

Choking Hazards

And The Reversion Effect

Why Musicians Fail Under Pressure

By Steven Brundage

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On the final day of the 1996 Masters, Greg Norman entered play with a sizable six-stroke lead. Victory was imminent; all that remained were 18 holes of golf.

Norman was a remarkable golfer. In 1986, 1990 and 1995, he was the PGA Tour's leading money winner. In 1995 he was named the PGA Tour's Player of the Year. In 2001, he was inducted into the World Golf Hall of Fame; and during the 1980s and 1990s, Norman spent more than 330 weeks ranked as the world's number one golfer.

Right out of the gate, Norman hit badly into the bunker, taking a bogey. His scorecard was relatively stable through the next seven holes, but on holes 9, 10 and 11 he dropped three more strokes. His score progressively declined on the 12th and 16th holes after shooting straight into the water, each time notching a double bogey. In the end, Norman suffered a humiliating defeat, losing the tournament by five strokes. Spectators and sports analysts were shocked.

In 2012, the Smithsonian named Norman's 1996 Masters defeat the

worst sports failure of all time. Since his historic collapse, sports journalists and psychologists haven't stopped asking, "Why do performers choke under pressure?" And perhaps more importantly, "How did one of the world's best golfers choke under pressure?"

Performance anxiety impacts every performance discipline: actors forget lines, athletes miss shots and musicians suffer memory slips and technical breakdowns. Some experts claim performers choke under pressure because they become distracted by situation-related worries and irrelevant thoughts. Others propose performance anxiety is simply the result of insufficient preparation. The Reversion Effect explains the physical and mental phenomenon of choking under pressure by examining the Explicit Monitoring Theory in relation to explicit and implicit skill functioning and strategies for a successful performance.

Explicit And Implicit Skill Functioning

Understanding the problem of performance anxiety begins with an examination of two learning systems: explicit and implicit. Explicit learning is methodical and slow; its acquisition and functioning is mechanical and deliberate, requiring conscious awareness. A beginning golfer, for example, expends considerable mental energy processing skills like stance, balance, club grip and backswing. Beginning club swings are awkward, inexact and certainly not smooth.

Conversely, implicit learning takes place unconsciously, meaning that its skill acquisition and functioning happens unaware. According to Daniel Willingham, a psychologist at the University of Virginia, implicit learning takes place gradually. For instance, in the game of tennis, Willingham says,

"You hit several thousand forehands, after a while you may still be attending to it. But not very much. In the end, you don't really notice what your hand is doing at all."

Malcolm Gladwell, a *New York Times* best-selling author and writer for *The Washington Post* examined the connections between learning systems and skill functioning in his piece *The Art of Failure*. He wrote:

As you get better [at explicit skill functioning] the implicit system takes over: you start to hit a backhand fluidly, without thinking. The basal ganglia, where implicit learning partially resides [in the brain], are concerned with force and timing, and when that system kicks in, you begin to develop touch and accuracy, the ability to hit a drop shot or place a serve at a hundred miles per hour.

Willingham and Gladwell both refer to the mental and physiological transformation that takes place between the beginning and proficient stages of skill development, which is to say, the change from explicit to implicit skill functioning. It is an automatic adjustment in skill functioning that occurs after hours and hours of practice. A pianist, for example, learns to play scales in stages. At first, it is one-octave, hands-separate playing; later it becomes hands-together, two-octave playing. Eventually, after many hours of practice it becomes four-octave playing in thirds, sixths and tenths. This illustrates the transformation in skill functioning from beginner to expert—or from explicit to implicit skill functioning.

The Distraction Theory

One explanation offered by psychologists for performance failure is the Distraction Theory, which according

to the *Journal of Experimental Psychology*, states, "Performance pressure creates a dual-task environment in which situation-related worries compete with the attention needed to execute the task at hand." In other words, conditions of pressure cause performers to become distracted by irrelevant thoughts or worries, thus diverting the working memory necessary to perform given tasks and, therefore, causing performance failure.

