasing student motivation
* Guiding new learning

Let's look at them.

*Assessing Current Understanding*. Research examining the ways individuals learn sug­gests that students' existing knowledge is a powerful factor in how (and whether) new information will be learned. Also, student misconceptions and prior beliefs often inter­fere with understanding new content (Guzetti and Hynd, 1998). Questioning allows teachers to informally assess students' current grasp of the topics they're studying, be­cause students' answers to the questions reveal their conceptions.

This is an intuitively sensible idea. Even in informal conversations, we assess other people's understanding of a discussion topic by the way they respond to questions and statements. In classrooms, questions can provide teachers with continual feedback about the learning progress of their students.

Increasing Student Motivation. Effective questioning can also increase student curiosity and interest—two important aspects of motivational activities (Pintrich and Schunk, 1996). Effective questions engage students, challenge their thinking, and pose problems for them to consider. For example, Kathy Johnson (in Chapter 4) didn't introduce her lesson with a statement like "Today we're going to discuss the northern and southern colonies." Instead, she used the questions, "How are these states different, and . . . why, since all these states are part of the same country—our United States—why are they so different?" The questions were purposely designed to capitalize on the effects of cu­riosity in increasing student motivation.

Guiding New Learning. Instruction is the third important function of questioning. Ef­fective questions help students interrelate ideas and integrate new learning with their current understanding.

In both cases the entire lessons were conducted with questioning. Most learning theorists accept the idea that students construct their own understanding rather than recording it as presented by a teacher or some other source. The process of con­structing understanding requires careful guidance of expert teachers, and questioning is the most important skill teachers have for providing this guidance.

These functions again demonstrate why clear goals are so important. Teachers assess current understanding so they can best link new learning to what students already know, and they can only guide new learning effectively if they're clear about where the lesson is headed—that is, clear about their goals.

Questioning: **The Influence on Student Thinking**

To be effective, teachers' questions must have an impact on student thinking. The best planned and executed questioning sequence is worthless if it doesn't cause students to think, relate ideas, and construct new knowledge.

In answering a teacher's question, students should engage in five separate mental operations (Gall, 1984). They're outlined in Figure 3 and discussed in the paragraphs that follow.

Learning begins with attention (Eggen and Kauchak, 2001); without attention, the other mental operations can't take place. The most thoroughly planned and well- thought-out lesson becomes ineffective if students aren't paying attention. Questions draw students' attention away from distractions, such as the clock, window, and each other, and invite them into the lesson.

Second, once they're paying attention, students must understand and interpret the meaning of the question". This isn't always easy; the intent of the question may be clear to the teacher, but it may be misperceived by students. This again illustrates the impor­tance of questioning as a way of assessing current understanding. Teachers will know if a student misperceives a question because the answer will be incomplete or inaccurate. Then the teacher can intervene.

Third, the question should elicit a covert response from each student. Though teach­ers typically call on one student to answer, our goal should be to have all students think about and mentally react to our question. We discuss techniques to promote covert re­sponses later.

Fourth, covert responses are put into words when the teacher calls on a student to answer. Research examining ways students learn emphasizes the value of students at­tempting to put their understanding into words (Bruning, Shraw, and Ronning, 1999). Verbalizing an answer helps clarify the content in students' minds and make connections with other ideas. Verbalizing an answer takes time and effort, especially if the question is a complex or demanding one. Effective teachers provide students with the time to re­late interconnected ideas through wait time, which we'll describe later in the chapter.

Finally, based on the teacher's feedback, students conclude that the response was complete and accurate, or they generate a revised response. A correct answer is recog­nized and reinforced; an incorrect answer is modified. This entire process occurs in a few seconds and is repeated dozens of times a day in many classrooms.

The sequence we just described is the ideal we strive for, but it doesn't always occur. Not all students attend, some don't understand the question, others don't generate a covert response, students don't always listen to the answers of their classmates, and they may not revise their original thinking. When these alternatives occur, learning suffers. Understanding the mental operations questions are intended to elicit, help us see why the elements of effective questioning, which we discuss next, are so important.

4.2.ELEMENTS OF EFFECTIVE QUESTIONING

 As we saw earlier, effective questioning depends on two essential factors. The first is clear and precise goals. The goals may not be written in a plan book, and teachers may have to modify them during lessons if students' current understanding re­quires it, but effective teachers, nevertheless, begin their lessons knowing what they want their students to accomplish.

The second is effective representations of content, which also depend on clear goals. Expert teachers use content representations that help students reach goals, and they guide their students to the goals through their questioning. Keep these ideas in mind as you study this section.

Effective questioning is a sophisticated set of abilities, and you won't become an ex­pert overnight. However, they can be developed with practice, and if you persevere, re­search indicates that—-just as experts in other areas develop their abilities—you can develop your own questioning expertise (Rowe, 1986).

For example, effective teachers for all students use their time wisely; display positive personal characteristics; and begin, develop, and end their lessons effectively. Similarly, there are essential questioning strategies that effective teachers, regardless of grade level or topic, demonstrate. They include:

* Questioning frequency
* Equitable distribution
* Prompting
* Repetition for emphasis
* Wait time

F

Questioning Frequency

Questioning frequency refers to the number of questions that teachers ask over a period of time, and research indicates that effective teachers ask more questions than do those who are less effective (Hamilton and Brady, 1991; Hendersen et al., 1996). Student involve­ment is essential for learning, and large numbers of questions increase involvement.

Equitable Distribution

Equitable distribution describes a questioning pattern in which all the students in the class are called on as equally as possible (Kerman, 1979; Good and Brophy, 2000). Equitable distrib­ution runs counter to two common teaching patterns. First, in typical classrooms, about two-thirds of all teacher questions are undirected, meaning that students who volunteer are allowed to answer, and those who don't are allowed to remain passive (McGreal, 1985). This practice detracts from achievement (Shuell, 1996; Good and Brophy, 2000), because the involvement of students who don't volunteer decreases.

Second, we saw that teachers treat students differently based on their expectations, and teachers tend to call on students they perceive as having high ability much more frequently than on low-ability students. This is easy to understand. They expect high-ability students to be able to answer, and getting correct answers is rein­forcing for teachers, so they fall into patterns of calling primarily on high-ability stu­dents (Good and Brophy, 2000).

In contrast to these patterns, Jose called on all the students in his class as equally as possible and by name. He had 30 students in the class, and they all responded at least once. (In the actual lesson we observed, each student answered several questions.)

While it's hard to illustrate in a written case study, we want to emphasize that Jose called on his students whether or not they had their hands up. Students in Jose's class knew that they were certain to be called on and, as a result, their level of attention was very high. In cases where students "drifted off," Jose intervened immediately, as was illustrated in the segment with Ginny when she was momentarily inattentive. Let's take another look.

Jose: How do we know it [the bottle] was heated? . . . Ginny?"

Ginny:1, er, I didn't hear the question [answering sheepishly],

Jose: What did I do with this bottle, Ginny [holding up the bottle with the red balloon]?

Ginny: You put it in the coffee pot.

Jose: Yes I did, Ginny. Good. And how do we know the coffee pot was hot? . . . Rosemary?

This simple sequence took less than 5 seconds, but it served two important functions. First, it got Ginny back into the lesson, and second, it contributed to a positive classroom climate. Ginny knew that Jose had caught her not paying attention, but he didn't ad­monish or criticize her. Instead, he simply rephrased his original question and went on. This sequence communicated that Jose was on her side, wanting her to contribute and learn. This helped to create a positive climate in his classroom for all students.

In a review of the literature in this area, experts concluded that teachers should call on volunteers less than ten to fifteen percent of the time (Gage and Berliner, 1988). Think about that figure. The researchers suggested that 85 percent to 90 percent of all teacher questions should be directed to students who do not volunteer! Equitable dis­tribution communicates that the teacher expects all students to attend and that each stu­dent will be able to and assisted to answer. If teachers practice equitable distribution as a day-to-day pattern, student involvement and learning can dramatically increase.

While it seems simple, establishing a pattern of calling on all the students in your classes is very demanding; it's easier to merely let volunteers answer. However, the more you practice, the easier it will become and, in time, you'll be able to direct questions to individuals virtually without thinking about it.

Prompting

In the last section we emphasized that all students should be called on as equally as possi­ble. We also know that specific goals are essential, which means that students must supply "right answers" as the lesson moves toward the goal. Student involvement and success are no less important at this point than they are in the beginning, however, so teachers must have a tool for maintaining successful interaction. Prompting—cues teachers provide or other questions they ask when students are unable to correctly answer the original question—is that tool.

Research indicates that prompting in reaction to a student's inability to give a cor­rect response provides benefits to learning not found in other options (such as turning to another student for the right answer) (Shuell, 1996). Done effectively, prompting can:

* Create a climate of support in the classroom.
* Communicate positive expectations for success.
* Assist students in thinking through and answering a specific question.

Let's take another look at a questioning sequence from Jose's lesson.

 Jose:What's in the bottles, Nikki? Nikki:They're empty.

 Jose: Wave your hand in front of your face, Nikki . . . What do you feel?

 Nikki: Well, I feel the air on my face.

 Jose: Yes, so what do you think might be in the bottles?

 Nikki: . . *. Air?*

Here, Jose asked a question for which only one answer—air—was acceptable. However, Nikki said the bottles were empty. Jose then provided a cue by asking her to wave her hand in front of her face, which led Nikki to conclude that air was in the bottles.

In this example, Jose prompted with a cue. Now let's look at another segment where he prompted by asking additional questions.

 Jose: So now what do we know about the amount of air in each system? Kathy?

 Kathy:It's the same.

 Jose: And how do we know, Tyrone?

 Tyrone: . . .

 Jose: What did we say about the sizes of the balloons and bottles, Tyrone? Tyrone: They . . . were . . . equal.

 Jose: Good. So how do we know the amount of air in each is the same? Tyrone: The bottles and balloons . . . are the same size.

When Tyrone was unable to answer his original question, Jose simply rephrased it by asking, "What did we say about the sizes of the balloons and bottles?" This prompt was efficient, since it was established earlier in the lesson that the sizes were the same.

The Alternate Question. One option a teacher has when a student is unable to give an acceptable response is to ask the original question in a different way, ask another related question that is simpler, or give a directive that leads to a successful response. This is what Jose did when he told Nikki to wave her hand in front of her face, and this is what he did again when he asked Tyrone what he knew about the sizes of the balloons and bottles.

An alternative question helps in cases where students misunderstand the original question. As teachers, we all know what we want when we ask a question, but our in­tent may not be obvious to students. The simplest solution to this problem is to rephrase the question in different terms. Additional examples include:

|  |  |
| --- | --- |
| First Question: | How are plot and characterization related in this novel? |
| Follow-Up: | How does the development of the story line help us understand |
|  | the major actors in our story? |
| First Question: | How does the carrying power of a river vary with the speed of |
|  | its current? |
| Follow-Up: | Will a fast river carry more or less silt than a slow one? |

Teacher: What we're going to talk about today is the punctuation that tells when someone is speaking. How do we know, when we are reading, that someone is speaking?

