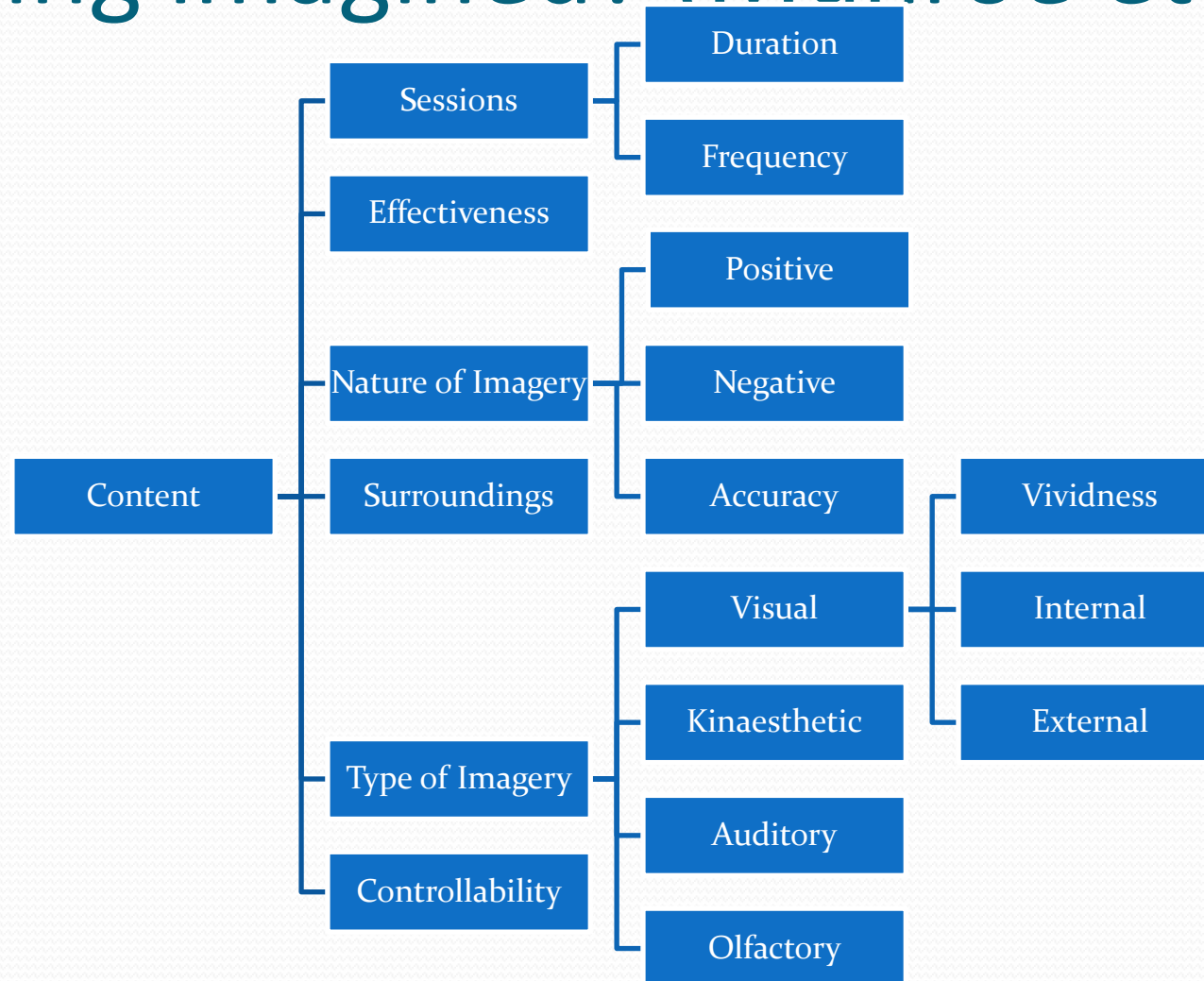


What is being imagined? (Munroe et al, 2000)



What is being imagined (Munroe et al, 2000)

- 6 aspects of imagery content (first column in diagram)

- Sessions
- Effectiveness
- Nature of Imagery
- Surroundings
- Type of Imagery
- Controllability.

