

Chapter 1.

An Introduction to Imagery Use in Sport

IMAGERY

Everyone has the ability to use imagery; nevertheless, people sometimes choose not to use it even in situations in which it could be helpful. Early research defined imagery as “all those quasi-sensory or quasi-perceptual experiences of which we are self-consciously aware, and which exist for us in the absence of those stimulus conditions that are known to produce their genuine sensory or perceptual counterparts, and which may be expected to have different consequences from their sensory or perceptual counterparts” (Richardson, 1969, pp. 2-3). Today, researchers consider imagery to be the process of cognitively reproducing an object, scene, or sensation as though it were occurring in overt, physical reality. It can evoke the physical characteristics of an absent object, event, or activity that has been perceived in the past or may take place in the future. Furthermore, imagery can incorporate all five physical sensations (i.e., vision, audition, olfaction, gustation, and kinesthetic) (Denis, 1985; Hall, 2001).

IMAGERY USE IN SPORT

The use of imagery has been examined in many different contexts. However, its use in sport has received considerable attention and will be reviewed here. The approach will be the same as that used by Munroe, Giacobbi, Hall, and Weinberg (2000) in their qualitative examination of the nature of imagery use in sport. Their study attempted to answer four questions, referred to as “the four W’s of imagery use” (Munroe et al., 2000, p. 119). The “four W’s” are Where do athletes use imagery? When do athletes use imagery? What do athletes image? and Why do athletes use imagery?

Where do athletes use imagery?

Research has investigated athletes’ imagery use in primarily two contexts: competition and training. Athletes consistently report using imagery more often in conjunction with competition than with training (Hall, Rodgers, & Barr, 1990; Salmon, Hall, & Haslam, 1994). Athletes also report using imagery outside of these two contexts, including at work, school, and home (Salmon et al., 1994). Recently, research has also determined that athletes use imagery during sport-injury rehabilitation (Sordoni, Hall, & Forwell, 2000, 2002).

When do athletes use imagery?

It has been found that imagery is employed most often immediately prior to a competitive event, rather than during or after competition (Barr & Hall, 1992). When athletes use imagery in training they tend to use it during practice, not before or after practice (Salmon et al., 1994). Outside of training and competition, athletes have reported using imagery intermittently throughout the day, but most often at night just before falling asleep (Hall et al., 1990; Rodgers, Hall, & Buckolz, 1991).

What do athletes image?

The question of what athletes imagine has been addressed in a number of studies (Barr & Hall, 1992; Hall et al., 1990; Highlen & Bennett, 1979; Moritz, Hall, Martin, & Vadocz, 1996; Munroe et al., 2000; Salmon et al., 1994; White & Hardy, 1995). It refers to the precise content of an athlete's image. Munroe et al. (2000) categorized the content of athletes' images in sport under various headings. These headings included sessions, effectiveness, surroundings, nature of imagery (positive or negative imagery, and the accuracy of the imagined event or behaviour), and type of imagery (visual, kinesthetic, auditory, olfactory, and speed).

The first heading, "sessions," refers to the length of time athletes spend using imagery and how often they employ imagery. In the first comparison of athletes' use of imagery in different sports, Hall et al. (1990) found that the length of athletes' imagery sessions fluctuate and the frequency of their imagery use changes throughout the year. They also found that athletes did not have very structured (i.e., imagery session planned in advance as to duration of session and content of images) or regular (i.e., same time each day) imagery sessions.

Imagery effectiveness has received little empirical attention. However, Munroe and associates (2000) found that athletes reported imagery as being most effective during pre-competition and during practice. Athletes also reported including aspects of their competition surroundings in their images, but again this has not been examined in any detail. In contrast to effectiveness and surroundings, the nature of imagery has been investigated in some depth. The comparison of positive and negative imagery has been a popular approach used to examine imagery content. Studies have found that the use of positive imagery for a variety of tasks improves motor performance, whereas the use of negative imagery has resulted in a decline in performance (Powell, 1973; Woolfolk, Parrish, &

Murphy, 1985). While athletes report experiencing some negative images during competition (Munroe et al., 2000), overall athletes report imagining the positive aspects of their sport (e.g., winning) far more often than the negative ones (e.g., losing) (Hall et al., 1990). In addition, the images athletes produce are usually accurate (Barr & Hall, 1992; Hall et al., 1990; Munroe et al., 2000), and, as might be expected, elite athletes tend to have more accurate images than their novice counterparts (Barr & Hall, 1992).

