

## Chapter Eight

# Say, See, Do Teaching: The Physical Modality

### Continuing the Weaning Process

Our goal is to wean helpless handraisers from their chronic pattern of help-seeking in order to make them independent learners. Our objective is to replace tutoring of several minutes duration which reinforces helplessness with brief, yet rich helping interactions. Effective verbal and visual prompts, however, take us only halfway to our goal.

The focus of this chapter will be to reduce the *need* for corrective feedback during Guided Practice to an absolute minimum. To take the next step in weaning, we will need to deal with the *physical* modality of teaching and learning.

The most direct way of minimizing the need for corrective feedback *after* the lesson is to teach the lesson effectively in the first place. How do you teach a lesson so that mastery is the natural outcome of instruction?

### Teaching for Mastery

#### Goals of Instruction

The twin goals of instruction are *comprehension* and *long-term memory*. We want the students to get it and to keep it.

Comprehension and long-term memory are two sides of the same coin. They occur simultaneously and for the same reason – the integration of learning modalities.

### Preview

- With effective verbal and visual prompts, we are halfway to our goal of weaning the helpless handraisers.
- By teaching the lesson right the first time so that mastery is the natural outcome, we can prevent most of the helplessness.
- Both comprehension and long-term memory are maximized when we integrate the verbal, visual, and physical modalities of learning.
- Integration occurs when all modalities are used simultaneously. Teaching one step at a time with all three modalities produces a series of Say, See, Do Cycles.
- Structured Practice slowly walks the students through these cycles often enough so that they approach automaticity before Guided Practice.

In most classroom work, we teach to three modalities: auditory, visual, and physical. I will refer to the *verbal* modality when I wish to focus on the activity of the classroom teacher. I will refer to the *auditory* modality when I am focusing on the students reception of verbal input. The verbal modality of teaching should match the students ability to process auditory input.

#### **Comprehension**

The strength of the *verbal* modality is its unique ability to convey information and ideas. The efficiency of the verbal modality in this regard can seduce us into relying on it too heavily during instruction.

When we teach by talking, we rapidly load information onto the auditory modality in which storage is poor. There is good reason for saying, "*In one ear and out the other.*"

The *visual* modality, in contrast, seems capable of producing immediate comprehension almost effortlessly. Hence the saying, "*A picture is worth a thousand words.*"

The *physical* modality produces a unique depth of understanding. Hence the saying, "*We learn by doing.*"

This understanding of learning is not new. A Chinese proverb states it most succinctly:

*I hear, and I forget.*

*I see, and I remember.*

*I do, and I understand.*

#### **Long-Term Memory**

The auditory, visual, and physical modalities, as we know from experience, have quite different capacities for storage. While the *auditory* modality is extremely limited, the *visual* modality is nothing short of phenomenal.

When we sleep, we dream so realistically that we sometimes wake thinking that we were actually there. Our minds can conjure up sights decades old in holographic color at the equivalent of thirty frames a second – a movie from the past.

The *physical* modality is somewhere between the auditory and visual modalities in terms of memory. As with auditory memory, significant practice is required to get results. Nevertheless, once skills are acquired, the "feel" stays with us. "Once you learn to ride a bicycle, you never forget how."

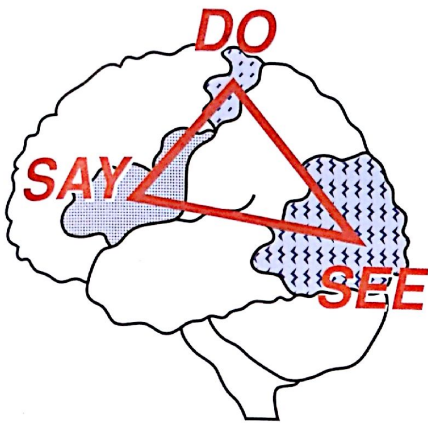
#### **Combining Modalities**

We have three learning systems, each with its own strengths and weaknesses. We can maximize both comprehension and long-term memory by *integrating* all three systems.

The brain simply constructs and decodes *patterns*. If all three modalities can be "welded together" into a *single pattern*, the student can profit from the strengths of each modality – *three for the price of one!*

This integration is crucial for learning in the auditory modality. While auditory memory by itself is weak, it can be made stronger by locking it into a pattern that includes visual and physical memory – *the strong carry the weak.*

To create  
comprehension and  
long-term memory,  
you must integrate  
Say, See, and Do.



*We weld the three modalities into a single pattern by using them simultaneously.*

How do we weld all three modalities together? Simple – use them *simultaneously*. Whatever neurons are firing at a given instant become integrated into a single pattern. That is why we learn by doing.

The diagram to the left represents this welding together or linking of modalities. For simplicity's sake, let's refer to these three modalities as *say, see, and do*.

