

Using Quiet Eye training in an elite sport context – comment on Vickers

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TA COMMENTARY

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ABSTRACT

While the mechanisms underpinning the Quiet Eye (QE) phenomenon are of growing interest to researchers, the translation of QE concepts to the real-world of athlete training and development form the backbone of QE's popularity. This commentary focuses on the challenges associated with applying QE research findings into the daily training environment of elite athletes. In particular we consider: a) how one defines optimal QE behavior in elite athletes; b) how we handle the explicit nature of QE instruction and feedback; and c) how we explain skill failure despite optimal QE behavior.

Keywords:

gaze behavior – Quiet Eye – applied sport – expertise

Introduction

Vickers (2016) presents a compelling overview of the history and origins of her interest in the Quiet Eye (QE) and the growth of a program of research that has spanned three decades and sparked curiosity amongst researchers across the world. The prevalence of this research and longevity of interest in the topic is likely a testament to the fact that it crosses the boundaries of theoretical and applied research so readily. As Vickers (2016) notes there have been efforts to not only characterize QE in a multitude of tasks (see. Rienhoff, Tirp, Strauss, Baker, & Schorer, 2016, for an overview) but also to explain the mechanisms that underlie this phenomenon (e.g., Mann, Coombes, Mousseau, & Janelle, 2011) and to answer the question of how these mechanisms can be translated for the benefit of performers across a range of skills (e.g., Panchuk & Vickers, 2013). While the target article touches on all of these areas and identifies possible re-

search avenues in development, anxiety, and neural activity and imaging, given our interest in applied sport, we will focus this commentary on questions that have arisen from our own experience in using QE training as a tool for improving sport performance.

We have used the QE training approach advocated in the target article in our own published work (Panchuk, Farrow, & Meyer, 2013) as well as when consulting with athletes across a variety of sports (e.g., golf, shooting, basketball) to great effect. There is no question that QE training can be an effective method of eliciting behavioral change and improving performance in athletes. Applied work, however, presents a number of challenges that are not typically encountered in laboratory-based experiments (e.g., lack of an expert QE prototype, limited time to complete interventions). Working with these sometimes difficult challenges has led us to consider how QE training, specifically with highly-skilled athletes, should be carried out with respect

to: a) what we consider optimal QE behavior in elite athletes, b) how we handle the explicit nature of QE instruction and feedback, and c) how we explain skill failure despite optimal QE behavior. In the following sections, we will consider each of these questions within the context of traditional QE training.

The expert QE prototype

The first step in the QE training process is to 'define the expert QE prototype'. While this typically involves referring to existing research or comparing skilled and lesser skilled athletes, it is not always possible to do this if time is an issue or when the athlete being trained is the expert in their sport. In these circumstances, a degree of flexibility in the training approach is necessary and it may be preferential to compare the athletes' performance when they are successful versus unsuccessful. In a similar vein, researchers also need to appreciate the individual differences between performers since what is optimal QE behavior for one performer may not be optimal for another. Expert QE prototypes, used to establish norms for training, are often determined by averaging data across a number of elite performers. For example, in golf, it is assumed the optimal QE duration is between 2-3 seconds (e.g., Vine, Moore, & Wilson, 2011). As a general rule this does not pose any serious issues, however, in the context of elite sporting performers, the use of grouped data may mask the individuals who perform outside of these norms yet are still successful. The debate surrounding the use of grouped or individual data is not unique to QE research but it does pose interesting questions for researchers and practitioners. Given that one of the hallmarks of elite performers is their unique ability to use visual information to support exceptional performance, it begs the question whether the idiosyncrasies observed in their QE behavior (which fall outside of what is deemed prototypical) actually underpin their phenomenal capabilities. In these cases, would it not be detrimental to prescribe training in accordance with the prototype? Or is it still desirable to train the athlete to the norms of the group?

QE instruction and feedback

In the target article, a rather detailed and explicit instructional approach is recommended for the training of a performer. Key features of this approach include the detailing of the five QE characteristics with frame by frame video training followed by explicit feedback and probing of the trainee to attain how much they "understand about the control of their attentional focus as they perform" (Vickers, 2016; p. 4). In the applied setting, "information minimization" is often sought by athletes and coaches alike. This desire is consistent with the aims of the implicit motor learning literature (e.g., Masters, 2013). Consequently, does the performer really need to understand the five QE characteristics? If QE location was the limiting factor, then we would

advocate only focusing on this aspect preferably via methods that reduce the explicit nature of any guidance provided. For example, for golf putting we have previously asked golfers to tell us the color of a marker placed under their ball. The logic being that such an instruction would ensure the golfer needed to maintain a longer fixation on the key QE location (Panchuk & Vickers, 2013). Such an approach is consistent with previous implicit QE training approaches conducted in both sport and surgical domains (e.g., Vine & Wilson, 2011; Wilson et al., 2011) where a key focus is that the attentional skill is passively acquired by the performer in an attempt to inoculate against stress. Recourse to explicit training approaches is considered a hindrance to such an outcome.

