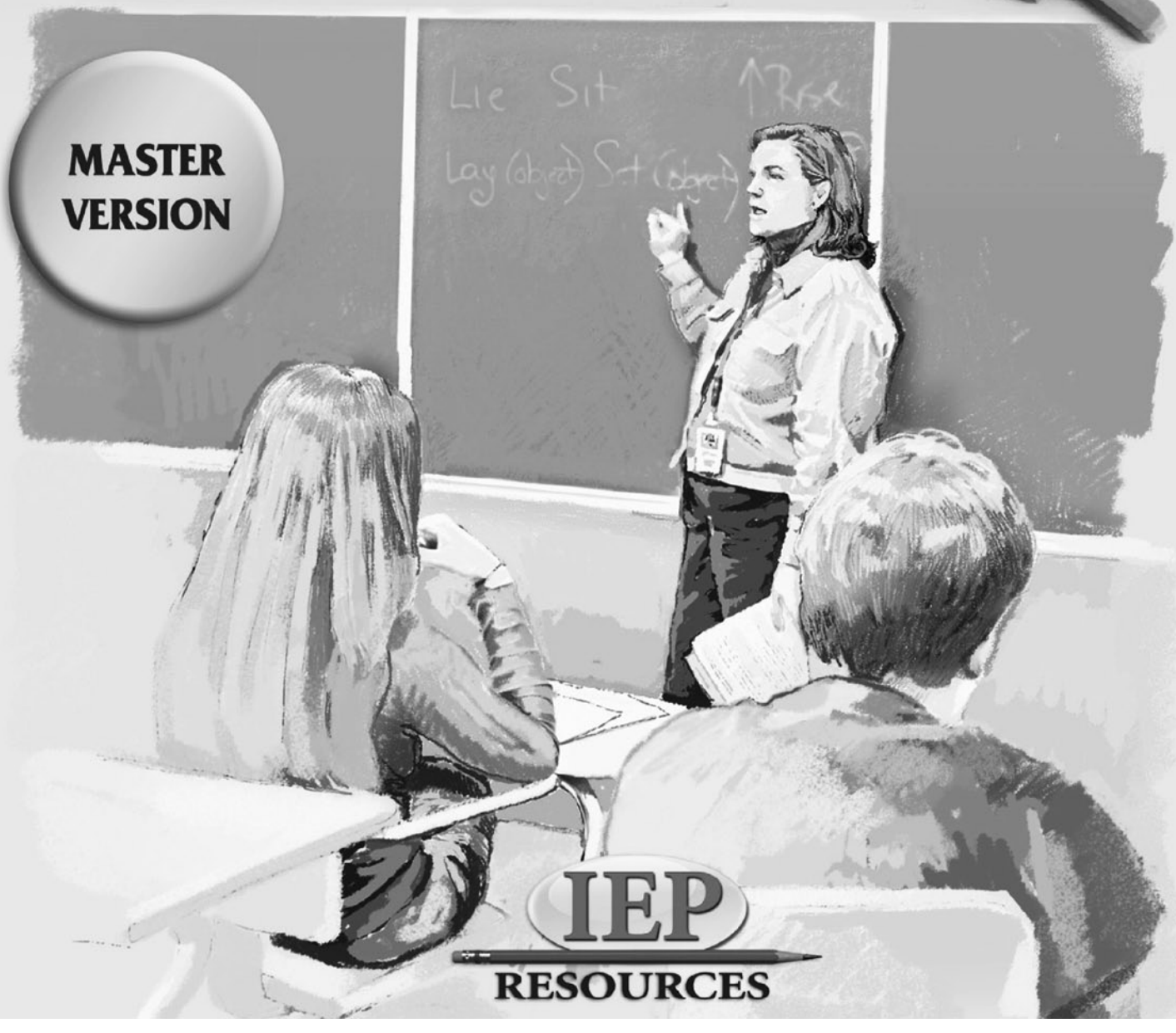
Elements of Teaching

A Best Practices Guide for Beginning Teachers

Barbara D. Bateman

MASTER VERSION



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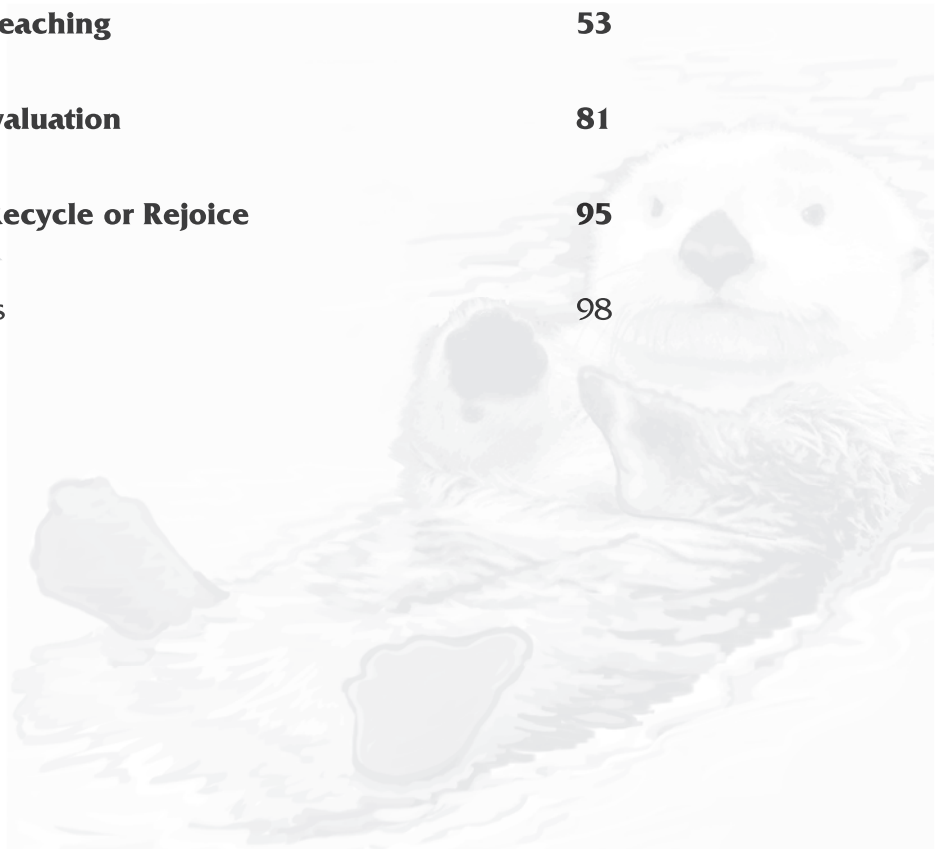


After a lengthy, bitter, expensive legal battle between school and parents over the education of a student, an observer at the trial said quietly to a companion, "After all this, what really matters, and all that matters, is what happens between that boy and his teachers." What a wise and true perspective. When the laws have been passed or repealed, the budgets passed or failed, the reorganization done and all the memos written, the fact remains that education happens between student and teacher. Teaching is an awesome responsibility. Done well, it is exciting, rewarding and fun, as well as hard work.

Whether students or teachers are identified as "general" or "special" education, the core principles of professionalism and of effective teaching are the same. Human beings learn as we learn, but some learn more readily than others. Some need nearly perfect teaching; others learn in spite of much that is imperfect. Our view is that everything truly said about good teaching is important for all teachers, regular and special education, alike. Sometimes focusing on special education can help us see general education more clearly, as if through a magnifying glass.

Ozzie's Words of Wisdom

Whether students or teachers are identified as "general" or "special" education, the core principles of professionalism and of effective teaching are the same.

Special education is now defined in the Individuals with Disabilities Education Act (IDEA) regulations as "specially designed instruction to meet the unique needs of the child." Most, if not all special education students, need superb instruction while many regular education students seem to learn readily by osmosis, by just being alive in the world. By definition, to be IDEA eligible, a student must need special education, i.e., specially designed instruction, and exceptional execution of that instruction.

Historically, special education had a nurturing and protective element. By the 1960s that emphasis had largely been replaced by a focus on careful, intensive instruction.