#### **Say, See, Do Teaching**

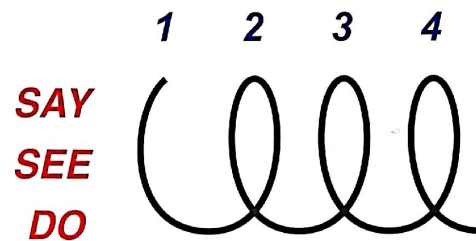
We already know that we *learn by doing* and that we *learn one step at a time*. Put these two notions together and you get a simple, yet powerful model for the process of teaching.

This model is comprised of the repetition of a unit which we will call a "Say, See, Do Cycle." A Say, See, Do Cycle integrates one "chunk" of input as follows:

- Let me explain what to do next
- Watch as I show you
- Now, you do it

The cycle is repeated as often as necessary in order to complete the lesson. The presentation of the lesson would be interactive by its very nature.

We will call this pattern of instruction "Say, See, Do Teaching." It is depicted in the figure to the right above.



*We learn by doing one step at a time in a series of Say, See, Do Cycles.*

#### **Say, See, Do Teaching Is Fundamental**

Do not leap to the conclusion that Say, See, Do Teaching is *direct instruction* as opposed to *inquiry* or that it is *induction* as opposed to *deduction*. Say, See, Do Teaching is more basic than any of these and is contained in all of them.

All good teaching focuses on learning by doing. The alternative is passivity. When planning a lesson you must constantly ask yourself, "What do I want the students to do with this chunk of material?"

The verb "do" forces us to make concepts into activities. If you want your students to explore and discover, for example, what skills will they need and what methodology will they employ?

In addition, do not leap to the conclusion that Say, See, Do Teaching is for *whole group* instruction or *small group* instruction or *individualized* instruction. It is for all of these. The whole point of classroom management is to bring the precision and support of individualization to a larger group while keeping goofing off to a minimum.



### Packaging Instruction

#### Two Basic Structures

A surprising amount of instructional methodology has to do with packaging. How do we package the activity of learning?

There are only two basic ways to package a lesson. You are familiar with both of them.

#### Bop 'til You Drop

The first one looks like this:

*Input, Input, Input, Input – Output*

This is the model we all grew up with. It characterized my junior high, my high school, and my college. The teacher does the *Input, Input, Input, Input* – the lesson presentation. After the input comes output by the students – maybe.

Think back to your high school history, government, and math classes and those college lectures. How many times did you sit through a 20, 30, or 40 minute presentation before doing anything. My own kids reported that even in high school the entire 50 minute class period was often taken up by the teacher's presentation with the homework assignment being given hurriedly right before the bell.

From the teacher's perspective lecturing is *exhausting*. It requires that you do *five matinees a day*. For this reason my name for the traditional method of packaging a lesson is "Bop 'til You Drop." If people in show business were asked to do five matinees a day, there would be a general walk-out.

Of course, Bop 'til You Drop produces serious problems with cognitive overload and forgetting. The students are literally in a state of enforced passivity throughout the presentation. Let's say your presentation lasts only twenty

minutes. By the time you reach output, what you said at the beginning of the presentation is twenty minutes old and has been overlaid with twenty minutes of additional material.

The cartoon on the facing page depicts my statistics professor during my first semester in graduate school. He scribbled equations furiously while talking over his shoulder. In eight weeks he taught 24 new Ph.D candidates that we were stupid and, very likely, on the verge of failure.



*Doing five matinees a day is exhausting.*





daughter Anne feed my grandson, Sam, when he was 6 months old. She was feeding him yogurt mixed with apple sauce. She would put some in his mouth, and he would gum it and swallow it. Then she would put a second spoonful in his mouth, and he would gum and swallow that. She repeated this process over and over. I thought, "Anne, you are so clever!"

It is particularly clever when you consider the alternative. What if she had placed a spoonful of apple sauce and yogurt into Sam's mouth and then, before he could gum and swallow it, she placed a *second* spoonful in his mouth. Then, before he could gum and swallow that, she stuffed in a *third* followed by a *fourth*. What would Sam have done with this input? Chances are, he would have either choked on it or spit it out. Feeding knowledge to students is an apt analogy for what we do in the classroom.

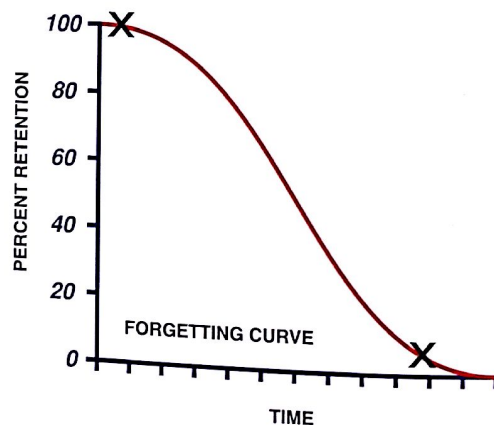
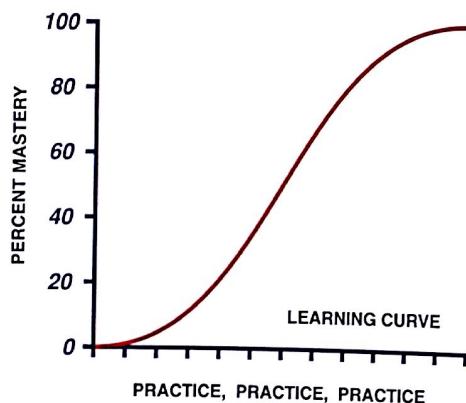
The diagram below compares the forgetting of input with Say, See, Do Teaching and Bop 'til You Drop. A *learning* curve is on the left side and a *forgetting* curve is on the right side. It's fitting to place them side-by-side since the only predictable outcome of learning is forgetting.

