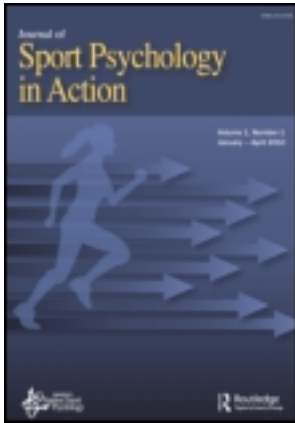


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“Focus on What?”: Applying Research Findings on Attentional Focus for Elite-Level Soccer Coaching

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Despite increased publications on the topic of mental skills (i.e., over 1,200 peer-reviewed papers published in the last 20 years), minimal knowledge is translated into practical guidance for coaches. Expressions such as “Pay attention” and “Focus” are frequently heard in coaching, yet the meaning of these phrases is not easily understood nor applied. Therefore, we aim to help elite-level soccer coaches better understand what it means to pay attention and focus, while providing practical suggestions to improve athletes’ abilities to focus, refocus, minimize distractions and instances of choking, and forget about performance mistakes while in the moment.

KEYWORDS *attention, coaching, elite-level soccer, focus.*

WHY SOCCER?

Soccer has become a global sport, emerging as the world’s most popular team sport during the twentieth century (Dunning, 1999). Empirical and anecdotal evidence demonstrates that North Americans are becoming increasingly attracted to this sport. According to Statistics Canada, soccer is the most played organized sport among children and teenagers between 5 and 14 years old (Clark, 2008). Furthermore, the gold medal won by the U.S. women’s soccer team and the historic bronze medal won by the Canadian women’s soccer

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team in the 2012 London Olympic Games also demonstrate the competitive rise of elite-level soccer in North America.

It is important for coaches to understand how to help elite soccer athletes achieve optimal performances, particularly through the application of mental skills (e.g., attention and focus training). Coaches may be confronted with numerous challenges, which include but are not limited to: identifying what athletes should focus on; how to focus/refocus; how to prevent distractions; and delivering instructions to help their athletes concentrate better. Therefore, in order to provide soccer coaches with practical guidelines to address these challenges, we will draw implications from the growing body of literature on attentional processes and expert performance of sport skills. Following a description of the current research in each section, we will provide practical, real-life suggestions for elite-level soccer coaches to implement with their athletes. Even though we will be specifically referring to soccer, we strongly encourage coaches and practitioners from other sports to consider applying the practical suggestions we provide.

WHY ATTENTIONAL FOCUS?

Attention is deemed a vital aspect of sport performance and a central component to the enhancement of skill learning and expert performance (Abernethy, 2001; Boutcher, 2008). The ability to focus directly affects the psychological elements required to excel in any performance, such as mental readiness and distraction control (Orlick, 2008). Orlick also contends that focus is a skill that can be learned and should be practiced (Glynn, 2011). Yet, when requested to “Pay attention” or “Focus,” athletes may ask “Focus on what?” or “How do I concentrate?,” which may prompt coaches to reflect on how to improve their athletes’ attentional skills.

The field of attention is especially broad with many different avenues of research (e.g., alertness, selectivity, capacity, breadth, and direction). In addition, there is a clear overlap between the concepts of focus, attention, and concentration. According to Vealey (2007), *attentional focus* is the ability to direct and sustain focus. Boutcher (2008) defined *attention* as the ability to switch focus from different sources of information, while Taylor (1995) suggests *concentration* is the “ability to focus on performance-relevant aspects of the attentional field” (p. 341).

Due to the overlap in describing *attention*, we have chosen to outline the attentional systems framework proposed by Posner and Petersen (1990), while emphasizing the systematic explanation of this framework as developed by Carr and Hinckley (2012). Following this explanation, we will provide an example to illustrate these concepts within elite-level soccer.

According to this framework, attention is divided in three systems that perform different functions. The first system is responsible for the functions

of alerting, arousal, and vigilance and it prepares the individual for task performance. According to the Yerkes-Dodson Law, there is an optimal level of arousal at which the task execution is maximized. Higher or lower levels than the optimal level tend to produce inferior performance (Carr & Hinckley, 2012).

