

Training to Fluency

A Real Return on Investment

by Gail Snyder

Suppose there were a method of learning that put teacher and student, instructor and trainee, in control of the learning process; one with a proven track record of success for over two decades; a system that applies to all socio-economic levels without bias; one which advances retention and application ability by years per instruction hour, with methods that could be acquired immediately and economically.

Would you say, "Let's stick with what we've got?" In essence, that's the U.S. educational system's reply to Precision Teaching (PT). PT has consistently done all of the above in all applications, many of them federally funded, for over 25 years. Precision Teaching, a behaviorally-based method of teaching and learning was developed by Ogden Lindsley and his colleagues in the 1960s when Lindsley, a former student of B.F. Skinner, left Harvard Medical School to develop PT at the

University of Kansas. Grounded in the findings of behavioral research, PT combines direct instruction methods with short, timed sessions, measurement and the charting of performance following instruction. The aim of Precision Teaching is "fluency" defined as accuracy plus speed, an element of learning identified through years of research as a necessity in retention and application of learning.

Retention and practical application are largely ignored in our school systems, systems which concentrate on learning curves and percent correct as a determinant of learning. In fact, our present teaching methods have resulted in generations of drop-outs and graduates alike who are unable to use educational skills as related to the real world of business and day-to-day life.

Our educational system, as a



whole, takes for granted that students will forget what they "learn" from one year to the next, indeed from one college semester to the next, a reality exemplified by the repetitive nature of curriculum from grammar school through college. Proponents of PT argue that the downfall of education in America is not a product of socio-economic conditions, but of teaching methods that fail to bring students to the level of "automaticity," instead stopping at an abysmally low level of learning disguised by an inaccurate measurement system.

The practice of Precision Teaching has uncovered the fact that suppressing errors slows the learning process (Bower and Orgel, 1981; Lindsley, 1990), whereas encouraging a high rate of responses, even

when most of them are incorrect at first, accelerates learning rates.

Research has also proven that positive reinforcement to accelerate and improve performance can only be optimal when the performer is knowledgeable of the basic components of a skill.

To track performance progress and changes in performance Lindsley developed a logarithmic charting method easily learned by children for self-charting the number correct and the number incorrect during brief, timed exercises. Most adults cringe upon hearing about timed exercises, a reaction harking back to the days of punishing timed math tests where percent correct was the determinant of passing or failing. With Precision Teaching, timed exercises are conducted by teachers, the performers themselves, and between peers. A negative aspect is non-existent as both corrects and incorrects are charted with the aim being for each individual to increase the number of problems, words, and so on, done correctly over a set amount of time, much as a runner continuously charts his or her own time and distance. Why is this important?

The combination of accuracy and speed, or “fluency,” in any area of knowledge is a prerequisite to retention and practical application after a period of no practice. Furthermore, data shows that students who become fluent in the basic tool skills of math, language, writing, science, etc., are capable of making learning leaps, solving more complex problems without the benefit of instruction. For example, a student fluent in the basic skills of math is

capable of solving fraction and decimal problems with little or no previous instruction. One fluent in the writing and spelling of words can perform the more complex tasks of sentence writing and composition. Individuals who are dysfluent in the basic elements of a skill soon become math or English dropouts as the tasks which require a combination of those skills become more difficult.

Precision Teaching methods have yielded remarkable results in education, yet have not been widely adopted due to a common enemy of innovation—resistance to change.

It's not clear that training returns very much in the way of on-the-job performance.

Proponents of the method are now reaching into the business community in an effort to demonstrate the tremendous implications of its methods in areas such as product knowledge, training, quality, and safety.

Performance managers are interested in this technology not only as a means of expediting training in the methods of Performance Management (PM), but because it applies the elements of PM to training. Last, but not least, before any performance can be improved upon, the performer must have effective

training and knowledge of the required performance. This technology could very well ensure that the necessary skills are present before beginning efforts to attain and maintain optimal performance through PM.

Dr. Carl Binder, known for his research and development of the fluency-building instructional technology, found that distractibility was directly related to fluency. In other words, those more fluent in skills were not as easily distracted. This opens a whole new world to those labeled with attention deficit disorder and/or other learning disability monikers. In 1982, Dr. Binder decided to bring the innovations of PT to the business world by founding Precision Teaching and Management Systems, Inc. Since that time he and his associates have successfully used the technology in areas such as health management, banking and financial services, insurance and employee benefits consulting, training and development, manufacturing, retail, high technology, telecommunications, and government agencies. Following are Dr. Binder's remarks on the methods and benefits of using this technology in business.