Some experts reject this theory, claiming most sensorimotor skills involved in performance failure are not working memory [explicit] related but are physical, or implicit memory related. Playing the piano, therefore, is not significantly affected by mental distractions and worries caused by performance pressure. Consider the pianist playing scales with little conscious engagement or the golfer with a perfect swing—or even a child effortlessly riding a bike. These exemplify the operation of implicit skills based on physical memory and, therefore, are not impacted by the Distraction Theory of performance failure.

The Explicit Monitoring Theory

A more commonly accepted explanation for performance failure is the Explicit Monitoring Theory, which according to the *Journal of Experimental Psychology*, states, "Pressure raises self-consciousness and anxiety about performing correctly, which increases the attention paid to skill processes and their step-by-step control. Attention to execution at this step-by-step level is thought to disrupt well-learned or procedural performances."

The Reversion Effect

In terms of explicit and implicit learning, the Explicit Monitoring Theory suggests high-pressure situations cause the brain to revert to

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explicit skill functioning, and like the beginner, the body begins processing skills mechanically. For the musician, this reversion causes technical fluency to become inaccurate and musically insensitive. In the case of golfer Greg Norman, he became cautious, inaccurate and mentally out of sorts. Memory failure is also linked to the Reversion Effect since most memorization is tactile-dependent; therefore, physical memory deteriorates and the performer experiences memory-slips.

"I Think Therefore I Choke"

Jaimil Yogis, writer for *ESPN The Magazine*, published an article in 2012 dealing with the problem of choking under performance pressure, titled, "I think therefore I choke." He proposed athletes fail under pressure because they inadvertently and somewhat helplessly overthink the functioning of their skills rather than rely on their instincts. Yogis describes the phenomenon in this way, "A field goal kick, a golf swing or free throw is for them an ingrained action stored in the striatum, the brain's autopilot. The prefrontal cortex, our analytical thinker, doesn't even need to show up. But under the gun, that super-smart part of the brain thinks it's so great and tries to butt in." When mental reversion triggers explicit processing, performers tend to over-think, thereby attempting to control the functioning of skills that ordinarily operate automatically.

Yogis later references Sian Beilock, author of *Choke: What the Secrets of the Brain Reveal About Getting It Right When You Have To*. He writes, "Stress and worry aren't what necessarily cause the problem, but if they lead to trying to control performance, it's more likely to end in a choke." Norman's collapse

at the 1996 Masters illustrated that under conditions of stress, reversion caused fluent, natural skills to become stiff, jerky and cautious.

Similarly, a pianist playing delicate passages from a Mozart piano sonata does so implicitly. In fact, playing an instrument involves the functioning of physical memory. Under pressure, however, many musicians tend to overthink basics like fingering, rhythms and technique. Consequently the performance becomes less musically sensitive and technically accurate at best and completely derailed by memory slips and technical breakdowns at worst.

To Think Or Not To Think: Overcoming Choking Under Performance Pressure

The first method for overcoming choking under performance pressure completely contradicts the second. It prioritizes mental engagement during practice and performance, whereas the second method focuses on physical memory and instincts during performance. In fact, proponents of the "don't think, just do" method encourage performers to embrace performance stress rather than fight it. On the other hand, some experts claim that a greater emphasis on mental engagement during practice establishes a foundation of explicit skill functioning that is useful under performance pressure, asserting that performers must learn to think and play, rather than just play. Of course, advocates of both methods can agree that performers must recognize that consistently experiencing success in practice is essential to a successful performance. After all, one must work for success in performance, not wish for it.

Prepare...But Manage Personal Expectations As Well

Remember everyone deals with performance anxiety differently. Performance confidence is as much a result of practice and mental preparation as it is expectation management. Learn to accept that one performance outcome does not wholly reflect the quality of practice nor the character of the performer. Practice diligently, prepare mentally and plan for success. ☺

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