As we all know, retention drops as a function of time. In the auditory modality it drops like a stone. The "X" at the top of the forgetting curve shows where performance occurs with Say, See, Do Teaching. The "X" at the bottom of the forgetting curve shows where performance occurs with Bop 'til You Drop Teaching.

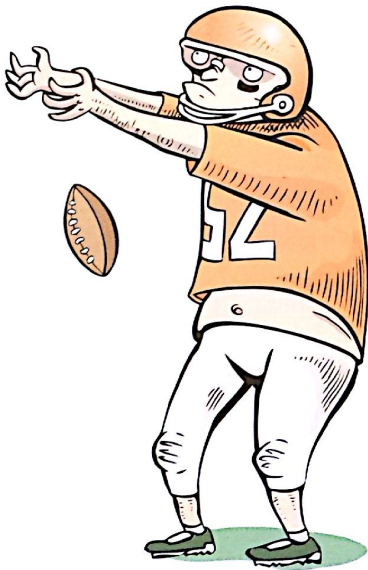
### Focusing on Performance

#### *Say, See, Do Teaching Is Coaching*

Imagine that you were a sixth grade basketball coach showing kids how to bend their knees to play defense. You



*Say, See, Do Teaching places performance at the top of the forgetting curve.  
Bop 'til You Drop Teaching places performance at the bottom of the forgetting curve.*



*Only perfect practice makes perfect.*

Good coaches know that you walk a razor's edge when you teach someone to perform a skill. There is no neutral ground upon which to land. If your trainee does not learn to do "it" right, he or she learns to do it wrong. The only alternative to a good habit is a bad habit. Bad habits, however, are very hard to break.

Coaches, therefore, are perfectionists. In the words of Vince Lombardi, legendary coach of the Green Bay Packers:

*Practice does not make perfect.  
Only perfect practice makes perfect.*

would model the stance and then say, "Now, let's see you do it." If you saw a kid with knees only slightly bent – the typical error – you would immediately step in and do something about it.

You might say, "I am going to put my hand on your shoulder. Keep bending your knees as long as I'm pushing down... There, that's it. That's how defense feels."

Watching a student perform a skill incorrectly is your cue to give corrective feedback. You give most of your corrective feedback during *initial acquisition*, not later. You have high standards as you coach because anything else is a waste of time. In fact, it is *worse* than a waste of time.

Of course, you know better than to expect one trial learning. After having constructed correct performance, you would repeat that performance, slowly at first, watching like a hawk in order to spot any error. You would correct errors as you went to keep them from being repeated.

With additional practice, speed and fluidity would gradually develop. But a good coach makes sure that correct performance is *never* sacrificed for speed. *Teaching* something means teaching your students to do it *right*. To coach Lombardi's dictum you can add the words of John Wooden, legendary UCLA basketball coach:

*You haven't taught until they have learned.*

#### *The Good Old Days*

Trying to teach a class with the involvement and precision of coaching has always been a preoccupation of effective teachers. I grew up with the most time-honored solution – three walls of slate chalkboards with erasers and chalk for each student lying in a chalk tray. Throughout my grade school years I did almost all of my lessons "at the board" – vocabulary, arithmetic, sentence structure, verb tense. We were rarely at our desks except for group work.

A half-dozen times a day I would hear the teacher announce the beginning of a lesson by saying,

"All right class, let's all go to the board."

If the lesson was math, she would write a problem on the board, and we would copy it. Then she would say,

"Class, let's do this first problem slowly so that we all get it."

The teacher would briefly explain and model step one, and then we would do step one. She could check our work as it was being done from the front of the class. She could easily read it since it was written large in chalk.



Corrective feedback was given immediately, often by way of partner pairs standing next to each other.

"Robert, would you check your partner's multiplication on that last step."

We would walk through the steps of the problem with continual monitoring and corrective feedback so that there was little worry about getting it wrong. We were thoroughly engaged, but, since kids love to write with chalk, it was hardly work. The teacher coached the class through the new skill just as a basketball coach might coach a team through a new play.

After completing the first problem we would erase and do another problem. The process would be the same, but we would pick up the pace a bit since we were now familiar with the steps. Then we would erase and do another, then another, then perhaps another. By this time we were "in the groove." Then the teacher would say,

"Let's do one last problem, and then we'll take our seats."

At our seats we would do another five or six problems as the teacher circulated – what is now called Guided Practice. But we didn't need much guidance since we had already done a number of problems correctly at the board. All but one or two students were at Independent Practice by the time we took our seats. To stay busy, the teacher checked our work as it was being done.