Zigmond, speaking for many of us, especially in the fields of learning disabilities and behavior disorders, recalls:

> ". . . how optimistic we were about the outcomes for students who received properly implemented special education. It "fixed" them. It taught them things they had not learned before, despite opportunities to learn in the mainstream or in the community. Special education taught what could not be learned anywhere else.
>
> "In addition, the special education teacher was uniquely prepared for the task. She had learned how to figure out what each individual student assigned to her needed to know and how to teach it. Sometimes she just asked; sometimes she observed; sometimes she tested. Then she designed instructional activities, made materials, and taught. The special educator was detective and diagnostician. She was clever and creative. She knew a lot about children and about instruction, and she knew that students were depending on her to help them achieve. Above all else, however, she was relentless. She did not give up until she and her students had been successful . . . The (special education) teachers who left teacher preparation programs in those early years had a mission . . . They were prepared to teach intensively, preferably one-to-one."[1]

Ozzie's Words of Wisdom

By the mid-1980s, the special education scene had changed until it was hardly recognizable. Teachers had case loads of 50, 75, or 100 students, dozens of IEP meetings plus other IDEA paperwork, collaboration and consultation duties, and on and on.
The results of this reduced ability to teach were predictable.

However, by the mid-1980s, the special education scene had changed until it was hardly recognizable. Teachers had case loads of 50, 75, or 100 students, dozens of IEP meetings plus other IDEA paperwork, collaboration and consultation duties and on and on. The results of this reduced ability to teach were predictable – special education students learned less and less. By the time IDEA was amended by Congress in 1997, the situation was dire. Therefore, IDEA was refocused on student progress, on the measurable and measured results of teaching, on the actual outcomes of special education. An exclamation point was added to this "emphasis on achievement" when just a few years later the No Child Left Behind Act (NCLB) was passed with requirements for increasing the numbers of "highly qualified" teachers in our classrooms; the objective assessing of all students' academic progress (except for less than 1% who

have severe or profound cognitive disabilities); and requiring schools to meet Adequate Yearly Progress (AYP) goals.

Ozzie's Words of Wisdom

Over the last twenty years it has become fashionable to pretend that special education students learn at much the same rate as other students, and that they're receiving the intensive teaching that allow them to learn more in a shorter period of time and thus catch up. Both premises are flawed.

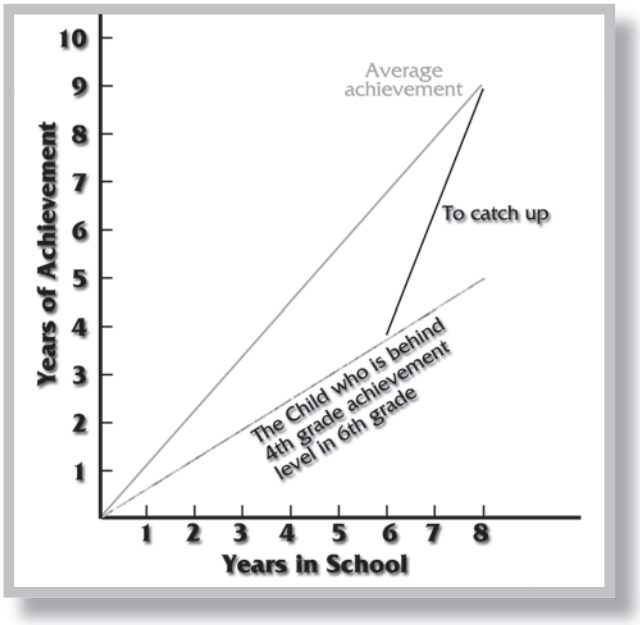
Welcome forces, including IDEA and NCLB, are now coalescing to compel us to look more closely once again at effective teaching and how to bring it about.

Most special education students demonstrate well before their first referral, that they don't learn as readily as do others from the typical loosely structured educational environment. To the contrary, they need as nearly perfect teaching as can be provided.

This book spells out some best teaching practices. Every student would benefit from them, but for special education students they are critical. It is a truism that when a teaching practice is effective for special education students — as are those in this book — they will also be effective for regular education students. The converse is not always true.

Engelmann has powerfully explicated the essential role of mastery teaching for low performers (many of whom are or may become special education students):

> ". . . acceleration of intellectual performance in any subject is possible by teaching to mastery. This type of acceleration is rarely observed in traditional educational settings, however, because lower performers rarely master material when it is taught and, therefore, have a poorly developed and inefficient mental schema for learning to mastery (e.g., poor memory, large number of trials required to induce mastery,



*We must teach more **intensively** if a child is to catch up.*

tendencies to mislearn, low tolerance for failure, low level of motivation).