Q: How do you define fluency-building?

The term fluency-building originated in Bea Barrett's learning-research lab in Waltham, Massachusetts, during the late 1970s

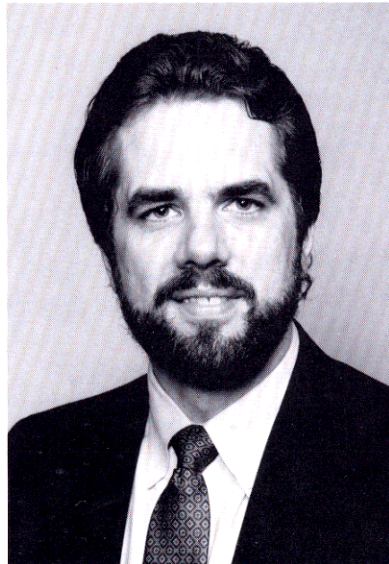
when we were using Precision Teaching with handicapped learners. We had been working for some years to develop what we called “rate-building” procedures—contingencies and prompting strategies that would enable our students to increase the rates at which they could perform critical skills and discriminations. Eric Haughton, one of the co-founders of PT, with Ogden Lindsley, had introduced us to the concept of “fluency” and to the necessity of establishing both accuracy and speed of performance to ensure retention, endurance, and application of skills. So, fairly naturally, we coined the term “fluency-building”¹ to refer to our methods.

Properly designed fluency-building exercises incorporate efficient, effective practice strategies that enable learners to achieve fluency, or true mastery of skills and knowledge in a self-paced, criterion-referenced way.

Q: What are the advantages for using Precision Teaching/fluency technology in business? In other words, what’s in it for them?

The short answer is ROI—return on investments they make in training. The fact is that trainees do **not** achieve fluency which ensures that skills will be retained and useful. It’s not clear that training returns very

much in the way of on-the-job performance. The typical sales training program, for example, provides only a few opportunities for practice of fairly complex skills in the form of “role plays.” Trainees leave knowing something “about” selling skills such as probing for customer needs or responding to objections, but they are by no means fluent in their performance of these skills. Everyone



Dr. Carl Binder, president, PT/MS, Inc.

feels that the training was “good” if the instructor was well organized, the sessions were fun or interesting, and so on. But if we were to measure actual on-the-job performance, especially a few weeks after the training program, we might not find much residual learning. This is as

true in technical-skills training as it is in so-called “soft skills” training. Training tends to cover too much content and result in too little fluent performance.

Fluency is automatic non-hesitant performance. It’s what people need on the job. Most training programs do not come **close** to producing fluency. What we have tried to do is define a set of principles and design guidelines that allow trainers and instructional designers to provide as many opportunities for active responding per unit time as possible; and, to focus on building fluency in the critical skill and knowledge elements that ultimately comprise more complex performance. This approach increases the likelihood that trainees will walk away with usable skills and knowledge, and that their employers will get their money’s worth.

Q: What is the relationship between fluency-building and Performance Management?

I see several areas of relationship. First, when we implement a self-study program of any kind, it’s important to manage the performance of trainees in the learning process itself so that they’ll use the exercises and accomplish the desired results. All the principles of Performance Management apply to that situation.

¹When Binder founded Precision Teaching and Management Systems, he trademarked his organization’s approach to increasing fluency among adult learners as Fluency-building™. Later, since the term had been adopted and used widely in academe, Binder changed the name of his organization’s methodology to FluencyBuilding™. For purposes of this article we will use “fluency-building.”

Second, many Performance Management programs involve training of some kind—whether in an area such as sales or safety procedures, or in training supervisors and managers to apply reinforcement, use praise, etc. In any case, trainees should attain fluency in key elements of skills and knowledge.

If you apply nearly any of the various performance engineering models in efforts to improve performance, some interventions will require mainly setting expectations, giving feedback, and arranging consequences while others will entail developing skills and knowledge, redesigning jobs to support fluency, or providing performance aids. In most cases the objective is to promote consistently fluent performance through a combination of interventions. So I see fluency and fluency-based instructional materials and procedures as a natural complement to Performance Management.