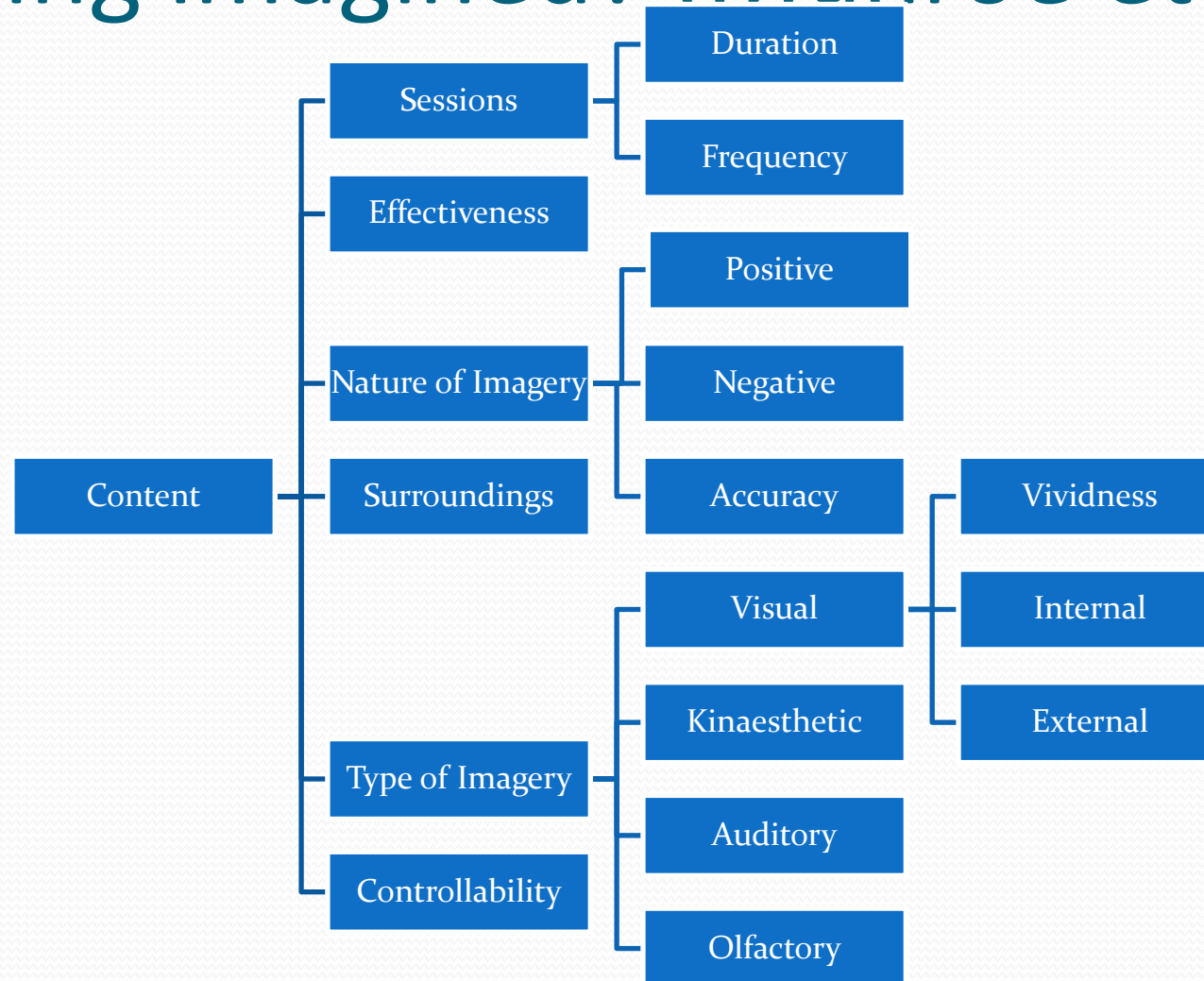
- Sub- aspects associated with:

- Sessions
 - Duration and Frequency
- Nature of Imagery
 - Positive, Negative and Accuracy
- Type of Imagery
 - Visual, Kinaesthetic, Auditory and Olfactory.

