Choking Under Pressure

What changes in information processing cause athletes such as Jean Van de Velde to fail under pressure?

The world of professional golf provides many examples of people who have been cruising toward victory, only to suffer a meltdown near the end. For instance, after three rounds of play, Greg Norman was leading the 1996 Masters golf tournament by six strokes, only to shoot 78 in the final round and lose by five strokes to Nick Faldo. Phil Mickelson blew a two-stroke lead in the final round of the 2006 U.S. Open with a bogie on the 17th hole, followed by a double bogie on the 18th due to a series of decision errors, leading him to reflect later, "I am such an idiot." Retief Goosen had locked up the 2001 U.S. Open, given two strokes to hole his ball from just 12 feet away. He three-putted. And Jean Van de Velde outdid them all during the 1999 British Open at Carnoustie by blowing a three-stroke lead on the final hole with a mind-numbing series of horrible

decisions. For many people, these were actions of athletes who choked—when the pressure of the situation was raised, they failed.

But, what does it mean to choke, and in fact, did these highly skilled athletes really do so? The term would seem to imply that a particular instance of failed performance, when winning was on the line, was completely avoidable. Is that necessarily so? For example, suppose a basketball player who has an average success rate of 80 percent at the free throw line misses a foul shot with one second to go in the game. Is the player guilty of the label *choke*? Statistically, this player is expected to miss, on average, one free throw out of every five attempts. What would suggest that a miss in the final second of the game was anything either more than a statistically acceptable chance occurrence or different than any other time in the game?

According to researcher Sian Beilock, who studies these behaviors in various types of performance situations, choking is not simply an action performed in a skillful manner that results in an undesirable outcome. Rather, choking occurs when skilled athletes respond to pressure situations by altering the way they have learned to control their actions. Choking occurs for many reasons, many of them cognitive or strategic in origin, rather than simply as a result of suboptimal motor control.

Highly skilled performance, as attained by the very best athletes in every sport, is reached only after thousands and thousands of hours of practice. Researcher Anders Ericsson estimates that musicians and athletes generally do not experience their highest levels of expertise until they have accumulated at least 10,000 hours of practice. And not just any kind of practice will do—it must be structured specifically toward the attainment of skill, what Ericsson calls deliberate practice. This is the kind of practice that is mostly absent of fun and directed at the single, specific purpose of improving one's level of skill.

Many believe that the way experts control their actions is qualitatively different from the way nonexperts do. Theorists, such as Paul Fitts, suggested that the actions of experts possess a high level of automaticity because expertise allows the control of limb movements to be relegated to a nonconscious level. Because the expert athlete's or musician's movements are more automated, Fitts reasoned that they will have more spare attentional capacity to devote to less mundane issues, such as strategic concerns in sport or artistic expression in musical performance.

Anecdotally, musicians who perform at the highest levels of their profession describe experiences that support Fitts' theory. Stevie Ray Vaughan, one of the most highly regarded guitarists of the blues–rock genre, was apparently prone to this type of choking. He once said about his own playing, "When I play from my mind, I get into trouble." Fellow guitarist and friend Lonnie Mack reminisced that Vaughan reminded him not to get "too wrapped up in thinking and just letting it come out." When Stevie Ray did let it flow, however, the results were spectacular. Eric Clapton said that when Vaughan played at his best, he was an "open channel and music just flowed through

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him." These quotes are not unlike the ones you hear from many experts in other domains. To paraphrase the old Nike slogan, Don't think about it; just do it.

According to Beilock, the emergence of this nature of control also creates the potential for choking. After experts have attained a relatively automatic level of control, there remains a tendency to revert to thinking about how their movements are controlled (some call this skill-focused control), rather than just let it happen in a more automatic way.