"Often, attempts to help lower performers do not provide help. For example, "inclusive" practices that place the child in the same classroom as the average performer are supposed to make the lower performers feel good about themselves because they are not stigmatized by being in the special classroom. The assumption of these practices is that somehow the lower performer will be able to perform better in this setting and will be able to keep pace with the others. A logical analysis of what is required for the lower performer to do this, however, shows how preposterous the practice is. The basic problem is that the amount of new learning required for the lower performer to achieve mastery in this setting is significantly greater than this learner can achieve."[2]

Over the last twenty years or so it has become fashionable to pretend either that special education students learn at much at the same rate as do other students and that they are receiving the superb, intensive teaching that will allow them to learn more in a shorter period of time and thus catch up. Both premises are flawed.

Ozzie's Words of Wisdom

Seldom, if ever, have so many been so dissatisfied with the job being done by the schools. Every facet of education from books to budgets and tests to teachers has been found wanting.

However, now IDEA and NCLB, as well as professional integrity, require that we begin today to offer the best teaching we can to all students and especially to those protected by IDEA – the six million in special education. The President's Commission on Excellence in Special Education has stated that NCLB must now become the driving force behind IDEA. What does it require?

NCLB primary educational reforms include:

~ an increased accountability for all students reaching proficiency in academics by 2013-2014,

~ greater parental choice when schools remain low performing,

~ a utilization of scientific, research-based, proven-effective instructional methods and professional development programs, and

~ all students taught by highly qualified teachers by 2005-2006.

One intent of the lawmakers clearly is to increase teacher effectiveness, i.e., to enable teachers to cause greater student learning. But how do teachers induce learning?

Suppose tryouts, auditions or contests were held for teachers, as they sometimes are for actors, musicians, dancers, or athletes who wish to perform in a particular capacity. What would we ask aspiring teachers to do to demonstrate competence in teaching? Clearly little consensus exists as to all the specific skills teachers need and the priority assigned to each. But perhaps a core of essential teaching skills can be identified to which all would agree.

In a well attended public debate, a prominent professor of education lashed out at a colleague who authored a highly structured and successful reading program, declaring, "After all, the Nazis taught kids to read! What does that have to do with real education?" While its emotionalism might have been toned down some, the remark was a vivid reminder that there may be more to educating children than just inculcating specific skills. Teaching students to read, write and count are a vital, worthwhile, and paramount task of education, and how a child feels about his own abilities is also important. Further, the purposes to which the student later applies skills are important and are at least partially the responsibility of the educative process.

Our schools have indeed been given a tall order — to educate children in a manner that pleases everyone, with results we all can applaud while doing it at a cost we can afford. Hardly a walk in the park.

The Purpose of Education – Why Do We Teach?

Ozzie's Words of Wisdom

It is a truism that when a teaching practice is effective for special education students — as are those in this book — they will also be effective for regular education students. The converse is not always true.

Current criticism of our schools, including special and general education, ranges from mild to bombastic. A noted journalist sadly observed that in his 57 years of reporting on the American scene, public education has gotten steadily worse and has hit rock bottom. Our high school students score in math and science in the bottom 10% of developed nations, and our graduation rates

The ultimate evaluation of the educative process, including that portion conducted by schools, will be whether humankind survives. If we survive overpopulation, environmental degradation, and a propensity for violence, the next evaluative question will be the quality of our survival. To answer this, we must return to a question raised early in our discussion. Of what benefit are literacy skills if they are not employed toward positive goals? With even our existence perhaps in jeopardy, does it make sense to evaluate education in terms of achievement in academic areas? Of course it does, but not if they are the only measures of how well the school is performing.