What is being imagined (Munroe et al, 2000)

- Whilst the figure illustrated by Munroe et al (2000) has provided a good base for researchers to explore the effectiveness of “what” is being imagined. Cox (2012) suggested that not the diagram does not cover all aspects.
 - What about Taste (gustatory) as a type of imagery?
 - Should each type of imagery (not just visual) be considered relative to vividness and perspective (internal / external).

What is being imagined? (Munroe et al, 2000)



What is being imagined... Timing.

- Remember the PETTLEP model suggests the time to complete the imagined motor task should be the same to complete it physically
- Does this happen in reality?
- Calmels and Fournier (2001) study on gymnasts suggested that imagined routines are shorter in duration than performing the same routine in reality.

What is being imagined.... Timing

- However, whilst Calmels and Fournier's study involved elite level gymnasts – other studies have suggested that the speed between physical and imagined movements are similar.
- Guillot and Collet (2005) review of literature also reported that the speed of mental image can be manipulated.... Imagery can be speeded up and slowed down.

What is being imagined.... Timing

- O and Hall (2009) – NO TYPO!
- When learning a new routine, beginners will often utilise a slow motion imagery to go over the specific phases.
- When well rehearsed, athletes will more often adopt a **Real-time** imagery
 - Could it be argued that the gymnasts in Calmels and Fournier's study performed the imagined routine quicker because they were so familiar with the routine.

What is being imagined.... Timing

- So is **Real-time** imagery (as recommended by the PETTLEP model) more effective than fast or slow-motioned imagery?
- More research clearly needed.
- Skill level of the athlete may need to be considered
- As should situation, type of sport and other individual differences.
- Cox (2012) – recommended that real-time imagery should be initially practiced but the applied sport psychologist may alter this when more information is known about the individual and sporting situation.
- Flexibility is the key.

What is being imagined – Positive/Negative Imagery.

- Research studies and anecdotal evidence has demonstrated that athletes (or all levels) do perform both positive and negative imagery.
- Positive Imagery – considered to be facilitative to actual performance and is where the athlete is mentally rehearsing successful execution.
 - Arvinen-Barrow et al (2010) – Often employed in relation to recovering from injury.
- Negative Imagery – considered to be debilitating and is where the athlete is mentally rehearsing unsuccessful execution.

What is being imagined – Positive/Negative Imagery.

- Now whilst “common sense” would suggest that negative imagery should ALWAYS be avoided... MacIntyre and Moran (2007) interviewed seven high level athletes and found.
- The athletes had a sophisticated understanding of the imagery process.
 - Utilised both positive and negative imagery.
 - Use of negative imagery to prepare for “worst case” scenarios
 - Negative imagery as a training device to prepare for challenging situations
 - Negative imagery not always seen as lowering self-esteem could be seen as a positive to promote future successful performance.

What is being imagined – Imagery Perspective

- Task –
- Shut your eyes for a moment and imagine you are kicking a football and bearing down on the goal.
- What do you see?

What is being imagined – Imagery perspective (internal vs external).

- Internal Imagery – The athlete imagines him/herself executing a sporting task within their own body.
- External Imagery – The athlete imagines from outside their own body watching from a distance.
 - Almost as an audience member.