In a recent putting study, Kristin Flegal and Michael Anderson revealed some clues about how choking might be induced by focusing on performing the skill. Groups of low-skilled and moderately skilled golfers in this experiment performed a series of putts, attempting to achieve a criterion of three consecutive successfully holed putts in a row. After taking their putts, half of the low-skilled golfers and half of the moderately skilled golfers described in as much detail as possible all of the actions involved in making the putts and where they had focused their attention during the putt. The remaining golfers in each skill group performed a control task in which they responded to unrelated questions. After these activities were completed, all subjects performed another set of putts, again attempting to achieve the criterion of three consecutively holed putts. The two subgroups that had performed the control task differed remarkably in the putts required to reach the criterion: as expected, the better golfers required fewer putts to reach the criterion (11 putts) than did the poorer golfers (22 putts). However, performance by the subgroups that described their putting focus in explicit detail was radically different. The moderately skilled golfers who had described their actions in detail required almost twice as many putts to reach the criterion (21 putts) as their control counterparts, whereas those in the low-skilled group needed roughly the same number of putts (20) as those in their control group.

Even though the participants in the Flegal and Anderson study were not experts, it became apparent that those in the higher-skilled group not only controlled their actions differently than those in the lower-skilled group but also suffered considerably when they changed their focus of attention. Such an explanation could account for a failure in performance in high-pressure situations when one changes to skill-focused attention. But, this explanation still leaves open the question about why people would change their focus of attention. What is it about high-pressure situations that lead people to think differently? This remains an issue of theoretical and practical interest on which much work still remains to be done.

An interesting postscript to the 1999 British Open is that, while Jean Van de Velde was coming apart during the final hole at Carnoustie, an on-air reporter made this comment: "He could have played the entire hole with his putter and gotten under 7." The implication was that removing the club selection process from Van de Velde at this time of great stress would have saved him from collapse. Revealing his classic self-deprecating sense of

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humor (and at the urging of his putter manufacturer, who filmed the event), Van de Velde agreed to return to Carnoustie to play the 18th hole again. On his third try he did indeed better his score, recording a 6 on the hole using only his putter for each shot.

Self-Directed Learning Activities

1. Define the term *choke* in your own words.
2. Identify three other well-known cases in which a prominent athlete suffered a performance letdown at a critical stage late in the competition. Does each of these instances qualify for the label *choke* as you have defined it?
3. Identify a published experiment in which conditions of heightened anxiety (or pressure) have been induced. How were levels of anxiety induced in this research?
4. Summarize the findings of the experiment identified in question 3, and briefly propose a logical follow-up experiment.

Notes

- Malcolm Gladwell's article in the *New Yorker* describes many more instances of choking in other sports, including details of Greg Norman's meltdown at the Masters:

  Gladwell, M. (2000, August 21 & 28). The art of failure: Why some people choke and others panic. *The New Yorker, 76* (24), 84-92.

- Stevie Ray Vaughan's comment about playing from his mind was reprinted in Schiller's *Zen page-a-day calendar 2008* (2006, Workman Publishing Company). Lonnie Mack and Eric Clapton's comments are from the Stevie Ray Vaughan and Double Trouble fan site ("What the Others Have Said About Stevie," www26.brinkster.com/jakapa/srv/quotes.htm).
- The following three videos document Jean Van de Velde's return to play the 18th hole at Carnoustie using only his putter:

  www.tinyurl.com/veldepart1 (part 1 of 3)

  www.tinyurl.com/veldepart2 (part 2 of 3)

  www.tinyurl.com/veldepart3 (part 3 of 3)

Suggested Readings

Beilock, S.L. (2010). *Choke: What the secrets of the brain reveal about getting it right when you have to.* New York: Free Press.

From T.D. Lee, 2011, *Motor control in everyday actions* (Champaign, IL: Human Kinetics).

Beilock, S.L., & Gray, R. (2007). Why do athletes "choke" under pressure? In G. Tenenbaum & R.C. Eklund (Eds.), *Handbook of sport psychology* (3rd ed., pp. 425-444). Hoboken, NJ: Wiley.

Ericsson, K.A., Krampe, R.Th., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100,* 363-406.

Fitts, P.M. (1964). Perceptual-motor skills learning. In A.W. Melton (Ed.), *Categories of human learning* (pp. 243-285). New York: Academic Press.

Flegal, K.E., & Anderson, M.C. (2008). Overthinking skilled motor performance: Or why those who teach can't do. *Psychonomic Bulletin & Review 15*, 927-932.

Gladwell, M. (2000, August 21 & 28). The art of failure: Why some people choke and others panic. *The New Yorker, 76* (24), 84-92.

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