The heart of evaluation lies in the first step of teaching — in formulating objectives. If objectives are clearly constructed, meaningful evaluation is possible, though sometimes difficult. If objectives are not clear, evaluation is ambiguous, subjective and less-than-satisfactory. Suppose that one objective of a newly instituted secondary counseling program were to reduce the drop-out rate in the junior class from a current rate of 35% to 10% within the first two years of the program. It would be relatively simple to determine whether the drop-out rate had been reduced to that level. Attributing the reduction to the counseling program would be somewhat more complex. But if the drop-out rate were reduced to 7% and it seemed reasonable to credit the counseling program with a part of the reduction, most of us would feel the objective had been met. If, on the other hand, the objectives of the new program had been to "provide guidance to assist each student to reach his or her maximum potential for social, vocational and academic development" no true evaluation would be possible. The supporters of the program might cite that 15% of the students in the high school voluntarily talked to the counselors about matters of concern to them, while critics could argue that grades of students seen by counselors didn't improve and drug abuse had increased during the two years. The volley would likely go on and on.

In a state which did not yet have public kindergartens, one large district attempted to sell the taxpayers on supporting a local kindergarten program. One proposal was to start a small demonstration kindergarten which (hopefully) would be so successful taxpayers would see the benefits of expanding it for all five-year-olds in the district.

But what constitutes success in a kindergarten program? Suppose the stated objectives of the kindergarten were "to provide an individualized program which meets the social, emotional, and cognitive needs of each child?" How could taxpayers be persuaded that it had accomplished this and therefore should be expanded? On the other hand, suppose a major objective was to, "Reduce to less than 1% the rate of retention by teaching children in the kindergarten program to perform these tasks":

1. Count to 20 with no help and to 100 with help at the decades.
2. Print own first and last name legibly.
3. Identify 10 common colors by name.
4. Correctly match and name these geometric shapes — circle, square, triangle, rectangle.
5. Correctly follow verbal directions to draw lines over, under, between, and around pictured objects.

With objectives spelled out this clearly, it would be easy for a district to objectively and accurately communicate to the taxpayers the extent to which the kindergarten program was achieving the desired objectives.

Another value which inheres in the use of specific objectives is that they tend to create a positive self-fulfilling prophecy. When we have a clear goal, we expect to reach it, and that expectancy seems to combine with the direction and sense of purposefulness provided by the goal. Having formulated the objective increases the chance of reaching it.

Knowledge of progress made toward explicit goals — particularly short term ones — powerfully enhances self-esteem and feelings of competency for teacher and student. Sequential ladders of specific objectives already accomplished, as well as those yet to be reached, provide visible reminders of our ability to achieve. The more we do and know we have done, the more we can do in the future.

The most serious hindrance to evaluations which enable us to make rational, data-based decisions about education is the lack of written objectives specified in terms of measurement strategies. The urgency of the need for school administration at every level to formulate and candidly explicate the educational objectives of states, districts, buildings, grade levels, research

projects, and experimental programs cannot be overstated. This must be followed by equally candid evaluation of the school's success in meeting these objectives.

Many educators recall the debates created when certain state departments of education determined that reading achievement scores would be published in local newspapers. The taxpayers were to know how the reading scores of the children in their communities compared to those in other communities and how they fared according to national norms. The issues were often confounded by political and personality factors; nevertheless, many educators were enraged that their efforts, as reflected in student test scores, should be held up to the scrutiny of the citizens who pay their salaries. The educators' protests ranged far and wide: Such data cannot be properly interpreted by mere citizens; tests were unfair because they tested general reading and were not limited to the vocabulary contained in state-adopted programs; individual state data handling and compilation were not above question; low scores were due to migrant and other diverse groups, but would be interpreted as the fault of the schools; districts should not be compared with each other because they vary widely on many social and cultural dimensions; parents would be unduly harsh with school personnel and budgets in areas where scores were low; a short school day was at fault, not the reading instruction; ad infinitum.

These objections and others may have been valid, invalid or partially valid. Regardless, NCLB now requires that assessment results be available to the public in the form of report cards on student achievement.

Yearly States and School District Must Publicly Report:

~ Information on student achievement at each proficiency level on the state academic assessment, categorized by race, ethnicity, gender, disability status, migrant status, English proficiency, and status as economically disadvantaged (except in a case in which the number of students in a category is insufficient to yield statistically reliable information or the results would reveal personally identifiable information about an individual student).

~ A comparison between the actual academic achievement levels of each group of students and the state's annual measurable objectives for each group of students.

~ The percentage of students in each category.

~ The most recent two-year trend in student achievement in each academic area, and for each grade level (for which assessments are required by NCLB).

~ Graduation rates for secondary school students.