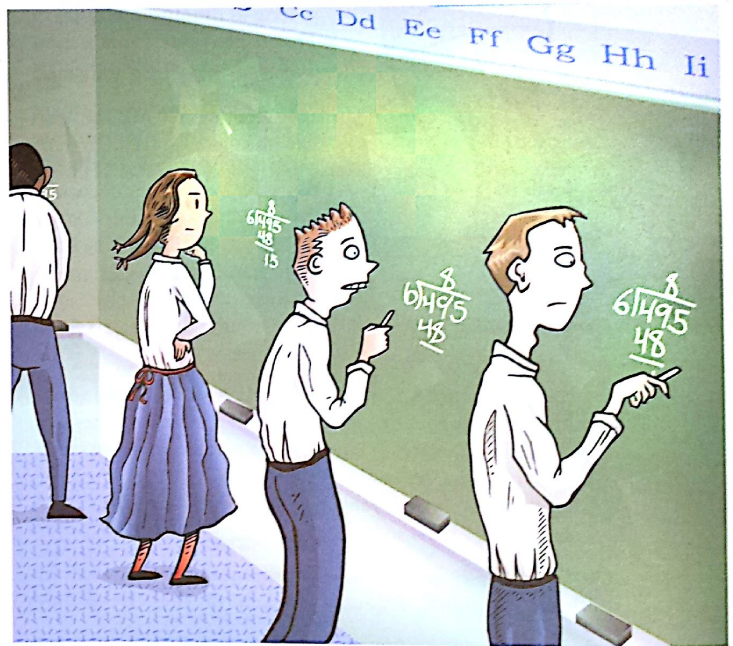
#### *Bring Back the Chalkboards*

The use of chalkboards has gone out of style since I was a kid. I visited my old elementary school recently, and it had been renovated. The slate chalkboards had been hauled to the dump and replaced with coat hooks and bulletin boards.

Learning theorists have a tendency to denigrate the old in order to make way for the new, and in so doing often

"throw the baby out with the bath water." Sending kids to the chalkboard has been demonized because "students suffer embarrassment when they make mistakes in front of their peers."

Never in my growing up was a student sent to the board alone, and embarrassment was hardly an issue. Rather, the teacher's continuous monitoring and prompting prevented us from doing it wrong.



*The teacher could check our work from the front of the class since it was written large and in chalk.*

You will need ways of doing Say, See, Do Teaching that are simple and convenient.

This format provided the involvement and precision of one-on-one coaching – the ideal of group instruction. Working at the board also prevented a lot of squirrely behavior since it enabled us to

get out of our seats, stretch our legs, and do something. Besides, writing with chalk was fun.

Say, See, Do Teaching can occur whenever you make learning physical. I read an article years ago in which a teacher taught inner city kids spelling by having them stand up and form each letter with their bodies. Spelling review resembled cheerleading practice.

Say, See, Do Teaching formats can be beautifully creative. But you will also need ways of doing it that are convenient and cheap. These will be your “bread and butter” teaching formats that you use day in and day out.

### The Three Phase Lesson Design

It is helpful to have a simple model for packaging the presentation of a lesson from beginning to end. It allows us to do a quick check during lesson preparation to see if anything has been left out. We will continue to imagine math as our lesson prototype since it is the perfect combination of conceptual complexity and physical expression.

Lessons, regardless of the subject area, tend to have three phases. Like a play, they have a beginning, a middle, and an end. The beginning is *setting the stage*. The middle is *acquisition* – the initial acquisition of skills and concepts. The end is *consolidation* – coaching and practice to mastery with “variations on a theme” being optional.

#### Setting the Stage

Setting the stage represents the preliminary business of the lesson: a series of decisions by the teacher as to what

the students need to have in mind before they encounter the new material. The items listed below are typical. Any combination of these may be present in any given lesson, and you may wish to add a few items of your own:

- **Raising the Level of Concern:** Why is this lesson important?
- **Review and Background:** What skills from yesterday need to be rehearsed? What information is needed to create a context for today’s lesson?
- **Goals and Objectives:** Where will this lesson take us? What will we learn? You might wish to present a “pre-view of the coming attraction” called an *advance organizer*.

#### Acquisition

Acquisition is the label we will give to the middle part of the lesson – the meat and potatoes. This is the main event. During Acquisition we put the new stuff into the students’ heads.

During Acquisition we teach to all three modalities, and we maximize their integration. The labels below are common names for the elements of the Say, See, Do Cycle.

- **Explanation (Say):** What do we do next? It is a prompt – one step. The less said the better.
- **Modeling (See):** What does this step look or sound like? Modeling is a broad term in learning theory that is synonymous with “demonstration.” It allows the students to experience correct performance, be it a computation, an athletic skill, the phrasing of a passage of music, or the proper pronunciation of a word.
- **Structured Practice (Do):** What does correct performance feel like? The purpose of Structured Practice is to build correct performance without building bad habits. It is practice that is so highly structured that the likelihood of error is driven to near zero.