Student: When it is has a . . . um . . . two parentheses around them.

Teacher: All right. [Draws a set of quotation marks on the chalkboard.] "These are called. . . . Does anybody know what these are called?"

Student: Commas.

Teacher: Not commas. Not when they're up in the air like this.

Student: Brackets.

Teacher: Not brackets. These are brackets. [Draws a pair of brackets on the chalkboard.]

Student: Parentheses.

Teacher: Not parentheses. These are up in the air above the words . . . [points to the words within the quotation marks.]

Student:Oooh, ooh, oooh! Quotation marks!

Teacher: Perfect. These are quotation marks. And quotation marks, when you run across them in a story, tell you that someone is speaking directly. (Duffy et al., 1985)

Note how the teacher's response builds on the student's answer, assessing areas of mis­understanding and clarifying areas of understanding. The way in which the teacher re­sponds to a student answer not only provides feedback about the adequacy of the student's reply but can also set the direction for subsequent interactions.

For example, with a correct answer, the teacher not only can affirm the correctness of the answer but also can stress important aspects of the answer:

Teacher: Can anyone give me an example of a mammal?

Student: A dog's a mammal because it gives birth to its young live.

Teacher: Good, Johnny, live birth is one of the essential characteristics of mammals. Let's talk about that one for a while. . . .

In addition to verifying that an answer is correct, the teacher can add more information, explain the response more fully, or frame the response in a larger context. All of these strategies improve the informational quality of the response (Duffy et al., 1986). In a similar way, a teacher's response to an incorrect or partially correct answer provides the teacher with the opportunity to (1) ignore the incorrect part of the answer, (2) empha­size the correct part, and (3) prompt for the part of the answer that was not given.

The point here is that teachers do not need to be afraid of steering the direction of the lesson through the *inteijection* of comments or additional information as they prompt their students. The teacher knows where the lesson should go; responses to stu­dent answers provide one opportunity to steer the lesson in that direction.

Lecture 5: Effective Questioning: Increasing Student Motivation

**Lecture plan:**

5.1.Effective Questioning: Increasing Student Motivation

5.2.Classroom questions: additional issues

5.3.Bloom's Taxonomy: A Sequential Questioning Strategy

5.4.Selecting Students. Callouts. Choral Responses.

5.1.Effective Questioning: Increasing Student Motivation

Research indicates that students' beliefs about their capability of accomplishing learning tasks — a concept called self-efficacy — is a powerful factor in increasing motivation to learn (Pintrich and Schunk, 1996). In other words, if students believe that they can succeed on challenging tasks, they develop a sense of self-efficacy, and their motivation is likely to increase.

In developing self-efficacy, student success is crucial. The combination of effective representations of content and open-ended questions is one of the most powerful tools teachers have for assuring success and increasing learner motivation.

Open-Ended Questions. Open-ended questions are questions for which a variety of an­swers are acceptable, and Jose used a number of these in his lesson.

Let's look at some dialogue.

Jose: Now look at these bottles [holding up the two bottles] What can you tell us about them? . . . Keith? Keith: You drink out of them. Jose: Fine, Keith. . . . Beverly? Beverly:They're sort of green. Jose: Yes, they are. What else? . . . Lavonia? Lavonia: They look like they're the same size. Jose: Yes, indeed they certainly do. Very good, Lavonia.

In this case, Jose asked a description question, which is an open-ended question that asks students to make an observation.

In addition to descriptions, comparison questions, open-ended questions that ask students to compare and contrast different items,can also be used effectively. Let's look at some examples.

Jose: Now look at the balloons on these bottles [holding up the bottles]. How would you compare the balloons? . . . Leroy? Leroy: One is red and the other is yellow. Jose: Yes. Good, Leroy. What else? . . . Rachel? Rachel: They look like they're made out of rubber.

# Jose: Yes, they are rubber balloons. How would you compare their sizes? . . . Michael?

Michael: They look like they're the same size.

Jose: Good, Michael. They are the same size.

Open-ended questions are powerful tools for involving students first, because they invite participation in a nonthreatening way. For instance, we saw that Jose asked one simple question, "What can you tell us about them?" and he was able to get acceptable answers from three students in a matter of seconds. He did virtually the same thing when he asked students to compare the balloons. Because open-ended questions are easy to ask and easy to answer, accomplishing equitable distribution is less demanding. It is very dif­ficult to call on all students in a large class without asking some open-ended questions.

Second, open-ended questions are very effective prompts. For instance, if Tyrone had still been unable to answer when Jose asked, "What did we say about the sizes of the balloons and bottles?" He could have held up the bottles and asked an open-ended question such as, "Look at these bottles again, Tyrone. What do you notice about them?" In this case it would have been virtually impossible for Tyrone to give an unac­ceptable answer. This is a powerful technique for involving students, particularly those who don't have a pattern of successfully answering.

Asking questions that don't have specific answers may seem like a waste of time; why don't we merely tell the students or ask more direct questions? In addition to mak­ing equitable distribution and prompting easier, open-ended questions are useful for several other reasons:

* Because a variety of answers are acceptable, students are virtually assured of success, which in turn increases motivation. This is particularly important for students who have a history of low achievement and a past history of failing to answer many of the questions teachers commonly ask.
* Because students are assured of success, they learn to feel "safe" in question- and-answer sessions. A sense of safely also contributes to positive classroom cli­mate and student motivation (Eggen and Kauchak, 2001).
* Open-ended questioning—particularly ones requiring comparing and contrasting—promotes critical thinking.
* Open-ended questions are effective in working with cultural minorities, who sometimes lack confidence in fast-paced, convergent question-and-answer ses­sions (Langer, Bartolome, Vasquez, and Lucas, 1990).
* Open-ended questions allow informal assessment of students' current under­standing, which was one of the functions of teacher questions that we discussed earlier in the chapter.

Let's look at this last point in a bit more detail. For example, in a class that has re­cently studied adjectives, the teacher displays the following sentence:

*Teri moved quickly to remove the hot dish from the stove.*

and asks, "What can you tell me about the sentence?" If students understand the con­cept, they will identify hot as an adjective in one of the first few responses. If they don't, it suggests that they are less sure of the concept than they should be, and the teacher can provide additional instruction.

The power of open-ended questioning as an instructional tool is confirmed by our experiences in schools. We have seen students who were nearly hostile and openly re­fusing to respond at the beginning of a class period begin to volunteer responses to questions by the end of the same class period, all because they could see that students were able to successfully respond. Open-ended questioning was the strategy used to induce this change. This is a powerful and exciting change in students that occurred very quickly. Imagine the impact of assured success on participation and motivation over an extended period of time!

Finally, open-ended questions address the objections of teachers who are reluctant to call on nonvolunteers, because they are afraid to embarrass students if they're initially unable to answer. Because students are assured of giving an acceptable response, they can be "put on the spot" without danger of embarrassment or anxiety. When students are put in a situation where they know they will be called on and are almost certain of being able to answer, their attention and motivation sharply increase. We have observed the ef­fectiveness of these techniques at all grade levels and curriculum areas.

Using open-ended questions as prompts also illustrates again why effective repre­sentations of content are so essential as a tool for promoting student involvement. In Ty­rone's case, for example, he could see that the bottles were the same size; it wasn't something he had to know or recall from a previous lesson. The combination of effective content representations and open-ended questions give teachers tools that help them elicit successful responses from virtually all students under nearly any conditions. They are among the most effective techniques that exist for involving students.

*In closing this section, let us share an incident we encountered in a classroom. In an earlier paragraph we stated that open-ended questions are effective because learners are virtually assured of success. Anything can happen in a classroom, however. We were ob­serving a first-grade teacher who was using open-ended questioning with her students. She held a shoe up for the students to observe, and she began, "Tell me about the shoe."*

*"It's red," Mike responded.*

The shoe was black. There was no sign of red on it anywhere! As we all know, young children occasionally give off-the-wall responses, and the teacher handled this one very well. She simply smiled and said, "The shoe is actually black. Now, Mike, tell me something else about it." Quick thinking.

Repetition for Emphasis

We discussed the importance of emphasis in highlighting important con­tent, and identified repetition as one type. A very effective form of emphasis is a repe­tition question, which simply asks students to reconsider a question or point that has been made earlier in the lesson. Repetition questions have an advantage over repetitious state­ments by the teacher because they provide emphasis and focus, they help maintain in­teraction between teacher and students, and they give the teacher a quick estimate of whether they "got it" earlier. We have all had the experience of periodically getting lost as a teacher develops a topic, and while this problem is impossible to completely avoid, it can be minimized with strategic repetition questions.

The following segment illustrates Jose's use of repetition.

*Jose: Now, look at the balloons and bottles, everyone. What did Lavonia say about the bottles themselves? Cliff?*

*Cliff: We drink out of them.*

*Jose: Yes, we do. . . . How do the sizes compare? Alfredo?*

*Alfredo:They're the same.*

At this point Jose wanted to emphasize that the bottles were the same size, and he asked Cliff what Lavonia had said about them. The need for repetition is illustrated by Cliff's response, "We drink out of them," suggesting that he had wandered, losing the focus of the lesson, which was to establish that the two bottles were the same except for theirtemperature and the air molecules inside of them. Without the repetition, Cliff, and probably others, would have been uncertain about where the lesson was headed.

Jose used repetition extensively, and some might even conclude that he used it ex­cessively. This is a matter of judgment, but it is clearly better to refocus students too often than not often enough. Our experience in working with teachers of K—12 stu­dents indicates that repetition is not merely a positive teacher action but is, in fact, es­sential in helping students follow the direction of complex lessons.

Wait Time

What's the square root of 256? Quick! Some of you probably answered the question im­mediately while others fidgeted with a paper and pencil first. Still others may have seen the "Quick!" and given up immediately.

This problem is analogous to situations that occur in classrooms. Research indicates that teachers, after asking a question, typically wait less than 1 second for students to re­spond before interrupting, prompting, giving the answer themselves, or calling on an­other student (Rowe, 1974, 1986). In addition, Rowe found that teachers tend to cut off students' responses rather than letting them think through and construct their an­swers as fully as possible. Both of these problems are more pronounced when students are perceived as low achievers, and cross-cultural studies also indicate that the phenom­enon is not unique to American classrooms (Tobin, 1983; Chewprecha et al., 1980).

In contrast, when teachers pause and give students time to think about their an­swers, the quality of student responses increases significantly (Rowe, 1974, 1986). Tire pause between a question or the pause after a student answer and a teacher interruption or inter­jection is called wait time.