What is being imagined – Imagery Perspective

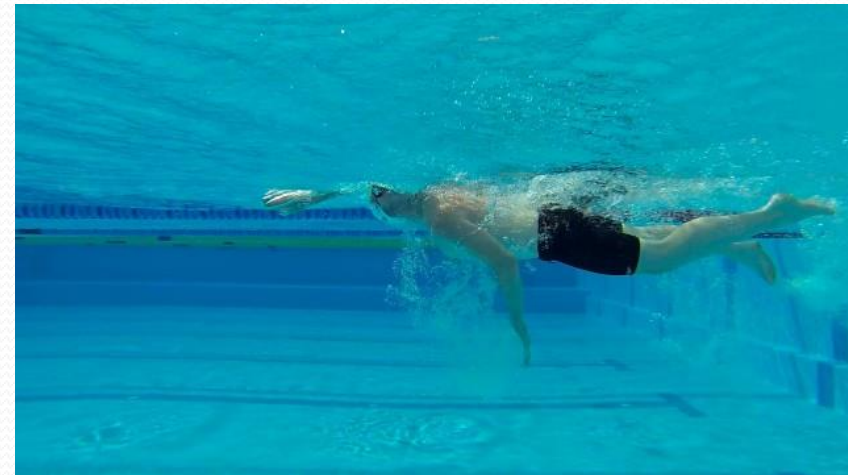
– Internal/External.

- Internal Imagery is more natural to us as it imagery is “our world view”.
- Our internal thoughts, feelings and actions – getting the movements in line for the appropriate movements.
- Is it superior to external imagery?
- Research has suggested that BOTH have their uses in a sports setting.
 - External – excellent to observe skill technique and form.

What is being imagined – Imagery Perspective

– Internal/External.

- The application of external imagery may be more difficult as it is not natural to humans.
- Coaches should consider filming the athlete, viewing the film on many occasions so the athlete gets the feel of how he/she “looks” on the field.



What is being imagined – Sensory Mode.

- As stated when defining imagery – all senses can be involved in imagery.
 - Vision, Hearing, Smell, Taste and Feel.
- Kinaesthetic sensitivity – Informs Brain about movement in joints, muscles etc.
- Early research suggest that internal imagery utilises Kinaesthetic imagery more so than external imagery.
 - (Barr and Hall, 1992; Harris and Robinson, 1986).
 - Greater **subliminal muscle activity** (remember Psychoneuromuscular theory).

However,

- Hardy and Callow (1999) – 3 Experiments.
- 1 – 25 Experience Karate Participants learned a new kata via external or internal imagery.
 - External imagery more effective than internal imagery.
- 2 – 40 students learned a gymnastics routine in one of four conditions.
 - External Visual and Kinaesthetic Imagery
 - External Visual and NO Kinaesthetic Imagery
 - Internal Visual and Kinaesthetic Imagery
 - Internal Visual and NO Kinaesthetic Imagery
 - Significant Main effect for Visual Imagery, but NOT for Kinaesthetic Imagery
 - External Visual and NO Kinaesthetic Imagery best out of the four conditions.

Hardy and Callow (1999) - Continued

- 3 – 20 Rock climbing experts – Rock climbing task in same conditions as study 2.
- This time main effects for visual AND Kinaesthetic Imagery.
 - External Visual and Kinaesthetic Imagery most effective.
 - Conclusion – Skill level of the athletic critical in whether kinaesthetic imagery is an effective tool in overcoming challenges or learning a new skill.

