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HANDOUT: COGNITIVE TASK ANALYSIS

Backhand Serve in Badminton

Introduction:

Cognitive Task Analysis (CTA) as defined by Gordon (1997) and Clark & Feldon (2008), delineates the mental processes necessary for higher proficiency. In this investigation, Applied Cognitive Task Analysis (ACTA) was used. ACTA aids in identifying the key cognitive elements applicable to various training scenarios (Folkes et al., 2000; William et al., 2011). This is further evidenced in the face validity, epistemology and practicability of this technique (Hoffman et al., 1995). A semi-structured interview process was followed revealing cognitive difficulties. Millitello and Hutton's (1998) steps for ACTA protocol were adhered to.

Badminton is a dynamic sport known for its quick reactions and speed (Rosenberger et al., 2007). Client 'A' is an advanced state-level badminton player who was chosen for the investigation by further employing ACTA.

PHYSICAL CONSIDERATIONS

1. Stamina
2. Mobility
3. Movement and pace control
4. Coordination

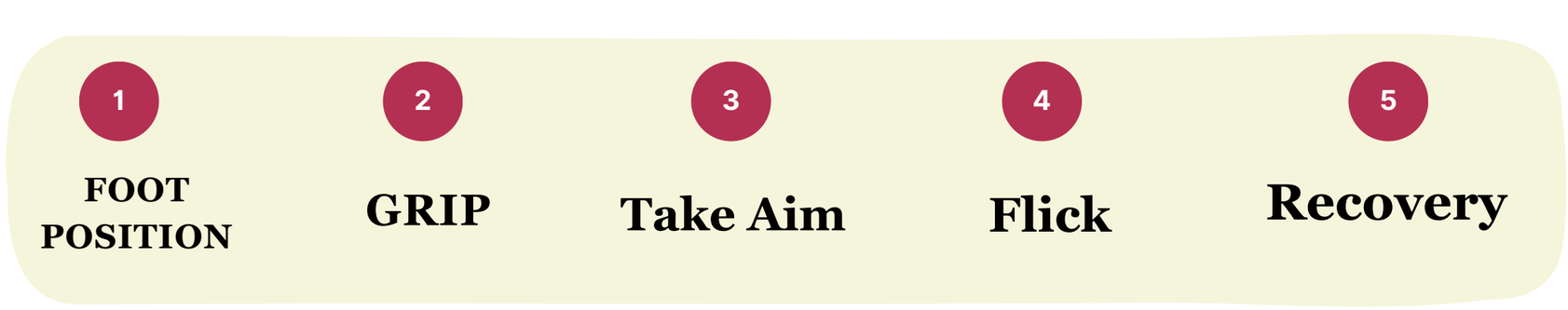
PSYCHOLOGICAL CONSIDERATIONS

1. Confidence
2. Managing pressure
3. Visualisation
4. Pre-game routine

ENVIRONMENTAL CONSIDERATIONS

1. Type of surface
2. Quality of surface
3. Size of court
4. Temperature
5. Noise of audience

Figure 1: Task Diagram



"You might have the game play to beat anybody, what you need is consistency" (Prannoy, 2022)

Table 1: Knowledge Audit

AREAS OF EXPERTISE	CUES AND STRATEGIES	DIFFICULTIES
Big picture	Visualisation plays a key determinant factor in mentally mapping out the placement of the shuttlecock. This mental rehearsal aids in strategic planning to understand the opponents weak points in delivery shot.	The service poses a challenge in terms of coordination and having accurate spatial awareness. The players should be able to execute quick wrist movements and adhere to the demand of adaptability. Quick error analysis also plays an important role in mastering complex skills.
Proficiency	Enhancing proficiency by strategic play of exploiting the opponents weakness and demonstrating efficient footwork	Maintaining good posture and stability, rotating the body and shifting the weight from the non-racket foot to the centre requires core strength.

Critical Evaluations & Applications:

Klein & Crandall's (1995) work highlights the importance of how ACTA focuses on decision-making as illustrated when the player assesses the opponent's position for efficient serve. Secondly, understanding the emotional reactions emphasized by Gore &McAndrew (2009) is pivotal in optimising performance. Additionally, the role of meta-cognitive processes such as visualisation, is also an important aspect.

Environmental cues play a crucial role in uncovering the intricacies of higher-order cognitive functions during the serve (Fifer et al., 2008). This insight leads to tailored match-like simulations for skill enhancement. Along with this, a comprehensive coaching strategy, such as integrating deeper visualisation techniques enhances flow states (Hays, 2006) which is aimed at refining both technical power and mental resilience to efficiently perform the backhand serve shot in Badminton.

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