### Consolidation

Consolidation in most cases is synonymous with practice, practice, practice. It perfects and solidifies new learning while committing it to long-term memory.

There is, of course, no end in the quest for perfection. How many times must a professional musician practice a passage or a professional basketball player practice a shot before it is mastered to his or her satisfaction?

Yet, even at the level of normal classroom learning, performance must become second nature. We must achieve what Dr. Benjamin Bloome refers to as "automaticity."

- **Guided Practice:** Guided Practice is practice at a level of Acquisition that requires *feedback from a coach* in order to maintain correct performance. Error readily invades performance, and it often goes undetected by a new learner. Without the supervision of a coach, bad habits can creep into performance where they are then inadvertently practiced to mastery.
- **Independent Practice:** With Independent Practice you are *your own coach*. First, you must be able to discriminate error as soon as it occurs. Then, you must be able to reinstruct yourself in order to correct the error.
- **Generalization and Discrimination:** Generalization and discrimination constitute the "fine tuning" of a lesson. *Generalization* refers to teaching variations on a theme. In mathematics, there might be variations of a procedure. In the humanities, there might be different interpretations of a historic event from varying perspectives. *Discrimination* refers to delineating correct from incorrect performance.

Consolidation should not be confused with "drill and kill." We can all remember doing math problems at our seats long after the point of diminishing returns had been reached. Over the years, however, almost all repetition has

been stigmatized as drill and kill. It is hard to find a new teacher who is comfortable with the level of repetition that constitutes Structured Practice and Consolidation.

Yet, common sense tells us that mastery requires enough repetition to produce comfort and fluency. If we do not provide that repetition under controlled conditions with feedback, it will occur haphazardly or not at all.

The diagram below shows the Three Phase Lesson Design in its entirety. Acquisition is the main event with Say, See, Do at center stage. Note also the repetitions of the skill (R1, R2, etc.) during Structured Practice to make performance nearly automatic *prior* to Guided Practice. Consequently, there should be only occasional need for corrective feedback *during* Guided Practice.

### The Three Phase Lesson Design

#### Setting The Stage

Raising The Level Of Concern

Review And Background

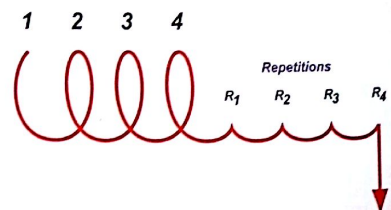
Goals And Objectives

#### Acquisition

Explanation (Say)

Modeling (See)

Structured Practice (Do)



#### Consolidation

Guided Practice

Independent Practice

Generalization And Discrimination

Transition To Guided Practice



## Structured Practice

### *Structured Practice Preempts Bad Habits*

One of the most noticeable characteristics of lesson presentation when you watch an effective teacher, regardless of the subject area, is that Structured Practice comprises the bulk of the lesson. Only during Structured Practice do we have enough control over performance to produce perfect practice. If we “pay our dues” during Structured Practice, students should need relatively little help during Guided Practice.

### *Walk through Slowly*

The traditional method of “getting it right the first time” is to *slow down* and walk students through performance one step at a time. With continual monitoring and corrective feedback, students feel support as they gradually gain confidence. With additional repetitions, students’ performance becomes increasingly fluid and automatic.

With a musical instrument, for example, the teacher would have the student play the passage slowly at the beginning in order to play it “cleanly.” Once it was played cleanly, the student could slowly increase speed as long as he or she maintained a clean and fluid performance. If students speed up too soon, errors immediately creep in, and the passage become “ragged.”

Students, of course, always want to go for speed too soon. They want to play “hot licks” like their heroes. The eternal struggle of the teacher or coach is to slow students down until they can increase speed without increasing error.

## Say, See, Do with Concepts

### *Performance in the Humanities*

It is common to regard concepts as fundamentally different from physical skills when it comes to teaching.

Social studies teachers will say, “You have to approach the teaching of ideas entirely differently.” This is a misconception.

While history is “conceptual” in nature, it is no more so than mathematics or playing a musical instrument. All skills are simply conceptual operations that are:

- expressed through performance
- perfected through feedback
- made permanent through repetition

Social studies teachers can be seduced into thinking that their subject is uniquely “conceptual” if they rely heavily on Bop ‘til You Drop Teaching. When input is divorced from output, teachers tend to drift into a “mentalistic” model of learning – the notion that understanding occurs as a direct result of input. This is another misconception.

We do not create understanding directly. We create it *indirectly*. Understanding is a by-product of experience.

Our job as teachers is to create that experience. Without *doing* something with conceptual input *quickly*, it will simply dissipate – another example of “in one ear and out the other.”

In the humanities, therefore, the central question of Say, See, Do Teaching is, “How do you *do* a concept?” There are a limited number of answers to that question. You can:

- **Talk** – anything from quickly paraphrasing a concept with a partner to an English-style debate.
- **Write** – anything from a quick in-class essay to a dissertation.
- **Perform** – anything from some role playing in class to acting out a scene in Shakespeare to a medical school internship.