~ The performance of districts regarding making adequate yearly progress, including the name of each school identified for school improvement.

~ The professional qualifications of teachers in the state, the percentage of instructors teaching with emergency or provisional credentials, and the percentage of classes in the state not taught by highly qualified teachers, in all schools and in high-poverty compared to low-poverty schools.[1]

The impression emerged in years past that many educators opposed an open and public evaluation of reading instruction. Now, the trend toward accountability has resulted in mandated evaluation of our schools. NCLB requires that each state develop a single, statewide accountability system with assessments that measure how well students master state-developed content standards. By 2003, states must have content standards in math and reading/language arts in grades 3 – 8. By 2005-2006, content standards must be in place for science, covering grade spans 3 – 5, 6 – 9 and 10–12.

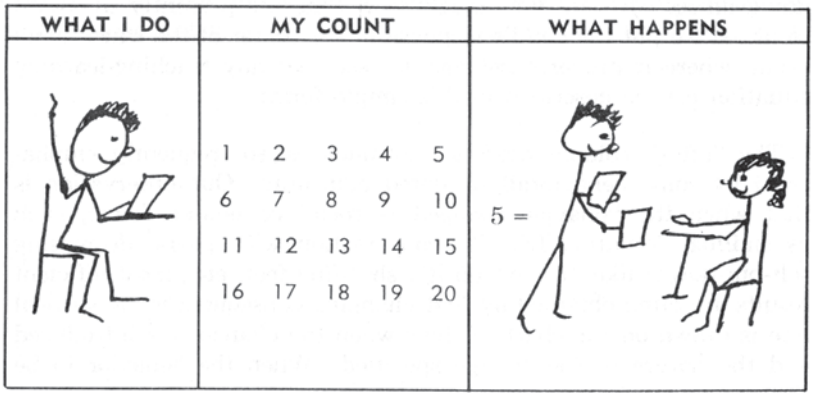
The actual assessment of student performance begins in 2004-2005 when states must administer tests in math and reading/language arts in grades 3 – 5, 5 – 9, and 10–12. Science testing begins no later than 2007-2008.

Many states have also developed or are developing extensive "high-stakes" testing used as the basis for promotion and graduation. Concern has developed in some quarters — concern that mandated testing will result in teaching to the tests at the expense of other aspects of the educational program. To look at this issue thoughtfully, we need to back up. What was the impetus for high-stakes testing and NCLB in the first place? The public schools of the nation were not doing a satisfactory job of teaching basic skills and science, whether measured by comparison with other countries or by society's expectations.

If one effect of the tests is to focus more teaching time and effort on reading, language arts, math and science, that would seem to be in line with the

precise information about whether the child is learning the subskills, i.e., whether they are being taught adequately for the child. If an entire group of students showed in their charts that their performance was not improving rapidly enough, it might be that the task analysis was inadequate.

First and second grade students have been taught to do their own charting, which often proves an incentive to better work. If, however, time samples of other than one minute are used, division or conversion is necessary to chart rate per minute. For this reason some primary teachers use one-minute timed samples almost exclusively. For oral reading, arithmetic, writing, and many other areas this seems quite adequate. Kunzelmann[5] has developed an aid called the "Countoon." The Countoon can be kept at the student's desk to help him do the counting. The teacher can then convert to rates and chart the data. The following is an adapted example of a Countoon depicting the pinpointed behavior to be changed, the child's count, and the consequences. For each five occasions the child raises his hand before speaking, he gets to help the teacher pass out papers to the class.



"countoon"

The charts reveal when something in the educational setting needs to be changed. If an undesired behavior or an error rate is holding its own or accelerating, something must be done differently. Similarly, if a desired or correct rate is failing to increase, change is needed. Nothing within the precision teaching system itself dictates what to change, although experience with changing the difficulty of the material, studying conditions, or consequences used builds up quickly and teachers develop favorite successful change tactics. Charts quickly show if the selected change is effective for this child. For example, let's say our experience with arithmetic