QE and skill failure

Those working in the applied space quickly appreciate that there are no silver bullets for improving performance – and QE training is not an exception. While we are not questioning the efficacy of QE training, one of the challenges of using QE training in elite populations is explaining to an athlete or coach why a performance was unsuccessful even though QE location, onset, offset, and duration were optimal. Given that QE does not account for all of the variance in performance (Vine & Wilson, 2010, 2011), the conversation with a coach or athlete about training becomes easier if we have an understanding of what other factors influence performance and how they interact with QE. While understanding the mechanisms (e.g., neural activity) underlying the QE effect is valuable, it is just as important to appreciate other contributors to performance. Hence, we would suggest approaching QE testing and training from an interdisciplinary point-of-view by collectively capturing multiple facets of performance (gaze, movement coordination, psychological state, etc.) as such an interdisciplinary approach should provide further insights which were beneficial for applied practitioners.

Summary

In summary, the QE phenomenon has profoundly influenced the training of athletes attentional control skills. This commentary has focused on the issues of application surrounding QE research. To this end, we encourage continued work investigating the most effective methods possible for transferring enhanced attentional control skills to competitive performance. Particularly fruitful directions would include the continued development of implicit learning techniques to develop QE and the greater use of interdisciplinary research teams so that the complex relationships between attention and movement control can be better understood.

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Competing Interests

The authors have declared that no competing interests exist.

Data Availability Statement

All relevant data are within the paper.

References

- Mann, D. T. Y., Coombes, S. A., Mousseau, M. B., & Janelle, C. M. (2011). Quiet eye and the Bereitschaftspotential: Visuomotor mechanisms of expert motor performance. *Cognitive Processing, 12*, 223-234.
- Masters, R. (2013). Practicing implicit (motor) learning. In D. Farrow, J. Baker, & C. MacMahon (Eds.), *Developing sport expertise: Researchers and coaches put theory into practice* (2nd ed.) (pp. 152-172). London: Routledge.
- Panchuk, D., Farrow, D., & Meyer, T. (2014). How can novel training aids be used to induce acute changes in gaze behaviour? *Journal of Sports Sciences, 32*, 1196-1201.
- Panchuk, D., & Vickers, J. N. (2013). Expert visual perception: Why having a quiet eye matters in sport. In D. Farrow, J. Baker, & C. MacMahon (Eds.), *Developing sport expertise: Researchers and coaches put theory into practice* (2nd ed.), (pp. 195-209). London: Routledge.
- Rienhoff, R., Tirp, J., Strauss, B., Baker, J., & Schorer, J. (2016). The "quiet eye" and motor performance: A systematic review based on Newell's constraints-led model. *Sports Medicine, 46*, 589-603.
- Vickers, J. N. (2016). Origins and current issues in Quiet Eye research. *Current Issues in Sport Science, 1:101*. doi: 10.15203/CISS_2016.101
- Vine, S. J., Moore, L. J., & Wilson, M. R. (2011). Quiet eye training facilitates competitive putting performance in elite golfers. *Frontiers in Psychology, 2:8*. doi: 10.3389/fpsyg.2011.00008
- Vine, S. J., & Wilson, M. R. (2010). Quiet eye training: Effects on learning and performance under pressure. *Journal of Applied Sport Psychology, 22*, 361-376. doi: 10.1080/10413200.2010.495106
- Vine, S. J., & Wilson, M. R. (2011). The influence of quiet eye training and pressure on attention and visuo-motor control. *Acta Psychologica, 136*, 340-346. doi: 10.1016/j.actpsy.2010.12.008
- Wilson, M. R., Vine, S. J., Bright, E., Masters, R. S. W., Defriend, D., & McGrath, J. S. (2011). Gaze training enhances laparoscopic technical skill acquisition and multi-tasking performance: A randomized controlled study. *Surgical Endoscopy, 25*, 3731-3739.