Q: What are some of the business applications of this technology?

We've had a great deal of success recently applying these methods to the area of product-knowledge training for salespeople who must learn about complex products and services. We've worked with clients such as Unum Life Insurance Company, Chase Manhattan Bank, Microsoft, Digital Equipment Corp., and Genentech. These are fairly high-powered salespeople who really have to know their products and services. Our work with these clients

has been so successful that some have called our approach a “strategic business advantage.” Learning measures show that people newly trained with this approach can match product solutions to customer needs two to three times more rapidly than experienced salespeople and with much higher accuracy.

We recently helped design a program for truck drivers needing to pass a national certification exam and found that 99 percent of them were able to pass the test on the first try after only one day of intensive fluency-based instruction and

Fluency is automatic, non-hesitant performance.

practice.

Some of our colleagues have used these methods to train staff and supervisors in human services agencies—many of whom had less than an eighth-grade education. These people were able to master agency policies and procedures for the first time. They were able to say the steps in operational and safety procedures and then carry them out with ease.

So we think these methods can apply to everybody. But it's important to consider the audience and to “package” the materials and exercises

accordingly.

Probably our longest continuous user of these methods is Chase Manhattan Bank where one part of the bank has been training its people this way for nearly five years on three continents.

Q: Are fluency techniques exclusive to the training process?

Actually, we think the basic principles of fluency-building apply to just about all efforts to improve human performance. We divide the factors that either prevent or encourage fluency into five categories: measurement, materials, procedures, skills, and knowledge. Also, some kinds of non-training materials and procedures can either prevent or encourage fluency. For example, an effective, easy-to-access document or computer user-interface is certainly a fluency builder insofar as it enables people to move smoothly and accurately through their jobs. Incentive systems, job design, forms, job aids, and other aspects of the environment either encourage or discourage fluency. We try to take all these elements into account.

Q: Can these methods be applied to training in such hands-on areas as manufacturing?

As far as we can tell, the basic principles apply to just about any type of skill. If people need to attain an automatic, confident level of performance, whether it be in using a computer or other electronic equip-

ment, making critical discriminations as part of an inspection process, or performing anything that requires efficient movement or fine discrimination, fluency is the desired outcome and these principles apply. Although we've worked out a systematic approach that gives trainers tools for efficient development, there's really nothing magic about all of this. It's just a matter of designing practice exercises focused on key elements of performance, measured with time as well as accuracy.

Q: How do you apply these methods to adult training?

We can adapt the methods to quite a few different scenarios. In general, the best approach is to arrange for significant amounts of self-paced study and practice, in small chunks spread out over time, either in a self-study format or in instructor-led "lab" sessions. Fluency-building exercises are typically fairly brief activities between a half minute and four or five minutes in duration. They each have explicit performance criteria, or "fluency-standards," that define both the quality and the pace of the desired performance. Learners measure their own progress against these standards, monitoring improvement as they repeat the exercises as often as they wish.

For many types of programs this means a few minutes per day, spread over several weeks. In some cases, it's

simply repeated opportunities to practice and measure performance spread over the course of a workshop. Sometimes the exercises are very elementary, for example, saying responses to sets of flash cards to learn key facts about products or technical subjects. For these we might recommend that learners practice until they can complete a set of 40 cards in under a minute.² Or, we might introduce a set of word-processing skills, then arrange an exercise in which the learner applies key functions and com-

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mands to format and edit an unformatted text file, practicing on multiple versions until he or she can complete the task in under two minutes.

More complex and "softer" exercises include speaking at a normal conversational pace about why a customer should buy from one's company, for three minutes, being sure to cover five key reasons. Learners can be given case-study materials to analyze, using a job aid, and be asked to work on a series of similar mini-cases until

they can complete the analysis in under five minutes. In a supervisory skills program, we might isolate key types of verbal performance, for example, praising people, and ask learners to practice until they can think of and say at least 15 different praising phrases in under a minute. The possibilities are endless. The key commonality is that people practice until they reach a criterion that includes both a quality and a time dimension, and that they are in control of their own practice and measurement.

Q: What do organizations do to reinforce employees for using these methods?