dawdlers has been consistently successful when we introduced free time as a reward for increases in rate of solving problems correctly. Free time may have dramatically helped 30 children become more proficient in arithmetic computation, and yet be totally ineffective with the 31st child. The daily rates will reveal this to the teacher and indicate clearly that free time should be replaced by something else. Again, the chart does not say what to try — this must come from the teacher's good judgment, experience, prior data or hunch. It will enable the teacher and student to see within days whether the new choice of intervention is working. The act of "changing something" is directly comparable to our third cluster of behaviors — teaching. Some practitioners of precision teaching and other behaviorally-based educational strategies focus on changing the consequences of the behavior; on insuring that completion of the task produces something satisfying and worthwhile to the child (stars, M & M's, free time, special privileges, new problems).
We have no quarrel with the teacher insuring consequences are effective. In fact, we insist on this. Sometimes, however, what children need is not louder praise or more points, but better teaching. Most of us could not improve our performance on a test in nuclear physics no matter how we're rewarded for it unless we were taught concepts previously unknown to us. If we put the student response in the center of the educational event, where it properly belongs, we see that any teaching-learning situation can be described in this simple form showing "before," "behavior," and "after" ***(See Table 1)***.

Table 1:
Before, Student's Behavior, and After

Before (Antecedents) All the conditions, materials, teaching behaviors relevant to the child's making the response.	**Student's Behavior** The pinpointed behavior to be increased or decreased.	**After** (Consequences) The "what happens" as a result of the occurrence of the behavior.
Reader level II.	Words correctly read orally in one minute.	Every 10 words = 1 point 10 points = 1 minute free time.
Standing at the chalkboard.	Hits another child.	Every hit = loss of 10 minutes of recess.
Teacher dictating spelling words.	Words spelled correctly.	Each word = 1¢ play money to be spent at room store.
Seated at front of room.	Raises hand before talking.	Each day with 100% = 1 turn to carry message to office.

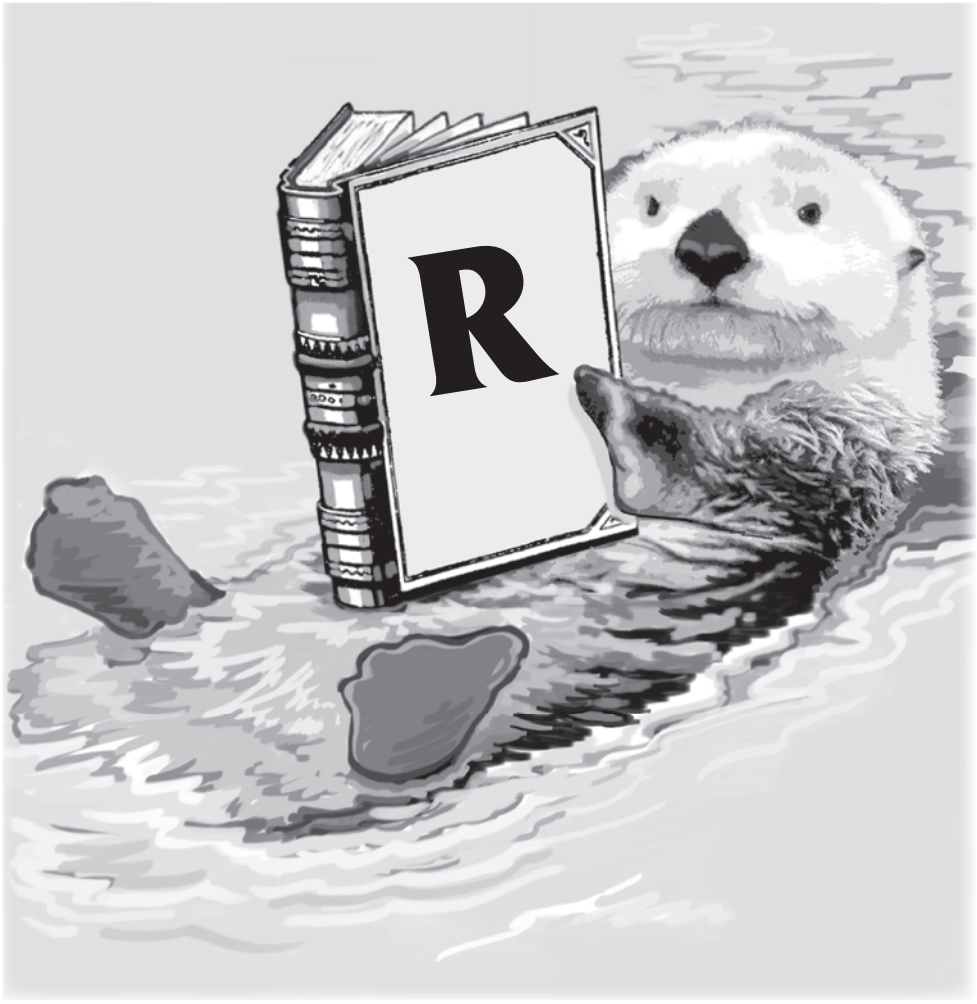
The "after" column depicts consequences often emphasized by behaviorally-oriented educators. When the behavior to be changed is social or non-academic, such as initiating friendly conversation with peers or decreasing self-put-downs like "I can't do it," results are often obtained by changing consequences. However, when the behavior to be changed is academic, the teacher must first establish that the student can perform the task; i.e., decode new words, borrow when subtracting. Then changing the consequences will help. If the child is unable to perform, make changes in the "before" column; use a different reading book, present a new concept, reteach, lecture. Precision teaching tells us how effective our educational decision was — it does not tell us which decision to make or what instructional technique to try. It's an evaluation, not an intervention tool.