A number of benefits result from lengthening wait time (Rowe, 1986, 1974). Ex­tending wait times to longer than 3 seconds improves both the teacher's effectiveness and students' performance in the following ways:

* + Lessons are smoother and more focused (Rowe, 1986).
	+ Teachers become more responsive to students by matching the wait time to the difficulty of the question, improving equitable distribution, and increasing par­ticipation from minority students (Rowe, 1974, 1975).
	+ The length and quality of student responses increase, resulting in more higher- order and critical thinking (Rowe, 1986; Anderson, 1978).
	+ Failures to respond are reduced, the variety of students participating voluntarily increases, and the number of disciplinary interruptions by the teacher decreases (Tobin, 1987).
	+ Finally, and perhaps most important, achievement increases (Tobin, 1987; Tobin and Capie, 1982).

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Teacher question (Pause) Student responds (Pause) Teacher responds

 (Wait Time I) (Wait Time II)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Figure 3**. *Effective Use of Wait Time*.

Effective wait-times occur at two points in the questioning sequence, as illustrated in ***Figure 3***.

The first pause in ***Figure 3***, called Wait Time I, gives everyone in the class time to think about the question and generate the covert response we described in our discussion of the influence of questioning on student thinking. The second pause, Wait Time II, gives other students time to think about and react to the student's answer. Wait time can be thought of as "think time," providing students with opportunities to think about the content they are learning.

As with any technique, wait time must be implemented with professional judg­ment. For example, in the cases of drill and practice where overlearning and automatic- ity are desired (such as multiplication facts), quick answers are desirable (Rosenshine and Stevens, 1986) and wait times should be short. On the other hand, when students are making comparisons, forming conclusions, providing evidence, and demonstrating other higher-order abilities, wait times should be longer.

Effective Questioning: Involving Diverse Students

Questioning is one of the most effective tools teachers have for communicating that they value all students and welcome them in their classrooms. Equitable distribution and prompting, in particular, are essential. Used effectively, they communicate, "1 don't care if you're a boy or girl, minority or nonminority, or high or low achiever; I want you in my classroom, I believe you're capable of learning, and I will do whatever it takes to en­sure that you're successful." This practice sends a powerful message to students. In addi­tion to conveying positive teacher expectations it also communicates caring and concern for student learning.

Students are sensitive to these practices. They quickly come to interpret your ef­fort to distribute questions to cultural minorities and nonminorities equally, for ex­ample, as an indication that both groups are expected to achieve, and the effect on classroom climate is very positive. Prompting all students as equally as possible rein­forces this message.

5.2.CLASSROOM QUESTIONS: ADDITIONAL ISSUES

Each of the essential questioning skills we've discussed in this chapter —frequency, equi­table distribution, prompting, repetition, and wait time —are well documented by re­search, as are the relationships between questioning, student diversity, and motivation.

Research has examined some additional issues that often surface in discussions of questioning, and we want to consider them in this section. They include:

* High-level versus low-level questions
* Questioning patterns: Selecting students
* Callouts
* Choral responses

Let's look at them.

High' Level versus Low Level Questions

In our discussion of wait time, we found that the kind of question affects the amount of time a teacher should wait for a response. This observation leads to a related issue. How does the level of teacher question affect student learning? In this section, we want to consider the benefits of low-level questions (e.g., "Who wrote Hamlet?) versus high-level questions ("Why is Shakespeare's *Hamlet* considered a tragedy, in the classical sense of the term?"). Let's see what research says about the issue.

The levels of teacher questions have been widely researched, but the results are sur­prisingly mixed (Good and Brophy, 2000). Some studies have found a significant, positive correlation between higher-level questions and achievement (Redfield and Rousseau, 1981), others found no relationship (Rosenshine and Furst, 1973; Winne, 1979), and still others identified a negative correlation between the two (Dillon, 1981; Stallings, 1975). What explains these contradictory findings?

The answer again illustrates the importance of clear goals. Goals that are appropri­ate for the topic, the age of the students, and their backgrounds should determine the level of questions. For instance, if the goal is fact-level learning with young children, such as knowing that 7x9 = 63, a high percentage of low-level questions is appropri­ate. For more complex goals, such as understanding the impact of Columbus's discov­ery of the new world, higher-level questions are more desirable. Students with limited backgrounds about a topic will—at least initially—be asked many low-level questions, and the number of high-level questions will increase as their background improves.

This is the only sensible approach to determining question level. With the com­plexities of teacher-student interaction, teachers shouldn't consciously decide, "I will now ask a high-level question," or "It is now the time for a low-level question." The so­lution is to have a clear and precise goal in mind prior to the lesson and to be alert, sen­sitive, and responsive to students as the lesson develops. The appropriate level of questions will then take care of itself.

This was illustrated in Jose's work with his students. As we saw earlier in the chapter, his goal was very clear; he knew exactly where he wanted the lesson and students to go. The responses of the students and his goal, rather than preconceived decisions about level, guided his questioning. For example, he began his lesson with simple descriptions and then moved to higher-level questions as he asked the students to make comparisons. However, knowing that he wanted to establish and confirm that the two systems were the same size, he asked a much higher-level question when he asked Tyrone *how they knew* the amount of air was the same in each system? (Note also that Jose didn't reserve his higher-level questions for his high achievers. All students were treated equally.) When he called on Tyrone, he was not thinking, "I will now ask a high-level question." Instead, he was working toward a goal, which we saw in the segment where Jose prompted Tyrone. This goal-driven flexibility is the essence of expert teacher questioning.

5.3.Bloom's Taxonomy: A Sequential Questioning Strategy

Bloom's taxonomy is a hierarchical classification system based on the cognitive processing demands placed on students. Its value in structuring class­room questions centers on this hierarchical structure. Hierarchical means that the upper levels are dependent on and subsume the lower. This characteristic is important for questioning strategies because it suggests that teachers build an informational base at lower levels before proceeding to higher ones.

Let us illustrate these ideas by looking at the six levels in the taxonomy and consid­ering how they function in a classroom setting.

**Knowledge**. The knowledge category, the lowest in Bloom's taxonomy, helps build an in­formational base for subsequent questions. Processes involved in the Knowledge cate­gory include recognition and recall. Some examples of knowledge-level questions include:

Who wrote Uncle Tom's Cabin?

What is the chemical symbol for iron?

How many minutes in a basketball game?

**Comprehension**. Comprehension asks students to process information so that the mean­ing is clear. If the meaning of information being taught isn't clear, then the teacher needs to slow down or even back up to make sure students understand. Students show that they comprehend something when they can translate it into a different form (e.g., verbally describe numerical data presented in graph form), interpret it (e.g., explain why a phenomenon occurs), or extrapolate it (e.g., project a trend beyond the data given). Having students provide examples is another type of comprehension question. Com­prehension questions attempt to determine if students understand information in a meaningful way. For example,

Can you tell us, in your own words, the major events in the story so far?

The book says rust occurs when iron is oxidized. What does that mean?

Who can find an example of an oxymoron in our poem?

**Application**. The third level of Bloom's taxonomy asks students to take information they have learned and apply it to a new situation. Solving new or novel word prob­lems in math would be an example here. The process of application actually occurs in two phases. In the first phase, some abstraction, formula, equation, or algorithm is learned; in the second, students encounter a new situation or problem and are asked to apply the previously learned information. Teachers who try to get students to apply information at a later date verify that this second phase is a difficult one. Practice is es­sential, and classroom questions provide an excellent opportunity for this practice. For example,

Who can apply what we've learned about sonnets and finish this poem?

Now we're trying to find the length of this diagonal line. Any ideas? What for­mula should we use?

So we want the fish to be crisp on the outside but not overdone on the inside. How should we cook it?

Notice how in each of these examples students are being asked to use or apply infor­mation they've acquired previously.

**Analysis**. Analysis questions develop students' ability to take apart some complex phe­nomena to show how it works. The medium involved in the analysis will vary with the content area involved. In English, it could involve the examination of a speech, a poem, or a book and some type of explanation of how the work holds together and how the different components add to the power of the work. In the area of art, the process of analysis could focus on a painting and show how various components such as color, line, and texture interact to produce an effect. Similar examples occur in every area of the curriculum where student understanding of something is dependent on an understand­ing of how the interrelated components or parts work together. Some examples of analysis questions include:

Let's write down the major events that have occurred in the Middle East. Then let's ask how these are interrelated and why we are where we are today.

Let's look at this table and try to determine why it's so sturdy and why it has lasted so long.

Who can analyze this paragraph and explain why it is such a powerful way to start this paper?

**Synthesis**. Synthesis questions are different from those in the other levels in several im­portant ways. As opposed to the other levels, which focus more on analytical skills, the synthesis category focuses on creativity. In addition, the synthesis category is product oriented; typically a tangible product results from the synthesis operation. Although most often associated with the fine arts areas of art and literature, synthesis questions also have applications in other areas. For example, creativity can be a central dimension in the design of a science experiment. In the area of home economics, synthesis-level skills can also focus on clothes or food preparation. In other vocational areas creativity can be a central component of woodworking and other vocational classes. Note how each of these questions asks students to be creative in producing some product or plan.

Okay, we know that garbage is a major problem for big cities. What are some cre­ative ways to solve this problem?

Remember, we're on a limited budget for this meal. What are some ways we can stretch our dollars and still produce an exciting menu?

You've viewed the first half of the game on videotape. What would you do differ­ently in the second half to turn your team around? Be creative.

**Evaluation**. The highest level of Bloom's taxonomy is evaluation, which involves judg­ing the merit or worth of some object or work. The process of evaluation occurs in two steps: the first is the establishment of some criteria, and the second is the application of these criteria to some object or idea. For example, in social studies, we can ask students to evaluate a proposed solution to world hunger. This process would involve first some description of the specifics of the problem—givens, resources, and limitations to work with—and then an analysis of the extent to which the proposed solution addressed these parameters. In literature, students can evaluate a written work, describing its strengths and weaknesses. In other areas, such as physical education and home economics, stu­dents can evaluate a game plan or a plan of operation such as a menu. Some examples of evaluation questions include the following:

How well did the North use their resources in the Civil War?

Was Hemingway a great American writer? When you answer that, you'll have to define greatness first.

We've read several theories about why the dinosaurs disappeared from the earth.

Which makes the most sense? Why?

**The Taxonomy**: **A Classroom Example**. The following is an excerpt of a teacher using Bloom's taxonomy to structure a lesson on Shakespeare's Romeo and Juliet. Note how the teacher uses lower levels of the taxonomy to serve as a foundation for higher levels. To help you do this, we've labeled the level of the question in brackets.

Lynn Bell's junior English class had been reading Shakespeare's Romeo and Juliet for several weeks. Although they had known it was a tragedy, the class was disturbed at the gory ending. Lynn was trying to get them to pull it all together and to view the play in the larger context of a tragedy.

Lynn: Class, it's been a long weekend, so let's review some of the major characters in the play and try to remember some of the major events. [K] Someone? Jack?

Jack: Well, the most important characters were Romeo and Juliet. They fell in love, and that's how all the trouble started.

