

SYMPOSIUM 2B – PERFORMANCE-BASED TRAINING: TO ACHIEVE THE EDUCATION PURPOSE – 27TH JUNE 2014

Accelerating and Sustaining Behavior Change in a Rapidly Changing World

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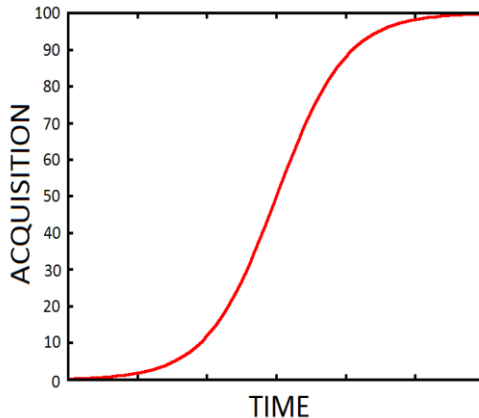
The world is changing fast. Really fast. New products, services and knowledge are appearing at exponential rates. Unfortunately, the understanding of behavior is creeping along in this exponential world. Most people don't understand even the basic of the principles of behavior. What's more troubling is that those involved in designing 21st products rarely consider the behavioral effects of the product they are making on the user. If the designers of cell phones had understood the addictive nature of texting on users, particularly as it relates to texting while driving, they would have designed it differently. Although it is easy for me to say, as I don't have to do it, I believe that they would have been able to design the cell phone in such a way that texting while driving would have been impossible. At this point we are left with only retrofits which people can avoid buying or using.

While attending a seminar on the latest advances in the world of medicine and health, artificial intelligence, robots, drones, driverless cars and trucks, etc. I was struck by the fact that the instructors were using instructional technology that has been not changed for several hundred years. And it did not surprise me that the very smart people who were developing these incredible machines had only the most basic understanding of behavior.

Anyone who understands behavior change from a scientific point of view knows that humans learn a lot of what they know really fast. It has been a matter of survival for thousands of years. Our ancestors learned quickly how to find water and safe food, how to return to their village despite long treks to faraway places, etc. The complete process by which this occurs is still not fully understood, however the technology exists today to increase learning rates exponentially.

Behavioral technology has produced changes in the widest range of human activities. This is a consistent effect across more than 50 years even though most people still are unaware of these applications and effects. Not only does behavioral technology have a long track record of producing changes, it produces rapid change. An understanding of positive reinforcement shows how. Since positive reinforcement increases the probability of a response, it is easy to see how increasing the frequency of reinforcement accelerates the rate of change.

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literature is filled positively learning curves (S are characterized by correct responding early stages of followed by a rapid asymptote as Figure

Figure 1: “S” Shaped Learning Curve.

What this curve shows is what is possible under the best conditions. In a research lab where the experimental room is sound proof, comfortable temperature, no distractions, high rates of reinforcement etc. learning would proceed at the maximum rate. However, in the real world there are many things that bring that curve down.

Herrnstein (1997) showed many years ago that the rate of responding is a function, not only of the reinforcement rate a target behavior receives, but is also impacted by the

rate of reinforcement the person receives for other non-targeted behaviors in the same environment. If management provides little reinforcement for quality and lots for productivity, you can bet that productivity will trump quality even in the face of speeches, training and articles about the need to improve quality. In the formula below, B represents the rate of frequency of a behavior. r represents the reinforcement of on-task behavior and r_e is reinforcement for off-task behavior. In a world that has new things to look at, play with and work with, r_e is increasing at a much faster rate than r . What this means is that the increase in r_e in our world has the more that will be needed to increase the behavior of interest (B).

$$B = \frac{kr}{r + r_e}$$

The increase in r_e relative to r means that in order to keep behavior at the current rate an increase in the frequency of R^+ is required. In order to improve safety in an organization today, frequencies of reinforcement need to be increased to rates unheard of just ten years ago. Safe habits require training that is able to deliver high rates of reinforcement. Today's technology-rich work environment demands changes in the way the workplace is designed and managed. Unfortunately, changes in reinforcement are rarely considered.

In the real world we never have the ideal environment at work for learning new technology. The technology rich world naturally works against acquiring knowledge and skills rapidly. We cannot train employees in a sterile laboratory and on the factory floor and office there are many distractions that prevent rapid acquisition of new skills.