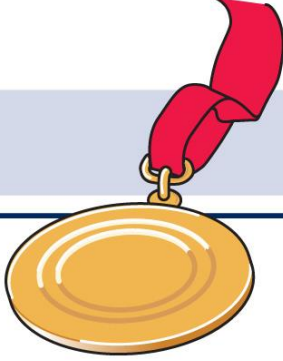
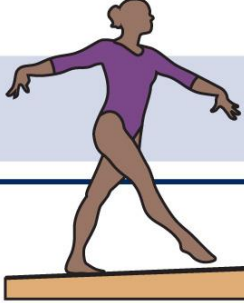
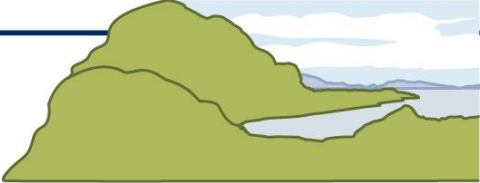
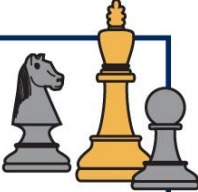
The “Why” of Imagery.

- Paivio's (1985) Conceptual Model of Imagery.
- Imagery has both a cognitive and motivational function.
- Cognitive = Experience specific sports skills and plan strategies.
 - E.g. Plan a winning strategy.
- Motivational – Experience Goal Attainment.
 - Get energised for competition.

Paivio (1985)

- Further conceptualised that imagery to be either situation **specific** or **general** in nature.
- Imagery is two dimensional in nature.
- Cognitive - Specific.
- Cognitive – General
- Motivational – Specific
- Motivational – General.

Paivio (1985) – Cited in Weinberg and Gould (2010).

		Motivational	Cognitive
Specific	Goal-oriented responses	 (e.g., imaging oneself winning an event and receiving a medal)	 (e.g., imaging performing on the balance beam successfully)
	Arousal	 (e.g., including relaxation by imaging a quiet place)	 (e.g., imaging carrying out a strategy to win a competition)
General			

Adapted by permission from Pavoio 1985.

Hall, Mack, Paivio and Hausenblas (1998)

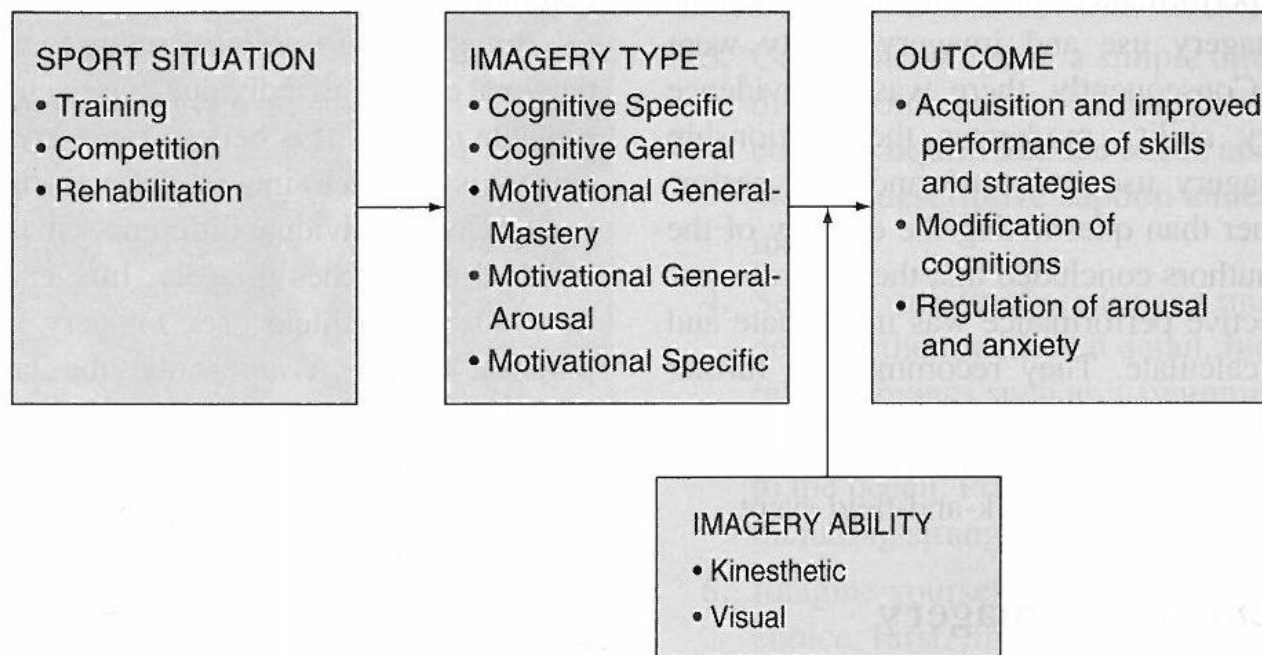
- In factor analysing an Imagery questionnaire designed around Paivio's model found 5 dimensions of why imagery is used.
 - Motivational Specific (MS)
 - Specific Setting that is highly motivating (e.g. scoring the winning try)
 - Motivational General-Mastery (MGM)
 - General sporting situation linked to goal mastery (e.g. positive thoughts every time a cricket player comes to bat)
 - Motivational General-Arousal (MG-A)
 - General setting – ability to control anxiety.
 - Cognitive Specific (CS)
 - Correctly executing a specific skill (e.g. putting a ten foot put in US masters)
 - Cognitive General (CG)
 - Executing a skills not linked to a specific situation (e.g. man marking in football).