Lynn: Good, Jack. That's a good starting point. Let's follow up on that. What houses did they belong to? [K] Sandy?

Sandy: Juliet was a Capulet and Romeo was a Montague.

Lynn: Okay, now why is that information important to the play? [C] Anyone? Cassy?

Cassy: Because these two houses had been feuding for a long time.

Lora: And, in terms of Romeo and Juliet, they shouldn't have fallen in love.

Lynn: Good. Now let's return to an idea we discussed briefly earlier. What is a tragedy? [K] Shawn?

Shawn:It's a story that ends unhappily?

Lynn: Anything else? [K] Franco?

Franco: The people in it can't help what's happening.

Lynn: Why is that important? [C] Brad?

Brad: Because the people in the audience can see what's happening but the characters in the play can't. They're just kind of swept along by the events.

Lynn: Any other characteristics of a tragedy? [K] Pam?

Pam: In my notes, it says there is often "growth toward knowledge."

Lynn: Good note taking, Pam. What does that mean? [C]

Pam: Beats me. I just wrote it down.

Lynn: Who can help her out? Did growth toward knowledge occur in this play? [C] Ken? Ken: Well, at the end the Montagues and Capulets got together and agreed to stop the feuding.

Lynn: Excellent, Ken. Now let's take this one step further. Romeo and Juliet got married. Was it Act II, Scene 5? [K] Scene 6, okay. Now I want each of you to take a few min­utes to devise another ending for the story that would still make it a tragedy. [App] When you're done with that, we'll share these with the rest of the class and they'll have to decide if your ending qualifies as a true tragedy. [An]

Let's analyze the lesson. First, note how the teacher began with knowledge-level questions and, after establishing a factual base, proceeded to comprehension questions that checked for understanding. Then, after she felt confident that her students under­stood the concept of tragedy, she asked them to apply this information to develop a dif­ferent ending. Finally, the lesson ended with an analysis question, asking students to examine one another's new endings to determine if these were truly tragedies.

Now, a confession. Actual classroom lessons do not proceed this smoothly. They progress instead in fits and starts, and teachers need to exercise that flexibility stressed earlier, adjusting questions to the background of students and the direction and mo­mentum of the lesson. The lesson recorded here was provided as a prototype so that you could see the progression of ideas.

Though somewhat unrealistic, this prototype illustrates several important ideas. One is the value of the taxonomy as a guide to sequencing questions. A second related idea is the importance of using lower-level questions to (1) involve a number of stu­dents, (2) establish an informational base, and (3) warm the class up at the beginning of the lesson. Also, note at the end that as the teacher asked an application question re­quiring more thinking, she provided the class with the necessary wait time (actual min­utes) to apply the information they had learned.

Finally, if the lesson had continued, how might the teacher have used the synthesis and evaluation categories to think about the play further? We offer these as possible al­ternatives but invite you to construct your own. (PSTS)

SYNTHESIS

Write a version of Romeo and Juliet for the twenty-first century. Find a present-day story with the potential to be a tragedy. Flesh out the story in enough detail so that your thinking is evident.

EVALUATION

Some people call Romeo and Juliet a love story; others consider the play a tragedy. Which label do you believe is more correct, and why?

Some critics call Shakespeare a master of settings, getting the most from his plays by having the scenes set in dramatic places. Do you agree with this assessment? Defend your answer with examples from Romeo and Juliet.

Bloom's taxonomy can provide a useful conceptual tool for asking higher-level questions. It can help us sequence these questions, building on prior knowledge and

using previous skills as the foundation for later ones. It can also help us understand why students have problems with questions requiring higher-level questions. Finally, it can serve as a reminder of the breadth and variety of cognitive tasks available to us as we in­volve our students in the process of thinking through classroom questioning.

5.4.Selecting Students

Whom should we call on when we ask a question? As we saw earlier, teachers tend to simply call on students who volunteer, but this is less effective than calling on both vol­unteers and nonvolunteers.

The most desirable alternative is to call on students randomly, and expert teachers manage this process by mentally monitoring who they've called on as the lesson pro­ceeds. As the activity develops, if you've lost track of who you've called on, simply ask, "Whom have I not called on yet?" When students are in an environment where large numbers of questions are being asked and the teacher supports the students in their ef­forts to answer, being called on is desirable and they will freely admit it if they haven't been called on (or one of their classmates will point it out). Further, a simple, straight­forward question, such as "Who haven't I called on," promotes a comfortable climate of open communication.

An alternative to mentally monitoring who has been called on is to use a deck of cards with all of the students' names and to shuffle them at frequent intervals to prevent sequential patterns from occurring. This cumbersome way of distributing questions can be helpful for beginning teachers, but expert teachers rarely use the technique.

Research has also examined the relative effectiveness of first asking the question and then identifying a student versus first identifying the student and then asking the ques­tion. Asking the question first is preferable (Good and Brophy, 2000), and this is the pat­tern we saw in Jose's questioning. Asking the question, pausing, and then calling on a specific student communicates that the question is meant for all students and everyone is expected to pay attention and think about the answer.

If the teacher selects a student before asking the question, the rest of the students are less likely to generate a covert response, an important mental operation elicited by ques­tioning. However, exceptions to this rule can occur for management or motivational reasons. For example, "John, what did we say yesterday about the relationship of Hem­ingway's early life to his later writing?" can communicate that John ought to refrain from his conversation with a classmate, or that John made a comment yesterday that was especially pertinent to the topic. The fact that this sequence violates the teacher's regu­lar one, as well as the inflection in the teacher's voice, communicates the intent of the message.

Callouts

A callout is an answer given by a student before the student is recognized by the teacher. We have all been in classes where teachers have said, sometimes pleadingly, "Now, don't shout out answers," or "Don't answer until you're called on." These are efforts to eliminate callouts.

In general, callouts should be prevented. This is most effectively accomplished by establishing and consistently enforcing a rule requiring students to be recognized before answering. Allowing students to respond without being called on is undesirable because callouts usually come from higher-achieving or more aggressive students in the class. These students can dominate the interaction, and slower or more reticent students are forced out of the game. In addition, callouts also increase management problems and decrease the amount of time other students have to think about answers.

However, exceptions to these patterns have been found in studies with minority students and students from low socioeconomic backgrounds. With these students, who sometimes lack confidence and may be reluctant to respond, allowing at least some call­outs has been positively linked to increased learning (Good and Brophy, 2000).

We saw this illustrated in Jose's lesson. Let's take a look.

Jose: So what do you think might be in the bottles? [after prompting Nikki]

Nikki: *Air.*

Jose: Yes indeed. Good conclusion, Nikki. What was one of the characteristics of air that we've discussed? . . . Christy?

Jason:It's all around us.

Jose:That's right. Air is all around us. Well done, Jason. Now look at the balloons on these bottles, [holding the bottles up again] How would you compare the balloons? . . . Leroy?

In this sequence Jose allowed Jason to inteiject a response without admonishing him, because Jason was one of the lowest achievers in his class. With more confident and aggressive students, however, callouts result in shorter thinking times and an unequal distribution of opportunities to respond, both conditions that detract from achievement.

So here, as with many instructional issues, teacher judgment is necessary. The abil­ity and confidence of the student, the goals of the lesson, and the orderliness of the class­room are all factors that need to be considered in deciding whether to allow a student to call out an answer.

Choral Responses

The entire class answering a question at the same time is termed choral responding. Choral responses are effective for practicing skills, terms, and facts that should be overlearned and available for immediate recall. It is commonly used in foreign language classes, where students need to repeat words and phrases in the new language, and it's some­times used in math classes, where automaticity is being developed. Jose appropriately called for a choral response when he taught his students the term expand.

Jose: Yes, excellent, Jill. Now, everyone, I'm going to give you another word for gets bigger. It's called expand. Everyone say expand. Class: EXPAND!

In this case Jose was teaching a new term and wanted everyone in the class to repeat it.

In contrast, choral responses are inappropriate for open-ended or higher-level ques­tions. Imagine a choral response to a question such as, "Who do you think was our most effective President, and why do you think so?"

The disadvantages of choral responding relate to timing and participation; unless all students answer at the same time, slower students can hesitate and parrot or mouth the answers of the quicker students. A solution to this problem is the use of a standard ex­pression or signal, such as "Class," that follows a question and signals time for participa­tion. Some researchers advocate a blend of choral and individual responding to provide opportunities for both wide participation and diagnosis of individual strengths and weaknesses (Becker, 1977).

As we've seen in this chapter, teacher questioning can be a powerful strategy for en­couraging student involvement, accommodating the background diversity of our stu­dents, and increasing motivation to learn. It is most effective, however, if the questions direct students to clear goals, and builds upon effective topic representations.

### **Lecture 6**: **THE ACT OF TEACHING**

Lecture plan:

**6.1.Effective teacher.The role of classroom teachers.**

The role of the classroom teacher is critical. The teacher is, after all, the point of contact between the educational system and the pupil: the impact of any educational program or innovation on the pupil operates through the pupil’s teachers. Thus, maximizing teacher effectiveness is a major goal of education (Medley, 1986, p.4).

In fact, Cruickshank and Haefele (2001) described 10 kinds of good teachers (see Table 5). Every teacher draws upon each of these areas, trough we are all better in some than in others. As you progress in your teaching career you will develop qualities across the 10 kinds of good teaching. However, while all teachers make some difference in their student’s lives, some teacher consistently have a greater and more positive influence than others. They seem to relate to students better and to be more successful in helping their students gain meaningfully from their instruction.

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| **TABLE 5 Good Teachers, Plural** |
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| Ideal teachers meet subjective standards set by school principals, supervisors, and education professors.which they are meeting their instructional intentions. |
| Effective teachers bring about higher student achievement. |
| Dutiful teachers perform their assigned teaching duties well. |
| Competent teachers pass tests (e.g., NBPTS, Praxis) that indicate they possess requisite teacher |
| attributes. |
| Expert teachers have extensive and accessible professional knowledge and can do more in less time. |
| Reflective teachers examine the art and science of teaching to become more thoughtful and skillful |
| practitioners.Satisfying teachers please students, parents-caregivers, colleagues, and/or supervisors. |
| Diversity-responsive teachers are sensitive to the needs of learners who are different. |
| Respected teachers possess and demonstrate qualities regarded as virtues. |

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In *The Act of Teaching*, we have chosen to focus our attention on what Cruickshank and Haefele call the effective teacher. We do not mean to imply by doing this that the other types of good teaching are not valuable. However, as we prepare this latest revision of our textbook, we do so in an era in which teachers are more directly and formally held accountable for producing measurable student learning than at perhaps any other time in our nation’s history. For nearly two decades, most states in the U.S. had implemented high-stakes testing of students, and many used results of these tests to make judgments about the quality of teachers and schools. Passage of the No Child Left Behind Act in 2002 dramatically increased the consequences of poor academic performance not only for students, but also for teachers and their schools. At the time we are writing this, No Child Left Behind is being vigorously debates by Congress as the deadline for its reauthorization approaches. Certainly there are likely to be changes to the law and to its consequences or impacts for teachers.