There are various types of imagery that may be used by athletes. The two types that have been most frequently investigated are visual and kinesthetic imagery. Munroe et al. (2000) further categorized visual imagery into the vividness of the imagery and whether an internal (i.e., seeing through your own eyes) or external (i.e., seeing yourself in the third person) imagery perspective is used. Researchers have found that athletes use internal and external imagery to approximately the same extent (Hall et al., 1990). Athletes report being able to “feel” the movements associated with performing a task when they image (Barr & Hall, 1992), and this is termed kinesthetic imagery. More experienced or elite athletes indicate using kinesthetic imagery more often than novice athletes (Barr & Hall, 1992), and it has been proposed that both visual imagery perspectives can be used in conjunction with kinesthetic imagery (White & Hardy, 1995). The use of kinesthetic imagery may also depend on the sport, or the type of skill being performed. For example, Hall and colleagues (1990) found that gymnasts and figure skaters used kinesthetic imagery more than squash, soccer, and football players. They proposed that kinesthetic imagery was more helpful to athletes who performed mostly closed skills such as those found in the sports of gymnastics and figure skating. Other researchers have not found such differences and propose that elite athletes use visual and kinesthetic imagery to about the same extent (Barr & Hall, 1992; Salmon et al., 1994).

Why do athletes use imagery?

Athletes use imagery for both cognitive and motivational purposes (Paivio, 1985). Initially, sport psychology researchers believed that athletes use imagery primarily as a learning tool and, therefore, are using mainly cognitive imagery. Accordingly, researchers concentrated on the investigation of athletes' use of imagery (i.e., mental practice) in facilitating the learning of specific skills used in their sport (e.g., Feltz & Landers, 1983). However, more recent findings have suggested that athletes use imagery predominantly for the purpose of enhancing performance (i.e., motivational imagery) rather than as a learning tool to improve specific skills. For example, Munroe, Hall, Simms, and Weinberg (1998) found that varsity athletes reported using both cognitive and motivational imagery, but utilized motivational imagery more. In addition, their results indicated that the cognitive and motivational functions of imagery are used to varying degrees in different sports and that athletes changed their use of these two functions over the course of a competitive season (i.e., from early to late in the season).

More recently, Cumming and Hall (2002) investigated athletes' use of imagery in the off-season. Not only did they find that athletes use imagery for both cognitive and motivational purposes during the off-season, they found this was related to the competitive level of the athletes. More specifically, higher-level athletes (i.e., provincial and national) engaged in significantly more cognitive and motivational imagery than regional level athletes. Furthermore, the more physical and technical preparation athletes engaged in during the off-season, the more imagery they employed.

Paivio (1985) proposed an analytical framework for the use of cognitive and motivational imagery in sport. Hall, Mack, Paivio, and Hausenblas (1998) then used this framework as the basis for the SIQ. Therefore, the

SIQ assesses the two reasons why athletes employ imagery, namely, for cognitive and motivational purposes.

CONCEPTUAL BASIS FOR THE SIQ

As noted above, the SIQ was constructed from Paivio's (1985) analytic model of motivational and cognitive functions of imagery in human performance. The underlying theory also includes verbal processes because imagery is usually initiated and guided by verbal cues, but imagery is assumed to be the effective medium. The emphasis is on motivational and cognitive functions of imagery operating at general and specific levels (see Figure 1). The general motivational level refers to physiological arousal and affect, and the specific level refers to goal-oriented behaviour. The distinction on the cognitive side is between general behavioural strategies and specific responses.

The imagery system provides the medium for experiencing and manipulating these reactions vicariously. Language permits access to and control of the relevant imaginal experiences that are to be rehearsed. The SIQ consists of items that refer to imagery experiences related to each of these functions. When first investigated, it was expected that the questionnaire responses would cluster into four factors defined by the four cells of the model: motivational general (MG), motivational specific (MS), cognitive general (CG), and cognitive specific (CS). This was confirmed (Hall et al., 1998) with the one qualification that the motivational general factor divided into two factors, arousal imagery (MG-A) and mastery (MG-M) of one's motivational states (e.g., self confidence, mental toughness).