

An introduction to imagery

Notes for Teachers

An introduction to imagery

For a number of years imagery has been identified as an effective tool to enhance athletic performance and sporting success. As a result, it has become one of the most popular psychological strategies employed by athletes, coaches, and sport psychologists. Although there is an abundance of evidence highlighting imagery's effectiveness, the mechanisms behind its success or *why* imagery is so effective, until recently has remained inconclusively answered. More traditional imagery theories are thought to provide vague or inadequate explanations and have therefore been criticised. However due to advancements in brain imaging techniques, the most recent theory emerging from neuroscience research is the theory of *Functional Equivalence*. This theory proposes that when a person images, they activate similar areas of the brain which also become active if the individual actually engages in the task. For example, if an athlete images themselves kicking a football, the areas of the brain which become active when they actually kick a football will activate during imagery of the task. It is thought that this activation through imagery can strengthen the neural activity which would occur during execution of the movement and consequently improve motor output and sporting success. This activation of neural areas during imagery can also lead to other physiological responses which are reflective of the actual situation such as increases in heart rate and ventilation frequency, and muscle activity.

Imagery types

Imagery is often referred to, particularly in some A level curriculums, as either visualisation or mental rehearsal. However a preferred term to describe the process is imagery. Firstly this is because as well as the seeing element, an image can incorporate additional senses such as being able to hear, smell, or feel characteristics within the image. Secondly, imagery is not only used to mentally rehearse skills and strategies, it can serve a number of other benefits which include motivational purposes. For example, an athlete who becomes very anxious prior to competing may image themselves experiencing the symptoms associated with anxiety such as increases in heart rate, sweaty palms etc, but also image themselves performing well despite experiencing these responses. As a result the athlete can teach themselves that these symptoms are necessary to experience sporting success.

Alternatively, an athlete who lacks motivation to attend training one evening may image themselves winning a particular tournament to motivate them to want to work hard and make this image a reality. The majority of reasons for athletes imaging can be classified into five main categories which have been identified in sport psychology research. These are;

- Cognitive Specific: These purposes are to develop skills and techniques to improve performance
- Cognitive General: These reasons include strategy planning, development, and execution
- Motivational Specific: The purpose is to help athletes understand what it takes to achieve their goals

- Motivational General Arousal: This is using imagery to regulate emotions and arousal levels such as psyching up or relaxing
- Motivational General Mastery: When an athlete uses imagery for things such as staying focussed, confident and mentally tough

Although images tend to be used by athletes for these five reasons, images generated by an athlete can serve more than one purpose. For example, a basketball player may image themselves correctly performing a free throw to help them improve their actual skill level. However this image may also serve as a method to improve their self-efficacy at being able to perform the skill, as seeing themselves successfully perform it could serve as a form of performance accomplishment or vicarious experiences - two of Bandura's proposed sources of self-efficacy.

Effective imagery and the PETTLEP model

The PETTLEP model was developed by Holmes and Collins to be used as a 7-point checklist helping athletes create more effective imagery. It was proposed that incorporating each PETTLEP element into the imagery experience will increase the similar areas of brain activation and consequently the imagery's success on the desired outcome. PETTLEP is an acronym which stands for the following different elements that should be addressed and correctly incorporated when using imagery to enhance athletic performance:

- Physical
- Environment
- Task
- Timing
- Learning
- Emotion
- Perspective

The elements are a combination of traditional characteristics which have been employed in imagery studies for many years (e.g., task and perspective), and those which are relatively novel and can sometimes defy more traditional approaches (e.g., physical, timing). For more details about each element, see the video lecture. Since its creation the PETTLEP model has been incorporated into numerous studies and results have been supportive, indicating the more elements incorporated, the more successful imagery tends to be on athletic performance. As a result the PETTLEP model has become a well established and popular tool used by maximise imagery's effectiveness.

Success using the PETTLEP model

Research has shown that using PETTLEP imagery can produce greater performance improvements for a variety of different tasks such as

- Hockey penalty flicks
- Gymnastic routines
- Golf bunker shots
- Computer game performance
- Nursing skills

Application using the PETTLEP model

If a football team wanted to use imagery to prepare for the possibility of going to penalties during the knock out phase of a tournament, application of the PETTLEP model could be as follows.

- Physical:** The players could imagine being out of breath and even make themselves out of breath prior to imaging to simulate the state they would be in during a match. The imagery could then be performed in the standing position wearing their football kit and boots in the same way they would when they prepare to take a penalty.
- Environment:** The imagery performed would be in the competition venue using photographs, videos and even an audiotape of the crowd to create an environment as close as possible to the actual situation they would encounter if actually taking a penalty.
- Task:** The task attentional demands and should be reflected in the image, therefore each footballer should focus internally and concentrate on factors such as which corner in the goal they are going to aim for. They should include the prompts they would attend to when actually taking the penalty. For example some players never look at the goalkeeper in their preparation and focus solely on the ball when waiting for the referee's whistle to begin their run up. As a result this should be mirrored in the imagery scenario.
- Timing:** The penalty preparations and execution including the run up and flight of the ball should be imaged in real time.
- Learning:** Each footballers image should match their current stage of learning. Once the technique is mastered athletes can start focussing on other elements of the image rather than how to correctly perform the task such as the changes in emotion they would experience as they become a more accomplished penalty taker.
- Emotion:** It is important that the footballers incorporate the relevant emotions they experience when they take a penalty so they become familiar with these and learn to associate them with success. It is also thought that the inclusion of relevant emotion will help increase the vividness of an image.
- Perspective:** If the footballers want to view the technique of taking a penalty, they may wish to perform the imagery from an external visual perspective. However they may prefer to use internal visual imagery when wanting to view the factors they will focus on when making their preparations for the penalty. As a result each footballer should consider which visual perspective is best to adopt, and possibly switch between the two. It is important that during both perspectives the athletes remember to incorporate kinaesthetic sensations associated with the task.

This support information has been generated using the following reading resources which you may wish to access.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman, New York

Cumming, J, & Ramsey, R. (2008). Sport imagery interventions. In S. Mellalieu & S. Hanton (Eds.), *Advances in Applied Sport Psychology: A Review*. London: Routledge (pp. 5-36).

Holmes, P., & Collins, D. (2002). Functional equivalence solutions for problems with motor imagery. In I. Cockerill (Ed.), *Solutions in Sport Psychology*. Thompson, London (pp. 120-140).

Murphy, S., Nordin, S.M., & Cumming, J. (2008). Imagery in sport exercise and dance. In T. Horn, (Ed.), *Advances in sport and exercise psychology* (3rd ed., pp. 297-324).