If they're doing self study we often have a kick-off session in which we overview the course content, then coach the learners until they can see themselves improving on the exercises. (That's pretty easy to do when you use timed exercises—people get better rather quickly.) We also encourage arranging rewards for those who demonstrate mastery of the exercises. One company in Canada gave a very expensive bottle of cognac to the first person to master all the exercises and demonstrate fluency in front of the training manager.

We also encourage support and monitoring on the part of managers and supervisors. Some corporate cultures go for the self-competition inherent in timed exercises, and others encourage playful competition

²Flash cards and computerized flash cards are now being used by PM instructors to teach the terms and concepts of Performance Management.

among trainees. In one “cowboy culture” at an Arizona company, trainees were spotted putting bets on the bar in the hotel lounge and seeing who could answer the most flash cards within one minute.

Most people understand that the only way one masters anything is through practice. We’re just giving them easy ways to practice with objective performance criteria to serve as goals.

As far as performance monitoring is concerned, we provide various types of tabular forms, and a modified version of the Standard Celeration Chart, so that learners can record their own performance. In virtually all cases, those who use the exercises attain such a level of fluency that others take notice and follow.

Q: What is some of the research that supports fluency technology?

What we know about fluency comes from a broad variety of sources, not just behavioral studies. Cognitive

psychologists and human information processing theorists use the term “automaticity” to refer to what we call fluency. Their research shows that achieving rapid, accurate responding beyond the point of 100 percent accuracy produces resistance to distraction and increased attention span. Studies during the 1950s of verbal learning showed that when people practice beyond the point of perfect accuracy in so-called “overlearning” trials, their responses become quicker and they retain and can apply what they learn to a greater extent. Decades ago, perceptual motor research showed that attaining fluency in components of complex tasks allows learners to acquire the complex tasks more readily. A great deal of human-factors engineering is about the design of environments that support fluency—smooth, efficient behavior. And, of course, there is a wealth of research from Precision Teaching showing the importance of attaining fluency.

When we talk with trainers and instructional designers, no matter what their “persuasion,” we can refer to studies that support the importance of fluency. What I find quite interesting, however, is that most people unschooled in education or training intuitively understand the importance of fluency, and the necessity of practice for achieving it. This is especially true if they’ve ever really mastered something themselves, whether it be an athletic skill, playing a musical instrument, speak-

ing a foreign language, or just about any other skill or knowledge where real time performance is important. It only seems to be those trained in various educational theories who resist! Actually, I’d think of that as pretty amusing—except that the educators and trainers who resist a fluency-based approach so often present obstacles to incorporating truly mastery-based methods into educational and training programs. And, the learners suffer.

Q: How are these techniques used in the area of product knowledge?

The area of product knowledge is especially information-intensive so we do an extensive content analysis of what the sales force needs to know about their market, customers’ needs, products and services, sales strategy, and the competition. We then create easy-to-use structured documentation that serves as both a training tool and as an on-the-job reference. On top of that we build self-study and workshop-based fluency-building exercises designed to ensure fluency in the sub-set of that knowledge that the trainees need to have face-to-face with customers. We include case study application exercises, job aids, and other fairly conventional training elements to go along with the program. Because product training has traditionally been done so poorly in most industries, we find that this approach has truly spectacular effects.



Q: What about sales training?

In sales training, we identify key elements of skill or knowledge that need to be fluent. Much of sales is “procedures” or chains of behavior that really aren’t so much a matter of skill or knowledge as they are simply knowing the correct sequence to follow. But within those chains, there are critical elements such as asking certain kinds of questions, restating customer objections, communicating with appropriate effect, and so on, that need to be fluent if the complex chains are to

really work. So we identify those critical elements and build practice exercises for mastering them in isolation, before combining them into more complex chains. The area of sales offers a great deal of potential for these methods, and one where we’ve only just begun to scratch the surface.

Q: What happens after training?

We nearly always do immediate post-tests, using timed assessment. Some colleagues have conducted retention tests, comparing perfor-

mance of those who mastered fluency exercises with performance achieved through conventional accuracy-only approaches. They found that learners who had attained fluency retained nearly twice as much six weeks later. We’d like to do more retention assessment to broaden our database in this area. What we find anecdotally is that trainees get a real jump-start when they come out of training with relatively fluent skills or knowledge and that they are, therefore, better able to use what they learn and have it maintained by the pay-off of doing their jobs better.