Martin et al (1999) – Applied Model of Imagery Use.

- Based on the work of Hall et al (1998) – Martin and Colleagues developed an applied model of imagery use in sport.
- Highlights the relationship between situation, imagery type (based on Hall et al 1998), Imagery ability (kinaesthetic, visual etc.) and outcome (e.g. what has the imagery done).

Martin et al (1999) – Applied Model of Imagery Use.

FIGURE 11.4 | Illustration showing the Martin, Moritz, et al. (1999) applied model of imagery use in sport.



Source: Martin, S. E., Moritz, S. E., & Hall, C. R. (1999). Imagery use in sport: A literature review and applied model. *The Sport Psychologist*, 13: p. 248, fig. 1. Adapted with permission from Human Kinetics (Champaign, IL).

Research relating to this Model.

- Cumming Olphin and Law (2007) –
- 40 Competitive Athletes.
- Standard Heart Rate and Took part in five imagery scripts (scenarios).
 - Mastery, Coping, Anxiety, Psyching up and Relaxing.
- Significant increase in Heart Rate in Arousal increasing script (anxiety, psyching up and negative coping scripts).
 - Similar to Hall et al's Motivational General-Arousal definition.
 - Although no significant reduction in relaxation scripts.

Developing Imagery Skills

- Vealey and Greenleaf (2010) – Provided practical suggestions for athletes to improve imagery skills.
- 1) Be in a relaxed frame of mind before conducting the imagery session – try not to be disturbed
- 2) Practice – Visualise non-sporting specific aspects at first.
- 3) Create a variety of scenes and images – fill them with detail. Sports specific images.
- 4) Imagine watching other people perform the sport of your choice – project yourself onto that image.
- 5) End session – adjust to external environment.

Developing an Imagery Training Program (Weinberg and Gould, 2010)

- Tailor imagery programs to an athlete's individual needs, abilities, and interests.
- The first step in developing an imagery program is evaluating the athlete's imagery skills.
- Imagery must be individualized and practiced. Hence, it should be built into an athlete's daily routine.

(continued)

Developing an Imagery Training Program (*Weinberg and Gould 2010*)

- Imagery guidelines
 - Practice in many settings.
 - Aim for relaxed concentration.
 - Set realistic expectations, sufficient motivation.
 - Use vivid and controllable images.
 - Apply imagery to specific situations.
 - Maintain positive focus.
 - Consider use of videotapes, DVDs, and audiotapes.
 - Include execution and outcomes.
 - Image timing.

(continued)

Additional Reference:

- Vealey, R., & Greenleaf, C. (2010). Seeing is believing: Understanding and using imagery in sports. In J. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (6th ed., pp. 267-304), New York: McGraw-Hill.