However, regardless of the specific developments associated with the law in coming months or years, the formal expectations for educators and schools that were reflect­ed in No Child Left Behind are not likely to go away. As Elmore (2000) notes, educa­tors and policy makers "are still left with the problem of how to account for the public expenditures they are receiving".Thus, it is important for every teacher to under­stand and be able to use what research tells us about how to facilitate students' academic performance. It should also be noted that research suggests that many of the skills and attributes that teachers use to promote students' learning also encourage the develop­ment of other valuable outcomes, like self-esteem, persistence, and self-confidence.

What exactly is an "effective" teacher? What makes one teacher more effective than another, and what can be done to improve effective­ness? The next lectures are devoted to answering these questions. In *lecture 7*, Personal Attributes and Characteristics of Effective Teachers, we describe research on teaching and then examine the personal attributes or characteristics associated with effective teachers.

**Lecture7: Personal Attributes and Characteristics of Effective Teachers**

Lecture plan**:**

7.1.Research on teaching (Defining Effective Teaching)

7.2. No Child Left Behind

7.3. The Search for effective teachers

7.4. Effective Teachers; Personal Attributes and Characteristics

In this chapter we examine the personal attributes or characteristics of teachers whose instruction seems most successful. Our emphasis is on an examination of those personal attributes of a teacher that seem most closely connected to stu­dents' learning. Before discussing specific personal attributes, we will examine how researchers have studied effective teachers and defined effective teaching. Then, we will look at eight attributes characteristic of effective teachers; they are:

1)Enthusiastic.

2) Warm and humorous.

3) Credible.

4) Holding high expectations for success.

5) Encouraging and supportive.

6) Businesslike. Adaptable/flexible

7) Knowledgeable

**7.1.RESEARCH ON TEACHING**

To understand the importance of teachers' characteristics and the behaviors associ­ated with effective teaching, it will be helpful if we first determine what the term effective leaching means and how effective teachers can be identified.

**DEFINING EFFECTIVE TEACHING**

As we noted earlier, there are many ways to define good teaching. Columnist William Raspberry (1993) probably expresses the feelings of many of us when he suggests that good teachers are caring; supportive; concerned about the welfare of students; knowledgeable about their subject; able to get along with parents, administrators and colleagues; and genuinely excited about what they do. However, despite the fundamental value of these characteristics, they overlook the important fact that teachers are expected to help students learn. Cruickshank and Haefele refer to this type of good teacher as the effective teacher.

The effective teacher—one who is able to help students learn in ways that can be measured—is reflected in the large number of state and federal accountability programs. High-stakes testing for student promotion or graduation and consider­ation of student performance on these tests in establishing salaries of teachers and administrators are increasingly common throughout the U.S. Of course, the broad­est and most consequential program focused on effective teaching has been the federal No Child Left Behind Act (NCLB). Through NCLB, schools whose students consistently failed to perform at desired levels have been subject to a range of pen­alties.

Clearly, teachers are now held accountable for their effectiveness in helping stu­dents learn content. But, what do teachers do that makes them more or less effec­tive? This question has been the focus of research for many, many years. In fact, for over a century, educational researchers have attempted to identify effective teach­ers. Early research defined effective teachers as those who received high ratings from their superiors. This research attempted to link administrative ratings with such traits as teachers' buoyancy, cooperativeness, dependability, emotional stabil­ity, expressiveness, forcefulness, judgment, mental alertness, personal magnetism, physical drive, and ethical behavior.

Although this type of research continued until the mid-1960s, the results were discouraging. None of these personality traits were consistently tied to the rating levels teachers received. Many scholars concluded at that point that little could be determined about what made teachers effective.

Fortunately, several events during the 1960s prompted valuable and productive research into the definition and nature of effective teaching. Among the most pow­erful catalysts for more productive research was the Equality of Educational Opportunity study (Coleman, Campbell, Wood, Weinfeld, & York, 1966). This study was com­missioned by the United States Department of Health, Education, and Welfare to examine the differences between schooling opportunities and resultant learning outcomes for white and black children.

Coleman, the major investigator, and his colleagues found that students attend­ing some schools did indeed achieve more than students attending others. However, when he investigated why this was true, he found that differences in pupils' achieve­ment among schools was associated largely with one factor—the socioeconomic status (SES) of the pupils. What was even more surprising and disappointing to many educators was Coleman's finding that the usual factors thought to contribute to school achievement, such as class size, textbook quality, the school facility, and teachers' experience, had little impact on student learning. Reanalysis of Coleman's findings and numerous studies since (Chall, 2000; Hanuschek, 1997) continue to suggest that SES is clearly related to students' achievement.

Needless to say, educators were extremely disturbed by the news that most of stu­dents' school achievement was determined by their SES rather than the school they attended or the teachers they experienced. These reports prompted renewed inter­est in defining and describing effective teaching. Many educators reasoned that since schools and teachers seemed to have limited influence, it was important to learn how to make the most of that influence. Thus, educational researchers sought to identify the characteristics of teachers and schools that seemed to be making the most difference for their students. Thus was born a second and highly productive era of research on effective teaching. In this second era of research, researchers identified effective teachers not according to supervisor ratings but according to their ability to help students gain the most from instruction.

**7.2.No Child Left Behind**

The No Child Left Behind Act of 2001, often referred to as NCLB, represented legislative reauthorization of the Elemen­tary and Secondary Education Act of 1965. Through a variety of measures, No Child Left Behind specified that all children would be achieving at grade level by the year 2014. Unlike previ­ous federal legislation, which tended to emphasize and support particular pro­grams or approaches for dealing with disadvantaged students, NCLB directly tied federal aid for schools to students' academic performance and imposed spe­cific requirements on states to deal with schools in which students consistently performed at low levels.

NCLB was complex and included a number of requirements and conse­quences for states, districts, and schools associated with student academic per­formance. Among these were increased standards for the preparation and assignment of teachers, greater state and district flexibility in using federal education funds, and an emphasis on "scientifically-based research." However, the aspects of the legislation that most directly impacted on teachers and schools were those associated with accountability.

In order to maintain federal aid, each state was required to ensure that every student made Adequate Yearly Progress (AYP) in reading and mathematics. This required that states establish levels of grade-appropriate proficiency in read­ing and mathematics, that all students in grades three through eight were tested annually in these subjects, and student performance was reported by schools and districts for all students and for those in particular subgroups of students (based on poverty, race, ethnicity, disability, and limited English proficiency). A school or district was considered to be "in need of improvement" when one or more student subgroups failed to meet the state- established proficiency level for two con­secutive years. Schools deemed "in need of improvement" were subject to a series of corrective measures that range over time from special assistance and restruc­turing of staff to takeover by the state or management by private firms.

In addition to the school or district- wide consequences of failure to make Adequate Yearly Progress, No Child Left Behind also stipulated that individual families in these schools be allowed expanded choice of their children's schools. For a family whose children attended a school deemed "in need of improvement," they were to be allowed to select another school within their dis­trict that they believed might better serve their children. Further, if these children attended schools that received Title I federal education funding, federal funds could be used to secure additional or supplemental education services from either the public or private sectors.

Across its components, NCLB rep­resented an extremely broad and direct federal involvement in education. The legislation has been the subject of sub­stantial criticism from a range of educa­tors since it was first introduced. The impact of these criticisms has already been seen as federal education officials have adapted some of the more stringent aspects of the legislation to allow greater flexibility for states and schools. Over time, it is reasonable to expect that addi­tional adaptations will be made to NCLB. However, the focus of federal education policy on student academic performance is unlikely to change in the near term.

Source: See the U.S.Department of Education – No Child Left Behind and Council of Chief State School Officers websites for more information.

**7.3.THE SEARCH FOR EFFECTIVE TEACHERS**

Shortly after publication of the Coleman report, educators began to investigate teachers' behaviors and attributes that seemed linked to greater learning. Guided by the notion that students' learning was, in part, the result of these attributes and behaviors, educational investigators began identifying teachers who were con­sistently able to produce high levels of learning. Often, though not always, the researchers measured learning by performance on standardized achievement tests. Then the investigators observed these teachers to determine whether they pos­sessed common characteristics or teaching behaviors that might explain their stu­dents' success. Thus, in this era, research considered a teacher who produced more learning than others teaching similar students to be an effective teacher.

Even though many of the original studies were clone several years ago, research over the past five decades has continued to support and clarify teacher behaviors and attributes associated with greater student learning. Importantly, these behaviors also are linked to other desirable outcomes for students, such as increased satisfac­tion and better attitudes toward school, better self-concept, and higher graduation rates (Walberg & Paik, 2000; Wenglinsky, 2000). One of the most exciting things about these findings is that they are not just theory; they reflect what living, breath­ing teachers do. By being aware of these attributes and developing these skills, you can help your students be even more successful.

**7.4.EFFECTIVE TEACHERS: PERSONAL ATTRIBUTES AND CHARACTERISTICS**

Although teachers' personal attributes me expressed through behavior, they are primar­ily personality traits that all individuals possess and exhibit to varying degrees. For example, some teachers naturally display greater enthusiasm than others through their speech and actions. This may be the result of greater enthusiasm for their work or simply differences in personality that limit or enhance their expression of enthu­siasm. Some personal attributes, like enthusiasm or warmth, are difficult to acquire or to enhance because they are so firmly rooted in our personalities. Others, such as professional, businesslike demeanor, are somewhat easier to acquire and modify. By becoming more aware of personal attributes that research shows are common among successful teachers and by matching them against your own natural tenden­cies, you will be able to begin building your own unique teaching persona — one that will maximize your ability to make positive connections with your students.

The remainder of this chapter will deal with eight personal attributes identified by research as common among effective teachers. To guide our discussion, we have organized these attributes under three broad headings: motivating personality, orientation toward success, and professional demeanor. Motivating personality includes the attributes enthusiasm, variety, and warmth and humor. These attri­butes help get and keep students involved and interested in learning. Orientation toward success means teachers believe in their own and their students' abilities to be successful. Attributes like expecting success and being encouraging and supportive of students convey this orientation. Professional demeanor means that the teacher is focused on helping students learn. Effective teachers are professionally knowledge­able and businesslike; students see them as credible and worthy of trust. As you will see, these three groups of attributes are highly interrelated. For example, being prepared for class conveys confidence, builds credibility, makes the atmosphere of the classroom more businesslike, and enables teachers to more easily adapt their instruction to students' needs.

The following pages will examine these attributes in some depth. First, we will present a definition or description of each, followed by an examination of the research that supports its importance. Finally, we will discuss the specific behaviors that characterize each attribute. As you read these sections, remember that these attributes have been linked to increased student learning. Consider the extent to which you naturally possess and demonstrate each one and ways in which you might employ them more effectively with your students.

