

Optimizing Performance Under Stress

by John J. Parrino, Ph.D.

Beyond an optimal level, stress impairs performance. A clear, specific example of this psychological principle, sometimes referred to as the Yerkes-Dodson Law, is the case of a 12-year-old championship skater, Alicia, who was failing to perform a jump that should have been easy at her skill level.

In my work with Alicia, I instructed her to imagine the

jump in her mind's eye while I recorded her tension levels with an Electromyograph (EMG), an instrument that measures signals from the brain to various muscles of the body. Each imagined performance produced an abnormal level of tension in the leg that was hitting the ice prematurely, thus disrupting Alicia's rhythm. When I increased her awareness of the stress response and taught her

how to relax the tension, her execution of the jump began to improve. Alicia was learning to optimize performance under stress.

The relationship of efficiency of functioning and level

of emotional arousal of stress has been validated by a number of studies since the Yerkes-Dodson Law was discovered in 1908 (Hebb, 1955; Spielberger, 1962). These studies indicate the optimal relationship between performance, and stress gets stronger when the learning situation is more complex.

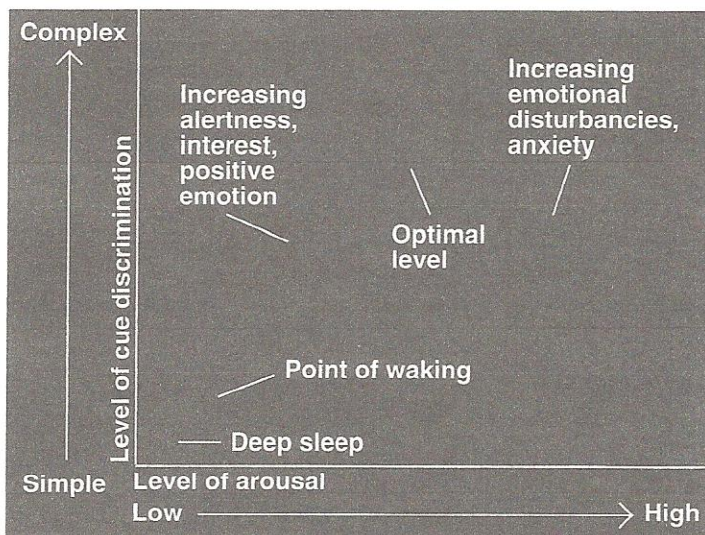
What implications does this law have for organizational settings? Based on my work with stress, performance, and reinforcement in the last 20 years, I believe the implications are profound. Let me illustrate by using another example stemming from my work with a business client.

Clark was referred to me by the president of his company, as he put it, "to work on an attitude problem that seemed to be affecting his sales performance." Clark had been a star performer with his previous company and was hired by his current boss to "make things happen in the sales department." Six months later, the *star* had dimmed considerably. Clark and his boss both asked the same question, "What happened?"

In simple terms, Clark's substantial sales ability had not transferred to his new environment. What was not readily apparent was that the stress of entering a new, and quite different, work situation had impaired his performance and reduced the frequency of reinforcement he was

Figure 1

Beyond An Optimal Level, Emotional Arousal Impairs Performance In Most Tasks



The Inverted U-shaped relationship between efficiency of functioning and level of emotional arousal. Up to a certain level of arousal, the ability to respond correctly to cues—that is, to perform well—improves. Beyond that level, further arousal increasingly hampers performance. This relationship is usually found in all but the simplest tasks that require undiscriminating cue responses. (Modified from Hebb, 1955.)

accustomed to receiving from his managers. Instead, Clark was being punished for poor performance, resulting in a stress cycle that pushed him beyond his optimal level of functioning.

Clark had never learned to cope with the stress of punishment and had begun to withdraw into a *shell* for protection. This strong avoidance behavior prevented him from obtaining the positive reinforcement that had sustained his top performance in the past. Clark was trying to function well beyond his optimal level of stress.

My work with Clark focused on reducing his stress level with standard stress management techniques (relaxation, imagery, training, and biofeedback). Once his stress level returned to an optimal range, we worked on homework assignments, focusing on using his new coping skills with potential customers, peers, and his boss.

Clark's emergence from the *shell* allowed him to utilize his formidable skills, once again, to receive the reinforcement he was accustomed to receiving.

Soon, his sales figures began to improve dramatically. As shown in Figure 2, during baseline, the percentage of quota achieved was 70 percent. The onset of stress management training in the last few months of 1993 was followed in 1994 by Clark achieving 110 percent of quota, a 45 percent increase. A recent follow-up

showed that Clark consistently hit quota by the first six months of 1995. Although a definite correlation between stress management training and these dramatic results cannot be claimed with complete certainty, the results are very suggestive, particularly since Clark and his boss attribute much of his success to his new coping skills.

The relationship between stress, performance, and reinforcement is

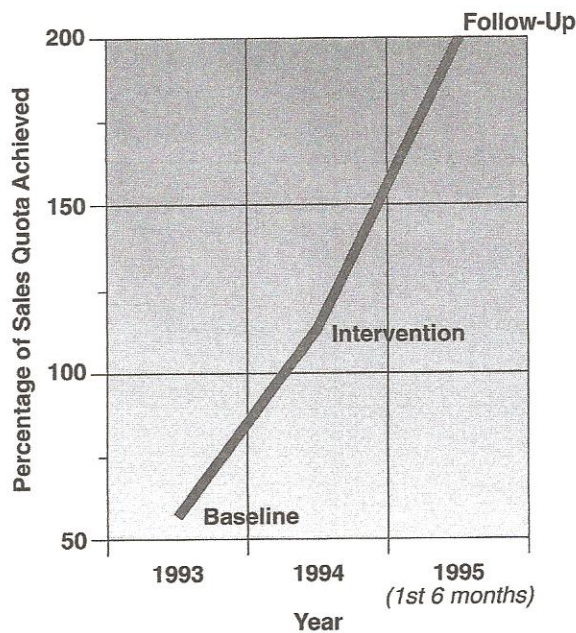
chance to bounce back to the high level of positive reinforcement they once received.

As in the Peter Principle, one might say: "People are stressed to the level of their incompetence." On the other hand, my experience in using an old law (Yerkes-Dodson) to understand how stress affects performance and limits positive reinforcement tells me that "You can teach an old law new tricks." ■

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Figure 2

Changes in the Percentage of Sales Quota Achieved Following the Onset of Stress Management Training



often overlooked in an organization's day-to-day operations. My experience is that many potential top performers never get their chance to become stars due to stress-induced avoidance behavior or *shell* responding. And, many top performers who slip in their performance because of life's tough circumstances never get the