The second system (i.e., selective attention system) is in charge of orienting toward and selecting sources of information from the external world and the memory (Carr & Hinckley, 2012). This system regulates the flow of information by giving or reducing priority to stimuli according to the task goals (i.e., facilitating or inhibiting information). Inhibition is triggered by the detection of conflict or ambiguity, which is characterized by a situation where more than one thought or action is competing to be attended or performed. Upon conflict detection, the executive control system is alerted and performance is slowed, allowing care to be taken, goals to be updated, and information to be deleted. Task-irrelevant thoughts and “mindwandering” happen when mental activity drifts away from the boundaries of the task and involve attention switching between external (i.e., task) and internal (i.e., introspection) contexts.

The third attentional system (i.e., working memory) is responsible for temporary maintenance and manipulation of information including the shifting of attentional focus. Shifting attention may happen intentionally or reflexively. The intentional shift is regulated by executive control processes called top-down or endogenous control. The reflexive attentional shift is “driven by the sudden onset of a new, high-intensity, or potentially important stimulus in the environment” (Carr & Hinckley, 2012, p. 68). This latter kind of executive control is also called bottom-up or stimulus-driven exogenous control. Furthermore, the working memory system performs the functions of executive control and supervision of goal-directed task performances.¹

A practical example to explain the attentional systems in relation to elite-level soccer follows: *It is the final match of the tournament. They are the underdogs playing their greatest rival. Surprisingly, the match is tied in overtime when the referee calls a penalty kick* (i.e., attentional focus shift through exogenous control, the referee’s whistle). *“If I score, we may beat our rivals and win the tournament, which has not happened in years”* (i.e., mindwandering). *The player looks to the teammates, the coach and the crowd as if seeking for their support* (i.e., attentional shift through endogenous control). *Everyone is counting on him* (i.e., pressure). *He knows he can perform a penalty kick well, but this is not just “a” penalty kick; instead it is “the” penalty kick* (i.e., conflict detection). *He feels his hands shaking while placing the ball on the spot* (i.e., over aroused). *He looks at the goal trying not to focus on the goalkeeper’s distracting moves* (i.e., facilitation and inhibition process) . . . and the situation could be further detailed. As noted in this example, several attentional processes take place in the execution of sport skills. Due to space limitations, we will highlight the

research findings on the second and third attentional systems (i.e., selective attention and working memory) in relation to the performance of well-learned skills in sport, while applying these findings for elite-level soccer coaches.

FOCUS ON MOVEMENT EFFECTS FOR WELL-LEARNED SKILLS

According to Wulf (2007), while executing motor skills, an individual's attention that is directed towards his or her own movements (e.g., the foot position, while kicking the ball) is called internal focus. In contrast, an external focus is when the individual's attention is directed towards the movement effects (e.g., the trajectory of the ball after a soccer free kick). Research demonstrates that an external focus of attention, as opposed to an internal focus, increases performance output (Wulf, 2007). Wulf found that focusing on movement effects is more beneficial than focusing on the movements themselves within motor performance and learning.

In contrast, Beilock and colleagues (Beilock & Carr, 2001; Beilock, Carr, MacMahon, & Starkes, 2002) have extensively demonstrated that the appropriate focus varies according to different kinds of tasks (i.e., skill learning or well-learned skill execution) and expertise levels (i.e., novice or expert). For motor skill learning, an internal focus of attention is beneficial, and the learning is compromised if attentional demands are drawn away from the task at hand. Also, expert performance of well-learned skills tends to be harmed when attention is directed to their step-by-step processes (e.g., foot position during ball dribbling). Conversely, novice performance is improved when attention is drawn to this micro step-by-step level.

While the findings on skill learning have been interpreted as diverging by some authors (Bernier, Thienot, & Codron, 2009), others contend they are not mutually exclusive and prompt future investigations to account for the apparently contradictory findings in the field of skill learning (Carr & Hinckley, 2012). Even though research findings on whether an internal or an external focus is more facilitative to the learning of motor skills are not unequivocal, there is an unambiguous agreement among researchers in regards to the appropriate attentional focus for the execution of well-learned skills. Several studies have shown that well-learned skills must be executed under the control of automatic processing, that is, without consciously thinking about the processes involved in its execution (Baumeister, 1984; Beilock & Carr, 2001; Masters, 1992; Schneider & Shiffrin, 1977; Wulf, 2007). The adoption of an external focus allows players to perform well-learned motor skills as in autopilot. As a result, coaches should instruct expert players to not pay attention to the micro-level step-by-step process of well-learned skill execution (e.g., position of the foot, angle of the leg, or kick power) otherwise their performances could be hurt. Thus, for well-learned skills, focusing