However, Thomas Gilbert developed a practical way to determine what can be done in the real world. He developed a way to measure what he called Performance Improvement Potential (PIP). His formula for computing it is simple. Divide your best performer's performance (Gilbert called it the exemplar w_{ex}) by the average employee's performance (Gilbert called it the typical performer w_t). See the formula below.

$$PIP = \frac{w_{ex}}{w_t}$$

In every job category there is an exemplar. If we look at the best performer, in safety, quality, and cost that is certainly possible since someone already performs at that level under the management system, processes and management behaviors that exist in the company. Although some would argue that everyone is not capable of performing at a level or rate as the best performer, I would argue that if you think that the problem is the performer and not the environment you have created, you are probably right.

However, if you approach an employee's performance as one in which improvement is the responsibility of management, you may be quite surprised how much can be done. Let's put it another way, think how your company would perform if everyone performed at the level of the best performer. I think that is possible, but wait, if that seems unreasonable, think how your organization would perform if everyone performed at the current average performance. Calculate the benefit for your company. When you do you will be amazed at the annual value as it is often measured in the millions of dollars even with relatively small companies.

However, behavior change is not enough. We have a technology to change behavior. We know how to do it reliably with a wide variety of behaviors and conditions. But change is not enough. Change is a given. Today, the *rate* of change has become the most important variable. A five-year plan is now a waste of time because no one knows what the world will be like in five years. Things are changing that fast.

In the early 80's, Walter Schneider (1989), was tasked with improving the training of air controllers. Failure rates in training were over 30% even though the government had the best and brightest candidates from which to choose. Although many reasons were put forward for this poor result (and all of them blamed the student in some way), Schneider, through radical changes in the way students were trained, was able to reduce failure rates to less than 6% and train college students, with not experience, to perform better than three-year veterans in less than 40 hours. Think of that. What was done in three years by traditional training methods could now be accomplished in 40 hours. However... it required over 34,000 reinforcement contingencies (opportunities to be correct or incorrect). That is over 800 per hour. This is possible only through computer based fluency training. Many organizations spend years of on-the-job training (OJT) since they don't have training processes that can deliver high rates of reinforcement. As it turns out, OJT is very expensive and slow. It used to be that slow and steady won the race. Not anymore. The problem is that many companies measure effectiveness training, at best in terms of student satisfaction and almost never in terms of sustainability since OJT is responsible for that. Failure is usually assigned to the student's lack of motivation or ability and rarely to methods of instruction. That is coming to an end as technology is changing so fast that traditional methods cannot compete with the requirements of the business.

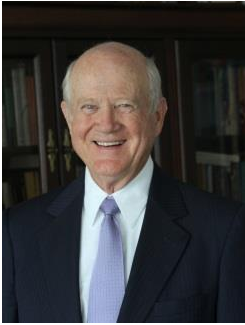
The good news is that methods exist to change the way knowledge is acquired and maintained. It all comes back to the effective use of positive reinforcement. The quick measure of how effective your organization is at using positive reinforcement is the difference between your rate of improvement and what the "S" curve would predict. If you are not producing quick and happy learners, you still have some work to do.

Keywords: Performance Improvement Potential, Learning Curve

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AUTHOR – INVITED SPEAKER



Aubrey C. Daniels, Ph.D. is the world's foremost authority on applying the scientifically-proven laws of human behavior to the workplace. Daniels helps the world's leading organizations employ the timeless principles of behavioral science to re-energize the workplace, optimize performance and achieve lasting results.

His management consulting firm, Aubrey Daniels International (ADI), works with business leaders in over 20 countries to develop management strategies that reinforce critical behaviors vital to their long-term success.

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People: How to Apply the Astonishing Power of Positive Reinforcement; Performance Management: Changing Behavior That Drives Organizational Effectiveness, Other People's Habits and Measure of a Leader with James E. Daniels.. His books have been translated into Japanese, Chinese, Korean, Spanish and French and have been licensed in China, Singapore, India, Indonesia, Japan, Korea, Romania and Saudi Arabia. Look for his book, ***Oops! 13 Management Practices that Waste Time and Money (and what to do instead)*** and his most recent release ***Safe by Accident? Take the Luck out of Safety*** co-authored with Judy Agnew, Ph.D. His blog address is <http://aubreydanielsblog.com/> and you can follow him on Twitter.

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His numerous awards include the Lifetime Achievement Award from the Organizational Behavior Management Network and the Outstanding Service Award from the Association of Behavior Analysis International which also named him a 2005 Fellow.

Daniels received his doctorate from the University of Florida, where he also earned his master degree and was a member of Phi Beta Kappa. He received his undergraduate degree in psychology from Furman University. Daniels has been honored by both Furman University and the College of Health Professions at the University of Florida as Alumnus of the Year.