**Lecture 8: Motivating personality**

Lecture plan**:**

8.1.Enthusiasm

8.2.Warmth and Humor

8.3.Credibility

Effective teachers possess a motivating, stimulating personality. They seem to enjoy what they are doing, they are supportive of students, and they are believable and easy to trust (Brophy, n.d.; Grouws & Cebulla, 2000; Peart & Campbell, 1999; Young, Whitley, & Helton, 1998). In this section, we discuss three particular attributes that are characteristic of teachers with motivating personalities: enthusiasm, warmth and humor, and credibility.

8.1.ENTHUSIASM

One of the teacher attributes most closely linked to desirable student outcomes is enthusiasm. Enthusiastic teachers convey to students that they are confident and enjoy what they are doing, that they trust and respect students, and that the subject they teach is valuable and enjoyable (Ellis, 2001). Enthusiastic teaching helps stu­dents persist at tasks, motivates them, and leads to increased learning and satis­faction (Denight & Gall, 1989; Gallagher, 1994; Patrick, Hisley, & Kempler, 2000; Wang, Haertel, & Walberg, 1993).

Although enthusiasm is difficult to define, Good and Brophy (2000) suggest that a teacher's enthusiasm has two important dimensions: interest and involvement with the subject matter, and vigor and physical dynamism. Enthusiastic teachers often are described as dynamic, stimulating, energetic, and expressive. Their behav­ior suggests they are committed to students and to their subject.

People convey enthusiasm through variety in speech, gestures, and facial expres­sions. As they teach, enthusiastic teachers move around the room, front to back as well as side to side. They are animated and gesture with their hands, arms, head, and shoulders to reinforce or emphasize their points. They make eye contact with all students, encourage all students to participate, and solicit and use input from all students. Enthusiastic teachers maintain a brisk lesson pace while allowing and adjusting for students' understanding. They promote interest by varying the speed, pitch, and inflection of their voices, and they use pauses to reinforce points and add variety. Their changes in facial expression (for example, eyes widening or nar­rowing, smiling or frowning) are frequent and positive and further reinforce what they say.

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| TABLE 6 **Teachers' Enthusiasm** |
| Enthusiastic Teachers... | Unenthusiastic Teachers ... |
| • Appear confident and friendly | • Appear anxious or defensive |
| • Establish and convey the relevance of the | • Are mechanistic, go through the motions without |
| subject to their students | relating the lesson to the students' interests or |
|  | needs |
| • Use broad, animated gestures to emphasize or | • Often stand or sit in one spot throughout the |
| reinforce points | lesson |
| • Are creative and varied in their instructional | • Use only one or two instructional alternatives |
| approach |  |
| • Are engaged and dramatic when they teach | • Are disinterested and disengaged |
| • Maintain eye contact with all students | • Avoid eye contact with students |
| • Use varied pitch, volume, inflection, and pauses | • Speak in a monotone |
| to make vocal delivery more interesting |  |
| • Are patient | • Are impatient |
| • Are insistent that students successfully | • Give up quickly when students do not easily arrive |
| complete tasks | at the correct response |
| • Are aware of and quickly deal with off-task | • Ignore students' off-task behavior |
| behavior |  |
| • Maintain a quick lesson pace | • Use time inefficiently; stall |
| • Have a sense of humor; can laugh atthemselves | • Are frequently critical |
| • Use movement to maintain interest and attention | • Seldom move from the front of the room |

Source: Adapted from V. Carusso. (1982). Teacher enthusiasm: Behaviors reported by teachers and students. Paper presented at the annual meeting of the American Educational Research Association. New York, NY. (PSTS)

(PSTS)

Maintaining such a dramatic, animated presence from 8:15 a.m. until 3:00 p.m. is a difficult, perhaps impossible task. Fortunately, constant enthusiasm is not neces­sary. In fact, like other factors, levels of animation are most effective when they vary. A teacher who never ceased moving, always using broad gestures and smiling, would soon become routine or even annoying. Nonetheless, remember this advice: While teachers often expect students to be interested in what they say, students more often react to how enthusiastically it is said (Denight & Gall, 1989).

Remember, you are only enthusiastic if your students perceive you to be. In other words, just feeling enthusiastic about your students and your subject does not ensure that your students will see you as enthusiastic. What behaviors do students perceive as teachers' enthusiasm? Table 6 presents teacher behaviors that students use to differentiate between enthusiastic and unenthusiastic teachers. Note that none of these behaviors alone conveys enthusiasm. Rather, they collectively lead students to perceive the teacher as enthusiastic.

8.2.WARMTH AND HUMOR

Whether you realize it or not, as the adult authority in the classroom, you will set the tone, define roles, establish parameters, and promote patterns of interpersonal relationship among your students. These characteristics are particularly impor­tant when working with minority students and those from poverty backgrounds (Quindlen, 2002). Teacher warmth and humor are important factors in promot­ing a supportive, relaxed, satisfying, and educationally productive environment for your students (Brown, Tomlin, & Fortson, 1996; McDermott & Rothenberg, 2000). By contributing to a safe and productive environment, warmth and humor indi­rectly promote learning.

While most people watching various teachers could probably agree on whether they conveyed warmth and humor, it is difficult to explain precisely what constitutes warm behavior or a good sense of humor. However, the two attributes are related.

**Warmth** A teacher manifests warmth through positive, supportive interpersonal relationships with students (Goleman, 1998; Peart & Campbell, 1999). It is impor­tant that you allow students to get a sense of your personality. Students often say that good teachers "are real people." Positive classroom relationships are fostered when you are friendly, maintain a positive attitude, demonstrate interest in your students as individuals, appear to be open and willing to "work things out" with students, and work hard to help them succeed academically. On the other hand, you reduce warmth and injure classroom relationships when students perceive you as unfair, when you are overly judgmental or inflexible, or when you discourage student-teacher interactions.

Specifically, then, what can you do to convey warmth to your students? Many of the teacher behaviors that convey enthusiasm also convey warmth. Figure 4 lists suggestions to help you promote a sense of warmth with your students.

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| FIGURE 4 Conveying Warmth |
| 1. | Greet students by name at the door. Comment on their personal achievements outside your classroom or other aspects of their personal lives. |
| 2. | Smile frequently. |
| 3 | Be yourself. Convey your personality, likes, dislikes, even opinions. |
| 4. | Use nonthreatening physical proximity to students. Moving closer to students can be used to convey a sense of trust and openness. |
| 5. | Encourage students to approach you and to be open with you. Keep most in-class interactions on academic topics, but express interest and willingness to talk with students about nonacademic concerns outside of class. |
| 6. | Draw out students' opinions, feelings, and ideas, and actively incorporate these into your instruction. |
|  7. 8. | Provide remediation and time for all students to master the material and to be successful.While conveying genuine interest, concern, and acceptance of all students, avoid becoming "one of the students" by lowering expectations or joining them socially. This is especially true for new teachers who may be close in age to their students. |

**Humor** An appropriate sense of humor is one of the characteristics students fre­quently note in the teachers they enjoy (Brophy, n.d.; McDermott & Rothenberg, 2000). These teachers make learning fun. Humor can defuse tension, communicate the teacher's security and confidence, promote trust, and reduce discipline problems.

Effective use of humor has both a spontaneous and a deliberate, or planned, dimension. We convey a sense of humor through our ability to laugh when some­thing funny occurs. During the course of a typical school day, any number of humorous events or accidents occur. Don't be afraid to laugh at these things. You must especially learn to laugh at yourself. All teachers make mistakes. They trip over the cord to the computer and drop stacks of papers as they rush to hand them back. Laugh at these events! Keep them in perspective, and don't take yourself too seriously. On the other hand, avoid sarcasm or cynicism, and be extremely careful about teasing students. Sarcasm and cynicism often send a message of indifference, disinterest, or dislike. And, although some students may respond positively to teas­ing by the teacher, many may respond negatively by assuming the role of "class clown" or, perhaps more serious, by feeling hurt or embarrassed. Be yourself, be a real person, but remain aware that you set an example for acceptable classroom behavior that students will tend to follow.

While much classroom humor is spontaneous, effective use of humor in the classroom also has a deliberate dimension. Plan lessons that incorporate or point out amusing aspects of the topic. This should go beyond using cartoons and jokes to more substantive aspects of the lesson. For example, a middle school English teacher might use humor to initiate a unit on Edgar Allen Poe's work by humorously drawing attention to his eccentric life and work. The teacher could appear in dark, drab clothes like those Poe might have worn, perhaps with a black plastic bird (a raven) on his shoulder. He could play the role of Poe, exaggerating demented or paranoid speech and mannerisms, to introduce Poe's work in the context of his life. The teacher might talk as Poe would have about the difficulties of his life and writing, introducing the works to be studied in class. The intentional, structured combination of humor and content would make the lesson more memorable and the teaching more effective.

Warmth and humor are means to desirable ends, not ends in themselves. Used in moderation, they help create a relaxed, comfortable environment in which stu­dents can learn. However, teachers who place too much emphasis on warmth and humor actually reduce learning (Chall, 2000). Thus, warmth and humor are best used naturally and sparingly.

8.3.CREDIBILITY

Effective teachers appear to students to be credible and worthy of trust (Good & Brophy, 2000; Thweatt & McCroskey, 1998). Once again, it is important to point out that your credibility exists in the eyes of the beholders, your students. Regardless of a teacher's knowledge, experience, education level, or position—all elements that might be expected to enhance your credibility—you are credible only when your students believe you are. In the early grades, teachers, as adult authority fig­ures, have some degree of built-in believability with students. However, as students become more mature, they are less likely to assume that teachers are automatically credible. As university students, you continually make judgments about the cred­ibility and trustworthiness of your instructors. These judgments determine, at least in part, the perceived effectiveness of each instructor.

What can you do to establish yourself as credible and trustworthy? Three ele­ments seem important: your credentials, the messages you send to students, and your behavior (Frymier & Thompson, 1992; Thweatt & McCroskey, 1998). Your credentials are most likely to influence the perceptions of young students who are relatively knowledgeable about the subject or who are highly motivated to succeed. However, even under these conditions, your credentials are only helpful if students are aware of them. The content of the messages you deliver also impacts your cred­ibility. When you are able to demonstrate to students how the topics you present are related to their interests and needs, they view you as more credible. Most impor­tant, however, is your behavior. Credibility and trust are the result of being open, honest, and equitable in your dealings with students, and of openly soliciting and accepting students' comments or criticisms, of defining your expectations and the relevance of the subject, of communicating clearly, and of demonstrating interest and concern for your students' success. As you can see, credibility and trust must be earned.

**Lecture 9: ORIENTATION TOWARD SUCCESS**

Lecture plan**:**

9.1.High Expectations for Success

9.2. Encouraging and Supportive

Effective teachers are positive people. They generally believe in their students' abili­ties to learn and in their own ability to help students be successful (Elmore, 2000). Importantly, they seem able to communicate a positive attitude and to develop this in their students. Specifically, effective teachers have high expectations of success and are encouraging and supportive of students.