on external stimuli promotes automaticity in movement control, allowing the body to execute movement patterns that do not require conscious attention. Essentially, the body is able to go into autopilot to successfully complete performance tasks. However, it should be noted that autopilot may not be beneficial for highly complex tasks at the expert level (Gabbet & Abernethy, 2012). For example, where autopilot may better serve the performance of well-learned skills, tactical tasks (e.g., 4-on-3 or 3-on-2) at this level require a great deal of working memory to engage in decision making. Therefore, due to the increased recruitment of working memory, successful completion of these tasks ensues outside of an autopilot mode of attention.

In reference to soccer performances, Wulf's (2007) findings suggest that when a player finds him or herself in a situation where the game is stopped and there is time to think and plan where to kick the ball (e.g., free kick, corner kick or penalty kick), it is beneficial to adopt an external focus, especially one that directs the attention towards the movement effects. Coaches may train their players to focus on the trajectory of the ball for long kicks, such as a corner kick, or instruct them to concentrate on the desired spot in the goal where they want the ball to be placed in a penalty kick. This allows the player to avoid attending to his or her own movements, thus not disrupting the automaticity of well-learned skill execution.

Game situations are characterized by ongoing and changing attentional demands. Skilled soccer players who were instructed to pay attention to the side of the foot the ball was touching, while performing a dribbling task, showed decreased performance in comparison to players who received no instructions (Beilock et al., 2002). Beilock et al. also found that while expert performance with the dominant foot improved in the condition that removed attention from performance execution (i.e., dual-task condition), the contrary was observed for expert-performance with the non-dominant foot. When using the non-dominant foot, performance decreased in the dual-task condition, and improved in the skill-focus condition. Their work showed that while novices and the less-proficient performance of experts benefit from a focus on skill execution, high-level performance decreases in such a condition.

The practical application of these research findings suggests that during moments when an expert player is preparing to pass the ball or is about to receive a pass, both with the dominant foot, coaches may tell them to focus on the ball motion (e.g., imagining the ball leaving after the kick), as opposed to focusing on the leg movements (e.g., thinking about the foot position before passing). These research findings also imply that instructing the player to direct the attention to the position of the dominant foot or to the power of the kick may impair, rather than enhance, performance, which is contrary to what some coaches may expect.

Despite the beneficial effects of focusing on external stimuli during the execution of well-learned skills, it is important to note that in some situations, the athletes should turn their attention towards internal stimuli.

This is especially true for those activities specifically designed to improve the current level of performance, namely deliberate practice (Ericsson, Krampe, & Tesch-Römer, 1993). Such situations, where an internal focus would prove beneficial, include players evaluating their performance after a game and when a skill must be improved, corrected, or changed. In these circumstances, performance is carefully monitored to provide ways of improvement. As a result, focused attention to the processes of performance is required in order to maximize feedback and correct future actions (Ericsson et al., 1993).²

CHOKING UNDER PRESSURE

In 1984, Baumeister used the expression “choking under pressure” to describe the phenomenon of performing poorly when the stakes are high. Choking occurs in high pressure situations when the individual tries to consciously control movements that have already been automated. During high stake situations, athletes may realize the importance of performing correctly and subsequently attempt to ensure appropriate skill execution by paying attention to the step-by-step process of performance. Choking under pressure was exemplified by Italian player Roberto Baggio during the 1994 FIFA World Cup championship game. Baggio had to score the penalty kick that would prevent the Brazilian team from winning the World Cup. Similar to the previous example used to illustrate the attentional systems, in such a decisive moment, the pressure mounts and the player may become aware of the relevance of correct skill execution for the player’s own career, for the team, and even for the nation. This “awareness,” or ambiguity, may make the player attempt to “be careful and control the shot.” As noted, directing attention to the autopilot tends to interrupt its process and subsequently degrade performance as demonstrated by Baggio who missed the penalty shot by kicking the ball way over the bar.