### ***Partner Teaching***

Partner teaching is one of your “bread and butter” Say, See, Do Teaching formats. The procedures described below are simple and can be used in any subject area. It is, however, uniquely suited to producing performance with concepts during a class period.

First, divide the class into partner pairs. This is a subtle process in which the teacher pairs strong with weak while avoiding best friends, worst enemies, and other combinations that just won’t work. Partner pairing will determine your seating arrangement since you will want to get in and out of partner teaching frequently.

To begin input, explain a “chunk” of the concept and say, “Teach your partner.” Partner A teaches Partner B complete with explanation and demonstration just like you did. Then have Partner B teach Partner A in the same fashion. Repeat this process as you move on to the next step and the next.

The first time you use partner teaching, however, practice with a piece of review material. The real lesson is, “How do we behave during this format?” All of your corrective feedback will be aimed at training the students to implement partner teaching properly. The errors of greatest concern to you are “format errors.”

The most common format errors are 1) parallel play, and 2) lazy teaching. In parallel play the partners are doing the task side-by-side, but nobody is talking. In lazy teaching, one person is explaining while the other person is doing. Both of these short-cuts reduce the integration of modalities.

Corrective feedback might sound like this:

“Who is the teacher?”

“I am.”

“Good. As you explain it, *show* her how to do it just as I did in front of the class. When you are finished, switch so your partner becomes the teacher.”

In addition to being interactive, this format is very efficient since there is no down time. Students are either teaching or being taught. It not only structures step-by-step performance of ideas through verbalization, but it also functions as a pre-writing activity.

### ***Clear Writing Is Clear Thinking***

Writing and rewriting are the crucibles in which the fragments of ideas that pass for understanding in our consciousness are forged into clarity. Clear writing is clear thinking. We are all, therefore, teachers of English composition.

When writing becomes a process rather than an assignment, it fits very nicely into the Say, See, Do framework. Think of partner teaching as the Say, See, Do Cycles of the lesson. This could be followed by a ten minute in-class essay to integrate the material while it is fresh.

Structured Practice might take the form of Read Around Groups (RAGs) in which students groups take turns reading the papers of other groups, selecting the best one, and marking strong passages in the margin. The class might then construct a “rubric” listing the key features of a well-written essay. Guided Practice would be the writing of a second and third draft.

### **Problems of Scale**

#### ***Coaching and Classroom Chaos***

Coaching the performance of a skill provides a model of teaching to high standards that we can all understand. In coaching, continuous monitoring, immediate corrective feedback, and high standards are integral to acquisition.



The problem for a *classroom* teacher is one of scale. How can you replicate the involvement, precision, and support of coaching in a class of thirty students?

Having a room full of students all doing something can be noisy. All of that *doing* can spin out of control and become a discipline management nightmare. And, if the students are all *doing* at the same time, how do you deal with all of the different mistakes that are being made simultaneously?

#### ***Expensive Trade-Offs***

One way of simplifying your job and reducing potential chaos, especially if you lack “bread and butter” Say, See, Do Teaching formats, is to eliminate the *doing*. The room really settles down when you have the kids sit quietly.

If you do this long enough, however, it may warp your understanding of the learning process. You might end up adopting a bogus theory of learning.

#### ***Bogus Theories of Learning***

During your years as a teacher, you will run across many bogus “theories” of teaching and learning. They will not be labeled and attributed to some great theorist, however, because nobody would want to own them.

But, they are all around you, and they can easily seep into your thinking. It would be worthwhile to do some discrimination training at this point as a way of inoculating you against the more common bogus theories.

#### ***The Viral Theory of Learning***

The Viral Theory of Learning assumes that students acquire learning the same way that they acquire chicken pox – by being *exposed* to it. The Viral Theory of Learning comes to the fore whenever we are trying to teach too much material in too little time. You will hear colleagues say things like,

“We can’t spend too much time on this topic, but I want the students to know that it’s out there.”

“We have to at least mention it because it’s going to be on the standardized test.”

#### ***The Professor Harold Hill Theory of Learning***

Professor Harold Hill was the main character in Meredith Willson’s musical, *The Music Man*. “Professor” Hill was the flim-flam artist who sold expensive band instruments and uniforms to parents in nineteenth century small town America only to skip town before teaching the kids how to play. But when Professor Hill missed his train out of town, he was cornered by angry parents and hauled in front of a room full of bedecked kids with their horns. Professor Hill was forced to put his “think method” into practice then and there. He turned to his “students” and implored desperately, “Now THINK! Just THINK!”

The “think method” is not limited to Broadway. It is alive and well in schools all over the country. I know of a teacher who recently chided her class for using the same tired adjectives in all of their sentences.

“I want you to use some more colorful adjectives when you write – not the same ones over and over. Be creative.”

However the teacher had not spent one minute of class time expanding the students’ repertoire of adjectives. I could just picture her standing in front of the class and saying,

“Now class, think! Just THINK!”