The advantages of using data like these in the classroom are many. Most important, it allows the teacher to see the daily results of teaching and to know when changes are needed. It provides a systematic opportunity for children to be involved in pinpointing academic and affective behaviors they would like to change, in deciding how to change them and in recording and evaluating their own progress toward those goals. The use of standardized charts in precision teaching means that data collected can be directly compiled and compared. Benefits to the researcher are evident. Additionally, any two or more teachers can directly compare notes on student performances, on materials, on the effectiveness of free time versus M & M's, on numbers of disruptive behaviors — on anything on which they both have gathered data. The information provided by charted rate measures on speed and accuracy of student performance, on the stimulus situation (e.g., phonic worksheets, programmed arithmetic) and on consequences allows precise determination of how these affect student responses.

Formative evaluation should help the teacher make confident and correct decisions on a daily basis. Any evaluation system which does that and is practical in terms of expense and teacher time brings about improved achievement for student and increased satisfaction for teachers. We do not advocate for any one system of formative evaluation. Rather, our extended description of precision teaching illustrates the main features of classroom formative evaluation from a teacher's point of view. Any system which yields precise and objective data about student performance will do the job.

The teacher who begins writing measurable objectives behaviorally, analyzing tasks, and evaluating outcomes more precisely, might begin experiencing more positive thoughts about the profession of teaching.

Recycle or Rejoice



Chapter VI

After the objectives have been formulated, the learning tasks analyzed, the teaching done, and the evaluation finished, it's time to recycle or rejoice. And then to move on.

More errors are probably made by moving to new material too soon than by recycling too often. Unfortunately, one result of this tendency is the failure of many students to achieve real fluency in important skills.

The more frequently evaluations are conducted, the more quickly we can catch the need for reteaching, before major gaps have developed in student learning. When rate data, discussed in the last chapter, are collected in daily one minute samples, the teacher can usually determine the effectiveness of the intervention (teaching) within seven to ten days.
This is far superior to allowing weeks or even months to go by before doing an evaluation.

When evaluation reveals reteaching or further practice is necessary, it must be provided. On the other hand, when evaluation shows instruction was successful, the teacher deserves more praise and thanks than she will likely receive. Successful teaching is sometimes difficult, and always valuable.

Our message to teachers is simple and direct. We "OTTER" teach as well as we can by recognizing the importance and roles of **Objectives**, **Task analysis**, **Teaching**, **Evaluation**, and **Recycling or rejoicing**. The goal of this book has been to assist teachers in their journey to become consumate professionals whose repertoires of knowledge and skills include:

1. Specifying **objectives** behaviorally, precisely and measurably;
2. **Analyzing tasks** into essential subskills or utilizing those direct instruction programs which have already done this well;
3. **Teaching** directly, correcting appropriately, reinforcing frequently and managing behavior and the classroom efficiently and positively;
4. **Evaluating** objectively the results of teaching; and
5. **Recycling**, i.e., changing antecedents or consequences as needed, and, when the evaluation has shown the teaching to have been effective, then **rejoicing** and moving on.