**9.1.HIGH EXPECTATIONS FOR SUCCESS**

Effective teachers hold high expectations of success for themselves and their stu­dents. They genuinely believe all students can master the content and that they themselves have the ability to help all students learn. It would appear that teachers' expectations cause differences in learning. Research indicates that when teachers' expectations of students rise, students learn more (Brophy, 1998; Gill & Reynolds, 1999; Good & Brophy, 2000; Weiss & Pasley, 2004; Wolfe, 1998).

It is unclear exactly how teachers' expectations contribute to learning. However, it appears that the expectations teachers have for both themselves and their stu­dents affect teachers' behavior, which in turn affects students' learning (Kolb & Jussim, 1994). For example, if you believe that Joanna is incapable of learning cer­tain material, you are likely to spend less time working with her, focusing instead on other students you believe are more likely to benefit from your help. Thus, Joanna receives less academic guidance and is more likely to fail.

Students are quite adept at sensing cues that subtly communicate your expecta­tions for them. If you hold low expectations for a particular student, not only that student but other students are likely to sense this and to adapt their perceptions and expectations accordingly. In short, students are constantly monitoring teachers' behavior and are likely to sense the attitudes and expectations behind that behav­ior. As a result, a student is likely to pick up on and internalize any teacher behavior that signals low expectations for that particular student and to lower his or her self- expectations (Brophy, 1998; Gill & Reynolds, 1999). This, of course, increases the likelihood that the student will not learn the material.

Most students enter school confident and expecting to be successful, but they quickly learn to adapt their self-perceptions to the expectations of the teacher (Kaufman & Aloma, 1997). Brophy (n.d.) and others have reported that the students most susceptible to the positive and negative effects of teachers' expectations are young, low achievers, students in transition (from elementary to middle school, for example), or students particularly fond of the teacher. Thus, unfortunately, some of the very students who most need their teacher's help and support are those for whom many teachers normally hold low expectations (Brophy, 1998).

Discussions of teachers' expectations and students' success often focus on the idea of self-fulfilling prophecy—that you get what you expect. Self-fulfilling proph­ecy is only one of two ways in which teachers' expectations affect learning and that it is, at most, a minor contributor (Kolb &Jussim, 1994).

More important are what Cooper and Tom call sustained expectations. Initial teachers' expectations may be more or less accurate and thus affect teachers' ini­tial behavior and students' learning. However, expectations can and should be continually modified to more accurately reflect students' abilities. The tendency of some teachers to stubbornly refuse to adjust their initially inaccurate (normally low) expectations of certain students can seriously impede learning. Whereas the effects of initial expectations are limited, sustained expectations have a cumulative effect. That is, they continually and repeatedly influence unsuccessful student per­formance over extended periods of time. The result is a vicious downward spiral— teachers expect certain students to fail, those students fail, the teachers lower their expectations still further, the students again fail, and so on.

You should try to convey to your students that you expect them to be success­ful and that you will help them be so. Set realistic goals, convey them clearly, and work to provide each student the opportunity to succeed. A good rule of thumb is to ensure that every student is successful most of the time. This is particularly true for students who are not academically oriented, whose academic self-concept is low, or who have special educational needs (Gill & Reynolds, 1999; Obiakor, 1999). For students who find school difficult and who may not believe they can be success­ful, you should attempt to structure assignments and activities they can complete successfully 80 to 95 percent of the time. This helps build students' confidence in their own abilities, and motivates them to try other, more difficult academic tasks. Even academically oriented students who may be confident of their abilides need to be successful most of the time. A success rate of 70 to 85 percent seems to lead to improved motivation and learning for these students.

Thus far we have discussed students' success in terms of only two types of students — successful and unsuccessful — each needing a specific level of success. You may have noted that academic confidence and optimal levels of success are inversely related. That is, as students' confidence and ability increase, the need for very high levels of success diminishes. To put it another way, less academically able or less confident students need to experience success more often. However, as the unsuccessful student becomes more academically competent and confident, you should structure tasks that take this into consideration. To keep the student chal­lenged and motivated you should gradually make assignments more difficult so that the student is still successful most of the time, but not as often.

You must also be careful to avoid prejudging students or failing to adapt your expectations when necessary. All students have more ability in some areas than in others, even within the same subject. In classes where they feel confident of their ability, students are likely to participate actively and freely. An effective teacher will tune in to a student's strengths and weaknesses and provide opportunities for more success in problem areas and somewhat less success in areas the student is already proficient in. Effective teaching requires the teacher to constantly match students' ability levels with task difficulty.

Teachers also convey high expectations for success when they provide remedia­tion for students who fail to master material the first time. Your instructional plans should include time for remediation using a variety of alternative instructional sources and materials (old textbooks, magazines, videotapes, computer programs, and so on). You should also be sure to give these students the attention they need in order to succeed. This attention should include both your own time and opportuni­ties for group work and peer tutoring. When you devote time to helping students understand the material, you convey a positive message both about your expecta­tions and about the importance of the material.

When most teachers think about expectations for success, they generally think of teachers' expectations for students. However, the most effective teachers also main­tain high expectations for themselves as well. Their own high personal standards motivate them to be well-prepared for class, use class time efficiently, and provide substantive feedback to students. They exhibit thorough knowledge of their subject; convey confidence and calm; dress, act, and speak professionally; and intentionally work to improve their own professional ability.

As we have discussed, you will most often convey your expectations indirectly, through your actions rather than your words. How, then, can you convey high expectations to students?

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**Investigate, discuss and solve the case; take into account the following questions**

1.What do Dorothy’s actions imply about her expectations for her students, particularly for Mike and for Penny?

2. How does Dorothy’s teaching personality reflect the attributes of an effective teacher?

3. If you were colleague of Dorothy’s and she asked you what you thought she should do, what would you tell her?

**Case “Why Doesn’t He Try Harder?”**

Ms. Dorothy Robertson has taught geometry for 22 years. She loves the subject, but even more she loves working with students who are just beginning to get into their high school math courses.

It is Thursday, third period, and Dorothy engages in the same routine she uses every day. Four students at a time are called to the board to solve a prob­lem that they are given. When they solve it correctly, they return to their seat until all students have had a chance to demon­strate a solution. Then, if there is time left, students get to start on their home­work for the following day.

The first four students go to the board, and three successfully complete the problem. The fourth, Penny, does not seem able to solve the problem, so Dorothy has her remain as she calls three new students forward. "I know you know how to do this, Penny. Just relax and think through the problem, and you'll be fine on this next one." Again,

Penny seems unable to work through the problem, but the other three students do so successfully. "That's okay, Penny," Dorothy tells her. "Go ahead and sit down, and you and I can practice these together during lunch."

Four new students are called up and successfully solve the problem they are presented. In the next group, though, Mike, a student who has struggled throughout the semester, has arrived at a solution, but it is incorrect. As the three successful students in this group return to their seats, Dorothy says, "I don't understand why this is so hard for you, but I know you can do it. You're going to stay up there until you prove to yourself and to me that you can," and calls three new students up. Even after all other students have returned to their seats to study independently for the upcoming test, Dorothy keeps Mike at the board to continue, unsuccessfully, working prob­lems that she assigns him.

She has been frustrated with Mike from the beginning. He had been a straight A student until this year, but he has struggled to maintain even a D in her class. She knows that he is intelligent and is certain that he is just not trying, maybe even rebelling. She just wants to push him to do this.

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 **9.2. Encouraging and Supportive**

Effective teachers are encouraging and supportive of students, addressing students' needs to belong, to be liked, and to be successful (Wang, Haertel, & Walberg, 1993). Ornstein and Lasley (2000) define teachers who are encouraging as those who respect and genuinely believe in students' abilities. They help students feel accepted as individuals, and they recognize effort and potential, not merely correct answers. Thus, encouragement relates to other important attributes like warmth, enthusiasm, and expectations for success. Through encouragement and support, you can help students meet your expectations for success even when they experi­ence some difficulty along the way.

Encouragement is particularly important when students are most likely to expe­rience reluctance and difficulty. This occurs in the early stages of learning a new task or concept, in low-achieving students, and for minority and female students (O'Halloran, 1995; Weiss & Pasley, 2004). Encouragement can motivate students to attempt tasks they may be reluctant to start and to continue working when they are struggling or becoming frustrated.

How can you encourage students without being condescending? First, a class­room environment that is supportive, safe, and open will promote students' willing­ness to begin new or unfamiliar tasks. Students must feel that the tasks you assign are realistic and important, that you will help them succeed, and that they can approach you for assistance if needed. Figure 5 lists some ways to demonstrate your encouragement and support.

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| FIGURE 5 How to Demonstrate Encouragement and Support for Your Students |
| 1. | Use positive comments about students' abilities rather than negative comments about their performance. |
| 2. | Be aware of and note improvement, not just perfection. |
| 3. | Help students learn to work through their own problems and evaluate their own work. |
| 4. | Be optimistic, positive, and cheerful. |
| 5. | Demonstrate good, active listening when students are speaking (focus your attention on the student, nod, and so on). |
| 6. | Provide several alternative routes to task completion and allow students some degree of choice. |

When students have begun a task but are becoming frustrated and are ready to give up, it is important to help them continue. Words of encouragement such as, "You can do it," "What you've done so far is good. What could we do next?" "I under­stand how frustrating this is, but I know that you can do it," "Let's try the next step together," "Don't give up, you're getting there," or "I know you can do it" indicate to students that you are aware of and sympathetic to their struggles but that you are confident they can work through the task successfully. It is important in this situ­ation that you help the students accurately complete the next step in the process with as little direction as possible. Ask questions or point out factors that help the students discover what they need to do next rather than simply give the students the right answer. By helping students work through problems mostly on their own, you build their confidence.

**Lecture 10: PROFESSIONAL DEMEANOR**

Lecture plan**:**

10.1.Businesslike

10.2. Goal-oriented. Serious. Deliberate

10.3. Organized. Adaptable/Flexible

10.4. Knowledgeable

Attributes under this heading may be the easiest for you to modify. Effective teach­ers, while being motivating and positive, also establish and maintain a professional demeanor. They are businesslike and task-oriented, yet flexible and adaptable when necessary to help students be successful. They are knowledgeable not just of the subjects they teach, but also of pedagogy and students.

**10.1.BUSINESSLIKE**

A common characteristic of effective teachers is a task-oriented, businesslike class­room demeanor (Brophy, 1998; McDermott & Rothenberg, 2000; Meichenbaum & Biemiller, 1998; Schmoker & Marzano, 2003). When you first hear effective teachers described in this way, you may imagine a cold-hearted, unsmiling taskmaster who uses an "iron hand" to force students to do nothing but work seriously on bor­ing, quiet tasks. However, this is not the case at all. In fact, students often perceive businesslike teachers to exhibit greater warmth and concern than other teachers (Chall, 2000; Hoffman, 2001).