#### ***Bop ‘til You Drop***

Of course, the world champion of bogus teaching methods is Bop ‘til You Drop. The obvious shortcomings of this approach have hardly gone unnoticed by educators. It has been decades since I first heard this saying:



*Teaching is not talking, and  
learning is not listening.*

But this insight has hardly swept the nation by storm. To the contrary, Bop 'til You Drop is still the norm in secondary and post secondary education.

One by-product of this widespread use of Bop 'til You Drop is that, by the time you take your first teaching job, you will have lived with it for a solid decade. A decade of modeling will have a profound impact on your approach to instruction whether you want it to or not.

The popularity of Bop 'til You Drop is not without reason. In addition to your having grown up with it, Bop 'til You Drop is seductive. It seems as though it *ought* to work. After all, once we get information as far as the ear, we are so close to the brain. Just another inch or two... Besides it saves all of that planning time required to come up with something for the students to do.

Yet, the greatest appeal of Bop 'til You Drop may be that very thing we find most appalling – the utter passivity on the part of the students. When you make students active in the classroom, you have to manage that activity. If you are not highly skilled at management, the activity can run amok. For teachers with little training in discipline management, talking to passive students is far less stressful than constantly struggling to keep the lid on. It may be their way of avoiding being the nag they don't want to be.

### **Covering the Material**

#### ***No Time for Mastery***

The umbrella term for teaching *too much* curriculum in *too little* time is “covering the material.” It is teaching in fast forward. Unfortunately, if you don't teach correctly, the students don't learn correctly.

To a frightening degree systematic skill building has been replaced by “covering the material” in American education. I've gotten into a habit over the years of asking the following question when having lunch with sixth grade teachers,

“What percentage of students in your class have their times tables down *cold* through 12?”

The reason I first asked this question was because the teachers were complaining about their students' math skills. I chose time tables because it is simple rote learning – not something conceptually “deep” that some kids couldn't get. And it is prerequisite to everything that follows in the math curriculum.

The answers I received were shocking, but they have been echoed dozens of times by sixth grade teachers in every part of the country. In the suburbs the rate is 25-35%. Downtown it is 10-15%.

When I was in third grade, the whole class mastered their times tables in three weeks. During that time we lived and breathed times tables. We didn't just drill. That's no fun. We had teams, we had races, we had our names posted around the room with a bar taped below announcing each new times table that we had mastered. We did time tables hop scotch on the playground.

How can a kid learn long division without knowing the times tables? How can a kid want to pursue math? Kids instinctively avoid those areas in which they lack confidence. We ask ourselves, “Why don't more students pursue math and science in college?” The simple answer is that we lost most of them by the end of third grade.

#### ***So Much To Learn***

Of course there is always a good reason for speeding up. In my son's calculus class, which contained the 24 best math students in the high school, his study group was get-

ting A's and B's until March. Then they all suddenly pulled D's on the test.

My wife, Jo Lynne, and I had a conference with the math teacher. She said,

"We have to cover all of this material because it's going to be on the Advanced Placement test which is given in May. We simply *have to* pick up the pace."

How failing to learn calculus would prepare someone for the AP test was beyond us, but the teacher was adamant. Some parents hired tutors, and other parents wrung their hands as their kids drowned.

#### ***Slow Down!***

If I were to give one simple prescription for increasing learning in American education, it would be, "Slow down!" What is the point of covering a lot of material if it goes past the students in a blur? It is better to have 10 lessons learned than 100 lessons forgotten. Madeline Hunter had a saying about covering material:

"If your objective is to cover the material, cover it with dirt because it's dead."

Of course, this notion runs counter to the prevailing winds in American education. Just look at the state curriculum guides or the thickness of a high school text book. To cover all of that material would require that we bop very fast indeed.

#### ***Dump the Students and Speed Up!***

The problem with Say, See, Do Teaching is the *doing*. The doing slows you down something fierce! It takes *time* to do stuff. An effective teacher will spend more time with output than with input.

If you want to speed things up significantly in order to cover more material, there's only one way to do it. You have to *get the students out of the learning process*.

Eliminate all of that time consuming "learning by doing," and you can hit curriculum overdrive. Then, the amount of material you cover in a semester is limited only by how fast you can bop. Why, if we "floor it," we might even cover *everything that's important!*

#### ***Everything That's Important***

I read an article some time ago in which the author collected all of the topics that various "experts" thought were "essential knowledge" for a high school student. When combined these topics represented seven and a half years of education.

When I read the list I was appalled! It left out all kinds of things that I thought were essential. They didn't learn squat about the Greeks and the Romans. The Renaissance was over before it got started. Why, those kids wouldn't know Caravaggio from DiMaggio. Seven and a half years of high school, and the kids are still ignorant!

Or, could it be that we are pointed in the wrong direction? Perhaps our job is to take a carefully selected *sample* of knowledge and use it to teach the kids *first* to think and *then* to express their thoughts clearly in spoken and written form.

#### **Pressure to Bop**

##### ***It's Going to Be on the Test***

During a workshop, teachers sometimes experience consternation when they realize that teaching properly will slow them down. They say, "But it's all going to be on the standardized test!"