Coaches should refrain from statements such as “This is it, so don’t blow it” or “Don’t let us down now” during high-pressure situations. Such verbalizations may increase the likelihood of the athlete choking. For instance, during a penalty shot, adopting a “just do it” approach (i.e., focusing only on executing the shot itself) may be more desirable and is in line with the research findings advocating focusing processes enabling autopilot. Jackson and Beilock (2008) provided strategies to prevent athletes from directing their attention to well-learned aspects of performance and to ultimately prevent choking, which are described in the following sections.

Simulation Training

By creating different scenarios in training that simulate what athletes may face in competition, coaches will help athletes in several ways. First, they will help minimize the effects of pressure conditions which tend to increase

the players' conscious attentional control. This may help the players adapt to performing in situations where their attention is directed towards skill execution. Second, simulated training may help athletes develop strategies to deal with high-stake pressure situations, such as suddenly losing a teammate due to a red card in training. Coaches that simulate this potential scenario may help their athletes develop problem solving strategies and coping skills to face high-stress situations. In addition, simulation training that incorporates variations of the desired task performance may produce higher retention rates of the desired skill or play pattern even if at a slower learning rate, as opposed to repeatedly simulating the same skill or play pattern with no variation (Shea & Kohl, 1990, 1991). Finally, while with mere repetition, performance improvement reaches less than maximal levels, further improvement requires effortful reorganization of the skill (Ericsson et al., 1993), such as training curved through passes, after mastering straight ones, in order to prevent opponents' interception.

A "Quiet Mind" without "Thinking too Much"

Research demonstrates that minimizing the thinking time available for the athlete to perform a well-learned skill enhances performance (Beilock, Bertenthal, McCoy, & Carr, 2004). By reducing the preparation time before skill execution, the risk of over thinking is also decreased.³ This is especially true for self-paced tasks, that is, when preparation time for performing is adequate and environmental conditions are stable (Singer, 2002). Coaches may develop strategies based on Singer's (2002) five-step routine that help to keep their players' minds "quiet" by focusing on relevant cues, rather than "thinking too much" about distractions or engaging in unnecessary conscious attentional control. For instance, in a free kick: 1) prepare for the shot (e.g., placing the ball and taking a few steps back); 2) visualize a successful shot (e.g., ball going over the wall and into the net); 3) focus on a meaningful external cue (e.g., a desired corner on the goal); 4) execute on autopilot (i.e., quiet mind); and 5) evaluate the performance after the game (Singer, 2002). This approach may help players focus on relevant stimuli, while reducing the likelihood of having unwanted thoughts interrupt the autopilot.

Having emphasized the benefits of performing well-learned skills without paying conscious attention, Jackson and Beilock (2008) note, however, that under some circumstances it may be beneficial to focus on skill execution. When a skilled player is trying to modify a technique (e.g., to improve performance or due to a change in the rules), focused attention to movement execution is required. In addition, as previously noted with Gabbet and Abernethy (2012), in decision-making, problem-solving and strategizing tasks, attentional focus to the step-by-step processes is generally necessary.

Therefore, while it may be essential to perform well-learned skills in autopilot, some situations may require conscious attentional control. As a result, we must emphasize that the advice to perform in a “quiet mind” does not apply in the context of deliberate practice, decision-making, or to correct or change a skill.

FORGET THE MISTAKES: FOCUS ON THE HERE AND NOW

Research demonstrates that attempting to mentally circumvent anticipated performance mistakes via suppressing imaging of failing impedes the actual performance and leads to negative performance outcomes (Beilock, Afremow, Rabe, & Carr, 2001). In addition, making mistakes and focusing on these mistakes during soccer games can be a great source of distraction. Coaches should help their players avoid thinking about previous mistakes and refrain from anticipating the consequences of performance *while they are playing*. As previously noted, the appropriate moment to focus on skill improvement would be during deliberate practice when a focused attention to the step-by-step processes of skill is required (Ericsson et al., 1993), not while executing well-learned performance tasks. Preliminary analysis from the findings of an ongoing research study with elite-level soccer players reveals that rather than coping with mistakes by focusing on the next step of performance, some athletes' attention are drawn to the previous error which increases the likelihood of making further mistakes (Tedesqui, 2013). Thus, forgetting mistakes in this context involves preventing rumination and anticipatory thoughts in the moment, which ultimately derails the athlete's ability to focus on the current performance.⁴