The business of the classroom is learning. A businesslike teacher is one who emphasizes and focuses classroom activities on tasks most likely to help students learn. He directs his own behavior and his students' behavior toward the successful and efficient attainment of meaningful, clearly defined learning outcomes. If the teacher does this, learning is likely to improve and the teacher can be considered successful—that is, effective. If the teacher spends too much energy and time on tasks or activities not likely to improve students' learning, the teacher will be unsuccessful.

An analogy may help demonstrate this idea. Imagine for a moment a young boy who has suffered life-threatening injuries in a serious automobile accident. His family accompanies him to the hospital. The physician meets the patient and his distraught family at the emergency room door. She acknowledges the family and immedi­ately begins to determine the nature of the boy's condition. The family is directed to wait in the emergency room lobby, feeling anxious and alone. When the little boy's condition is stabilized, the physician briefly speaks to the child's family. She then instructs a nurse to stay with the family for a few minutes, excuses herself, and immediately begins treating another emergency admission. The physician's behav­ior toward the family seems somewhat cold, but she has saved the little boy's life.

Now let us assume for a moment that rather than beginning immediately to treat the young boy, the doctor, feeling tremendous sympathy for his family, spends sev­eral minutes consoling them. The physician instructs an aide to keep the child com­fortable while she remains to talk with the boy's family, build rapport with them, and console them. After several minutes they feel somewhat better, and the physi­cian leaves them to attend to the child. Unfortunately, during this time the little boy's condition has worsened. Although we might consider the physician a caring person, we would probably not consider her an effective physician.

Exaggerated though the analogy may be, it makes the point that the effective physician is the one who most effectively conducts the "business" of medicine. The best doctor would save lives and exhibit warmth and caring. However, we would expect a physician to focus on the primary business of the profession. Thus, sym­pathy and caring are important but not sufficient for effective doctoring ... or for effective teaching.

There appear to be four aspects of businesslike teacher behavior. A businesslike teacher is goal-oriented, serious, deliberate, and organized.

10.2.GOAL-ORIENTED

Businesslike teachers focus their efforts on helping students achieve learning goals. In the chapter on planning instruction, we discussed the importance of establishing the desired outcomes of instruction and of basing our instruction on these objec­tives. Businesslike teachers establish clear, realistic, specific objectives and commu­nicate these to students. They plan and conduct instruction in ways that efficiently and systematically move students toward the objectives. They actively seek input from students about the reasonableness of the objectives and about problems the students may be having, and they use this information to modify their instruction when necessary. They optimize activities and time devoted directly to helping stu­dents reach the established goals and minimize approaches, comments, questions, or behaviors that are not directed toward the goals.

**SERIOUS**

Businesslike teachers value learning and model this to students through their words and actions. This does not mean that they do not use humor, but their humor is natural and without cynicism or sarcasm. These teachers convey seriousness of purpose through earnest and genuine expressions indicating the value of the tasks at hand, reasonable expectations, guidance in task execution, and efficient use of time. The teacher treats the subject seriously, maintains a professional and confi­dent image, and uses appropriate verbal and nonverbal behaviors.

DELIBERATE

Also important is a businesslike teacher's ability to establish and maintain a sense of purpose throughout each lesson. Careful planning of instruction allows such teachers to be concise, thorough, and exact in conducting instruction. Businesslike teachers organize instructional activities or tasks in logical sequences, including a clear introduction, presentation, and closure. This type of teacher deliberately con­ducts instruction in ways that devote equal attention to all students.

Although deliberateness requires systematic planning and implementation of instruction directed toward specific goals, it does not mean that the teacher is inflexible. When the teacher becomes aware that students do not understand or that the planned instructional activities are not working effectively, the activities are adapted. Teachers must adapt as quickly as possible, but not without careful consideration of the learning objectives. In other words, they might ask why the planned activity is not helping students reach the goals, what alternative activities might help, and which alternative can immediately be implemented? Even when teachers deviate from planned instruction, they should remain focused on the orig­inal learning goals.

10.3.ORGANIZED

Businesslike teachers organize the classroom and instruction based upon the estab­lished goals. Furniture, resources, materials, equipment, and activities are organized to minimize disruptions. Teachers use available personnel, such as aides or parent volunteers, to promote desirable learning outcomes rather than to reduce their workload. Even classroom management and discipline procedures are intended to promote the established goals.

Generally, then, a businesslike teacher is openly focused upon the business of promoting students' learning. Guided by clearly established goals and objectives, the teacher plans for, implements, and adapts whatever instruction will most effi­ciently help students reach learning objectives. Although many distractions may arise, the teacher minimizes activities or time not directed toward reaching the objectives. Remember that this businesslike focus can be maintained without sacri­ficing genuine warmth and caring for students. Table 6 contrasts the behaviors of teachers who are businesslike with those of teachers who are not.

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| TABLE 6 Teachers' Businesslike and Nonbusinesslike Behavior |
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| Businesslike Teachers... | Nonbusinesslike Teachers ... |
| • Establish clear academic goals and objectives | • | Fail to establish academic learning goals |
| • Communicate the goals and objectives to | • | Do not communicate the goals and objectives |
| students |  | to students |
| • Plan lessons directed at helping students | • | Do not plan sufficiently or direct instruction |
| reach the objectives |  | toward objectives |
| • Seek inputfrom students aboutthe | • | Disregard or fail to solicit students' input |
| reasonableness of goals |  | aboutthe reasonableness of goals |
| • Emphasize activities and time devoted to | • | Emphasize nonacademic activities and use |
| academics |  | time inefficiently |
| • Treat the subject seriously and respectfully | • | Are sarcastic or make light of the subject |
| • Maintain a professional image | • | Seem to be "one of the kids" |
| • Involve all students in the instructional | • | Neglect some students while focusing mainly |
| activities |  | on good students |
| • Organize the room and equipment to minimize | • | Fail to carefully organize the physical setting |
| disruptions |  |  |
| • Use aides or volunteers to provide additional | • | Use aides or volunteers primarily to deal with |
| academic attention for students |  | administrative tasks |

ADAPTABLE/FLEXIBLE

A supervising teacher once told her student teacher, "No matter what you plan for, something else will happen." Teaching may not be quite that unpredictable, but certainly the most effective teachers are prepared for and able to adapt to a variety of circumstances (Kemp & Hall, 1992; McDermott & Rothenberg, 2000; Walberg, 1991). As you have probably noticed from your years of experience as a student, an effective teacher must be flexible and adaptable.

Flexibility and adaptability in this sense requires that you be aware of the need for change and be able to adapt to those changes. As you work with students, you must consciously monitor the effectiveness of the activities you and your students are engaged in. Through a variety of verbal and nonverbal cues, you can ascertain, or "read," the need for adapting or flexing. Nonverbally, students may appear puzzled, confused, frustrated, or bored. Verbally, they may appear unable or unwilling to respond accurately to your questions, to complete assigned tasks, or to ask meaning­ful questions. In each case, you must first be aware that a problem exists and then be willing to adapt your goals and instruction as needed. In short, you should avoid a tendency to stick with your lesson plan if it is not working. Next, you must deter­mine potential alternatives that will help you reach the established objectives, select an alternative, and implement it, often in a matter of a few seconds.

Figure 6 notes characteristics of the flexible, adaptable teacher. Notice that some of these suggestions are directed at planning developmentally appropriate instruction to reduce the need for subsequent changes.

The ability to recognize the need for change and to adapt instruction accord­ingly is probably the most difficult task for beginning teachers. However, with time and a conscious attempt to develop a varied teaching repertoire, you can improve your ability to adapt your instructional approach, even during the lesson

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| FIGURE 7 Enhancing Flexibility and Adaptability |
| 1. | Clearly define goals, objectives, or intentions and make them known to students. |
| 2. | When planning instruction, consider students' characteristics, attributes, preferences, and interests. |
| 3. | Plan instruction that is interesting to the students and is directed toward the intended learning outcomes. |
| 4. | While implementing the planned instruction, systematically and continually monitor students' verbal |
|  | and nonverbal behavior to determine the appropriateness of your instruction (for example, puzzled or |
|  | frustrated looks, inability to answer questions or to complete tasks, and student questions or comments |
|  | that indicate a lack of understanding). |
| 5. | When the planned instruction appears to be inappropriate, attempt to determine why and to identify |
|  | alternatives. |
| 6. | When necessary, implement an alternative and again monitor its effectiveness. |

**10.4.KNOWLEDGEABLE**

Brief mention should be made of the role of subject matter knowledge in effective teaching. Knowledge of the subjects they teach seems intuitively to be an important attribute of effective teachers. Certainly it is reasonable to believe that good teach­ers know their subjects well. However, there is little agreement regarding how much knowledge a teacher must have to teach well (Glass, 2002). We have all experienced teachers who were obviously quite knowledgeable about the subject they taught but unable to help students learn it, as well as teachers who effectively facilitate learning with substantial but not overly extensive knowledge of the subject.

Although this attribute has been frequently studied, research findings are mixed on the direct importance of teachers' subject knowledge in promoting students' learning (Druva & Anderson, 1983; Rivkin, Hanuschek, & Kain, 2000; Wenglinsky, 2000). However, research seems consistently to indicate that knowledge of the subject is important but not sufficient for effective teaching (Chen & Ennis, 1995; Graeber, 1999; Peart & Campbell, 1999; Porter & Brophy, 1988; Public Agenda, 2004). The most effective teachers combine content knowledge with knowledge of teaching (that is, pedagogy) and with knowledge of students. Collectively, this unique professional wisdom is sometimes referred to as pedagogical content knowl­edge (Shulman, 1986). Knowledge of the subject and of learners helps make the teacher more aware of the misconceptions students are likely to have or to develop about the subject. Knowledge of pedagogy and of learners allows the teacher to select and implement instructional alternatives that can best address students' mis­conceptions. Thus, effective teachers are knowledgeable about their subject and how best to help the individual students in their classes come to understand it appropriately.

**SPOTLIGHT ON RESEARCH**

**Teacher Knowledge and Student Learning**

The relationship between what teachers know and how much their students learn has always been debated. Many propos­als to reform education have emphasized the importance of teachers' content knowledge. In fact, some proposals have suggested that content knowledge and supervised apprenticeships may be all that are necessary for the preparation of teachers.

Wayne and Youngs (2003) conducted an extensive review of research on this topic in order to attempt to address the issue. They identified 21 studies that met their criteria for inclusion and that examined the relationship between mea­sures of teachers' college preparation and their students' learning. Among then- findings they report:

* In general, there are positive relationships between some measures of teachers' preparation and their students' learning.
* Teachers' ratings by their college instructors during their preservice preparation are associated with higher student learning.
* Teachers' scores on licensure and other certification tests are positively associated with greater student learning.
* With the exception of mathematics, the number or type of degrees held by the teacher, amount or type of coursework, or whether or not the teacher was certified are not found to be related to students' learning.

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