I try to comfort them by explaining that no kid ever got a lower score on a test by learning more. I tell them that administrators don't hassle effective teachers. They are too busy cleaning up the messes made by ineffective teachers. But teachers these days have been pushed by "leaders"



with a life-long devotion to the Viral Theory of Learning to the point where they are running scared.

### **Teaching to the Top**

Bop 'til You Drop can produce learning, truth be told, but only for the top students. They read the assignment, take notes, and study for the test. These efforts outside of class provide the "do" for learning by doing.

If, however, you wish to reach the many rather than just the few, you will have to take a more active role in structuring the work that produces learning. And you will have to do it during class time.

If you send students home without having achieved mastery in class, and if the kid cares about doing homework, six hours later he or she will be sitting at the kitchen table trying to figure it all out. This is where *cultural double jeopardy* comes into play.

If the student's parents are "learning oriented," they will at least sit down with their kid as I did with my sons, look at the algebra assignment, and repeat these time honored words.

"Well... Hmmm... It's been a long time since I've seen one of these."

When I could, I helped. When I couldn't, as in calculus, I hired a tutor. But, one way or another, I was not about to stand by and watch my child drown.

If, however, the kid's parents are not "learning oriented," lots of luck! This is one of many reasons why kids from the bottom quarter of the socio-economic spectrum are six times more likely to drop out of high school than kids from the top quarter.

### **Homework**

What, then, do you send home for homework? It's simple – something the kid can succeed in doing.

The function of homework is Independent Practice. If the students are at an earlier phase of acquisition, don't send the work home. Either wait until the students have achieved mastery in class, or have them do some review.

### **When to Bop**

I do not mean to imply that all "bopping" is bad. I know that exceptional teachers are made out of ham. I know how much fun it is to strut your stuff. It doesn't have to end.

Just keep in mind that students remember stories, not lists of facts. Stories stick in the mind because the listener supplies the visual modality through imagination.

Good story telling pays its greatest dividends at the *beginning* of the lesson when you are Setting the Stage. Once you have "set up" the lesson and are ready for the "new stuff," it is time to slip back into Say, See, Do mode.

### **Mastery, Helplessness, and Weaning**

#### **You Get What You Pay For**

The three-phase lesson design gives us a simple language for describing the teaching process. If this process is carried out thoroughly, *mastery* should be the natural outcome.

But insofar as the process is abbreviated, *failure* will be the outcome. The students' casualty rate on a lesson is a good index of the degree to which the teaching process has been abrogated.

#### **Missing Lesson Parts**

The part of the lesson that is most commonly omitted is Structured Practice. Taking mathematics as our model once again, it is not uncommon to see a teacher walk the class through only one or two examples before going to Guided Practice. It is equally common to see the teacher model all of the steps of the computation on the board,



pausing only for questions, and then go straight to Guided Practice before the kids do a single problem.

### *Weaners Think Like Lawyers*

When students arrive at Guided Practice on cognitive overload from the teacher's input, help-seeking will be the predictable outcome. Cognitive overload is the first cousin of learned helplessness.

The helpless handraisers will be waving their arms in the air as soon as the teacher says, "Let's get to work." As we say during training:

*All the chickens come home to roost in Guided Practice.*

Weaners would like you to spend as much time with them as possible, of course. But, they want your *nurturance*, not your scorn for having done nothing. They want to enroll your helping instincts.

To do this, they must think like lawyers. They must *have a case*.

Skillful weaners, therefore, are sophisticated consumers of teaching. They can tell a faulty product when they see one. They know when a step of the task analysis has been left out. They know when a step is too big. They know when the teacher has assumed too much. They

know when they have a good case for seeking help.

When weaners have a good case, they will pursue it with zeal. With their hands waving helplessly in the blue, they will nail you for five minutes of individualized attention.

### *Preempting Helplessness*

The dividends of teaching a lesson thoroughly go beyond the acquisition of learning. Teaching thoroughly provides the *preventative* component in our *weaning program for helpless handraisers*.

Teaching the lesson thoroughly ruins the weaner's case for help-seeking. How can a weaner say, "I don't understand how to do this," after you have walked him or her through several correct performances?

Weaners may, of course, give help-seeking one last try out of pure habit. But, having laid the groundwork for weaning with both thorough teaching and a good VIP, you are in a position to give scant attention for helplessness and generous attention for effort.

With thorough teaching, therefore, you work yourself *out of a job* during Guided Practice. With incomplete teaching, you work yourself *into a job* during Guided Practice.

### *The Proper Function of Guided Practice*

With students working away and helpless handraisers weaned, you have the luxury of pausing, taking a deep breath, and asking yourself, "What should I really be doing with my time during Guided Practice?"

Here's a thought. You could free up your evening for lesson planning by doing your paper grading during Guided Practice. By checking the work *as it is being done*, you could hold the students to high standards just like any good coach. Checking the work while it is being done, however, opens the door to an even greater dividend – the systematic management of motivation.



*Like lawyers, weaners must have a case.*