

Performance Science Theory

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Main Points for Presentation

- Alertness & Selective Attention
- External & Internal Amplitude, Overall Performance Quality
- Grandmother Skills
- Inductive & Deductive Reasoning

Alertness and Selective Attention

- **Alertness:** The ability to maintain a highly prepared state of attention throughout an exercise
- **Selective attention:** The ability to consistently select critical data over unimportant data for retrieval by the visual system

These skills can only be developed through continued practice and exposure to various types of skill executions

Selective Attention

- Managing Deductions
- Three categories
 - External Amplitude
 - Internal Amplitude
 - Overall Performance Quality

Selective Attention

The central nervous system has a limited information processing capacity

Humans are incapable of 'attending to' all the information in the environment

The gymnastics official must focus attention on only the **RELEVANT** information required for making an informed decision about a performance

Pay no attention to the leotard design

Pay no attention to the hairstyle

Pay no attention to how many earrings

Pay no attention to the crazy tattoo

Pay no attention to the man behind the curtain.....

External and Internal Amplitude

- **External:** the position of the gymnast in relation to the apparatus
- **Internal:** the relationship of the gymnast to herself

The Grandmother Cell

- An interaction of cells carrying various pieces of data together to make a recognizable image
- For example: we recognize 'grandmother' whether she has dyed or styled her hair, or is wearing a new outfit
- It is her '**grandmotherness**' that we recognize: the personality or essence of grandmother
- *Essence of Grandmother*, does this sound like a new perfume?...Perhaps I'll open a shop....NAWGJ library?

The Grandmother Skill

- For efficient skill recognition one must file or encode 'personality' traits of specific elements
- The personality of a skill is the characteristics of the skill that make it recognizable despite the athlete's unique performance of it
- For the gymnastic judge, skill analysis is the ability to accurately analyze **actual** performance in comparison to a memory or **optimal** performance for that skill

Comparison to Grandmother

- Combining external, internal amplitude and overall performance quality is a consistent way to achieve uniform evaluation points for a skill
- Accurate recognition requires a memory storage of that skill
- **Judges must continually update their memory store of correctly performed skills**
- For the gymnastic judge, skill analysis is the ability to accurately analyze **actual** performance compared to a memory of **optimal** performance for that skill

Storing 'Grandmotherness'

- Use high level videos to continually update your memory storage of optimal performance of skills
- Use high level videos and partner with expert judges to analyze and compare actual performances with optimal performance
- Access high level coaching sessions to understand optimal performance technique

Overall Performance Quality

- **Overall Performance Quality**
rhythm, timing, dynamics, artistry
- **Artistry:**
 - Originality/creativity of choreography in elements and connections
 - Quality of gymnast's movement to reflect her personal style
 - Quality of expression (i.e., projection, emotion, focus)

Educator's View

Tkatchev	Proficient	Meets	Does Not Yet Meet
External Amplitude	Beautiful giant Swing Astounding height Amazing follow through to next awesome skill	Swing deficient Height not as desired Short on follow through	Not clearing bar
Internal Amplitude	Tight legs Good flexibility Lovely Torso position	Problems with legs, torso & body position	Gymnastics in the fetal position
Overall Performance Quality	Excellent technical execution We are reminded of 'Grandmother skill'	Problems with technical execution	Coach steps in to save gymnast's life

Another Tool

Inductive reasoning

- Collection of specific performance data from the visual field
- Determination of which skill was performed by assembling the data
- Recollection of the performance requirements for that skill
- Analysis of actual performance

Deductive reasoning

- Collecting specific performance data from the visual field
- Assembling data into the recognizable form, the standard of which is **simultaneously** applied to allow for **immediate** comparison as the performance takes place

For Example

Inductive reasoning

- A judge watches a cast; determines that the cast was completed; determines at which point the upward cast was completed (15 degrees); recalls the performance standard of deductions as listed in the compulsory code; determines a 'one tenth' amplitude deduction for insufficient amplitude of cast

Deductive reasoning

- A judge recognizes that a cast is occurring and applies a 'deductive graph' of cast angles onto the visual field when the upward part of the cast is achieved that point is immediately seen as 'one tenth' rather than 15 degrees' thus eliminating some of the steps in the decision making process

Wrap up

- Quantifying judging performance will allow the opportunity for judges to analyze their various strengths and weaknesses and take proper action to improve overall judging skills...
- P. Hannan