Several strategies have been developed to help athletes deal with mistakes appropriately and keep an optimal attentional focus after an error. For example, Orlick (2008) suggests that athletes must learn to sustain their best focus in face of distractions and refocus quickly whenever that focus is lost. Reminders that coaches may suggest to their athletes include “Let it go and focus on the next play” or “Focus on what is under my control.” Coaches should note that telling their athletes what *not* to focus on (e.g., “Don't focus on the goalkeeper”) will likely produce the opposite effect. Similar to Beilock et al.'s (2001) findings on suppressive imagery, Wegner's (1994) theory of ironic processes of mental control explains how counterintentional effects are observed during attempts to suppress unwanted thoughts or to avoid focusing attention on distracters, especially in situations of mental load. Conversely, introducing a neutral or a task-appropriate thought can help prevent the occurrence of unwanted thoughts. In accordance with the previous example, for instance, rather than telling the athlete to not focus on the goalkeeper, the coach could tell the athlete to visualize the trajectory of the ball going in the desired corner of the goal. In addition, coaches will want

to help their athletes “start off on the right foot” (Tedesqui, 2013). Providing instructions for the athletes to make easy passes in the beginning of a game (e.g., performing short and straight passes, leaving long and curved ones for later) may instill confidence and a sense of control within the athletes.

CONCLUSION

In conclusion, we hope to have promoted the application of knowledge from theory and research to the practice of elite-level soccer coaching in relation to understanding and developing attentional skills. By describing the current research on attention in performance contexts, while applying this knowledge to high-level soccer, our aim was to provide coaches with useful strategies that help expert players perform at their best. These strategies are summarized below:

- External focus improves performance in the context of well-learned skill execution.
- Internal focus improves performance in the context of learning new skills, improving and correcting skills, and deliberate practice.
- Simulation training through variable practice scenarios reduces instances of choking and improves long-term retention of skill performance.
- Minimize the thinking time available for the athlete to perform self-paced skills through the implementation of Singer’s (2002) five-step routine.
- Beginning performance with simple tasks helps to build confidence and minimize mistakes. After mistakes, help athletes focus on the next play and skills that are under their control.

Finally, attentional focus is extremely relevant in any performance domain. Although the practical implications presented in this paper were addressed to elite-level soccer coaches, the aforementioned suggestions may—and perhaps should—be applied to other sports and performance domains as well. By better understanding how to develop attentional skills within sport and other contexts, higher performance outcomes and overall positive sport experiences may be achieved.

NOTES

1. For a detailed account of the attentional systems, see Carr and Hinckley (2012).

2. This article focuses on findings that relate to the execution of well-learned skills by expert performers, rather than the learning process of novice performers. For a review of the findings on skill learning, refer to the work of Beilock and Carr (2001); Beilock et al. (2002); Ericsson et al. (1993); Masters (1992); Wulf (2007); and Wulf, Höß, and Prinz (1998).

3. Jackson and Baker (2001) found that preparation time increases as task difficulty increases for rugby goal kicking. According to the authors, task difficulty in rugby goal kicking is influenced by

two variables: (a) the distance of the kick and (b) its lateral angle. During the penalty kick in soccer, both variables are held constant. Therefore, task difficulty changes may not account for differences in preparation time for that specific task. For this and other self-paced skills, such as the basketball free throw, there is "a fixed-level of difficulty defined by the unchanging parameters of the task" (Jackson & Baker, 2001, p. 50). Having said that, even though the presence of a goalkeeper in a soccer penalty kick makes it slightly more complex than the basketball free throw, the variability in goalkeeping may not account for remarkable changes in task difficulty that would require greater preparation time from the kick taker.

4. It should be noted that suppressing negative imaging impedes performance not only for novice but also for expert level performers. For example, Beilock et al.'s (2001) findings with novice performers are similar to Tedesqui's (2013) work with expert-level players. Both studies found detrimental effects of attempting to suppress negative images, whether these images reside in potential mistakes (i.e., anticipation) of novice performers as in Beilock et al.'s (2001) work, or from previous mistakes (i.e., rumination) of expert performers as in Tedesqui's (2013) work.

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