

The Science Behind Focus and Skill



Name:

Teacher: Mr Trent

C.2.1.1—Learning, including motor learning, is a relatively permanent change in behaviour brought about by experience, whereas performance is a temporary occurrence, fluctuating over time.

- € Two competing models of motor learning are
- € the information processing model
- € the ecological model.
- € These models are respectively exemplified by schema theory and by ecological dynamics theory.
- € Motor learning theories include non-linear pedagogy and traditional linear pedagogy.
- € Non-linear pedagogy is exemplified by:
 - € ecological systems theory and dynamical systems theory—these theories include the concepts of
 - € performance variability
 - € degrees of freedom,
 - € perception–action coupling
 - € self-organization
 - € a constraints-led approach to skills acquisition: types of constraints and practical examples.
- € Linear pedagogy is exemplified by:
 - € open-loop and closed-loop theory
 - € schema theory
 - € generalized motor patterns and subordinate motor patterns
 - € phases of learning that include
 - € cognitive
 - € associative
 - € autonomous phases

- € the practical implications of coaching learners in each phase.

C.2.1.2—The psychological refractory period is the time in which response to a second stimulus is significantly slowed because a first stimulus is still being processed.

- € The psychological refractory period is commonly exploited in sport. An example is the use of deception, e.g. in movement: taking advantage in a second move of the time it took an opponent to react to a first “false” move.

C.2.1.3—Transfer of learning refers to the influence of previous experience performing a skill on the learning of a new skill

- € Types of transfer include skill to skill, practice to performance, abilities to skills, bilateral, stage to stage and principles to skills.

C.2.2 Attentional control

C.2.2.1—The proficient execution of specific skills requires the correct attentional focus.

- € Attention can be internal or external, and broad or narrow.
- € Concentration is said to be “lost” when attention is directed away from relevant tasks. This is known as distraction.
- € External distractors can be visual or auditory.
- € Internal distractors are cognitions that are either negative or unrelated to the goal-directed behaviour.
- € Controlled distraction is a method used by athletes to improve attentional control.
- € Attentional narrowing occurs when an individual is in a high-arousal situation.
- € Self-talk and goal setting are frequently used to control attentional focus.

Title: "The Science Behind Focus and Skill"

Exploring the Models and Theories of Motor Learning

Time Limit: 7–10 minutes (individual or group)

Task Instructions:

You will present a **clear, engaging, and practical explanation** of how humans learn motor skills using **sporting examples** and **at least one creative format** to bring the theory to life.

Your Presentation Must Include:**1. Motor Learning Overview**

- Define motor learning vs. performance
- Use a real-world example to show the difference

2. Information Processing vs. Ecological Model

- Describe each model (input/output vs. interaction with environment)
- Use your chosen sport to demonstrate how each model works in action

3. Schema Theory vs. Ecological Dynamics

- Show how each theory connects to the learning models

4. Linear vs. Non-Linear Pedagogy

- Briefly explain each with examples
- Show the key coaching implications

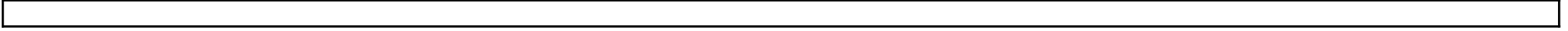
5. Constraints-Led Approach

- Use your chosen sport to give an example of each constraint type (individual, task, environment)

6. Phases of Learning

- Cognitive, Associative, Autonomous
- Use a scenario or athlete progression to show how each phase might look in your sport

Criteria	Excellent (8–10)	Competent (5–7)	Developing (1–4)
1. Motor Learning Overview – Defines motor learning vs. performance– Uses a relevant example to differentiate the two	Accurate definitions with insightful sporting example clearly highlighting the distinction	Definitions mostly correct with a reasonable example	Definitions unclear or missing; example vague or irrelevant
2. Information Processing vs. Ecological Model – Describes each model accurately– Applies both to a chosen sport	Clear explanation of both models; thoughtful, practical application to sport	Adequate description; some application to sport	Basic or confused description; limited or no application
3. Schema Theory vs. Ecological Dynamics – Links theories to models of learning	Theories clearly connected to appropriate models; well-explained	Some connection shown; partial understanding evident	Minimal or incorrect connections; lacks clarity
4. Linear vs. Non-Linear Pedagogy – Explained with practical examples– Coaching implications explored	Clear contrast with relevant examples; strong insight into coaching impact	Basic explanation; some understanding of implications	Lacks clarity or examples; implications not addressed
5. Constraints-Led Approach – Provides example of each constraint (individual, task, environment)	Accurate, creative sporting examples for each constraint	Reasonable examples with basic clarity	Incomplete or inaccurate examples; unclear application
6. Phases of Learning – Cognitive, Associative, Autonomous– Athlete progression is shown through sport	Each phase clearly explained and linked to athlete's journey in chosen sport	Most phases explained; progression somewhat clear	Phases unclear or not linked to realistic progression
7. Presentation Quality – Clarity, creativity, structure, engagement	Highly engaging and well-structured; creative format adds depth	Generally clear; some creativity and structure	Disorganised or unclear; lacks creative engagement
8. Teamwork (if group) – Equal contribution and collaboration	All members contribute meaningfully; seamless collaboration	Most contribute; some unevenness	Major imbalance in participation or unclear roles
Comments:			



C.2.1.1—Learning, including motor learning, is a relatively permanent change in behaviour brought about by experience, whereas performance is a temporary occurrence, fluctuating over time.

€ Two competing models of motor learning are

€ the information processing model

€ the ecological model.

The **I** _____ **P** _____ **Model** explains how we take in, process, and respond to information, similar to how a computer works. It has three key steps:

1. **Input:**

- Example:

2. **Processing:**

- Example:

3. **Output:**

- Example:

4. **Feedback:**

- Example:

This model shows how we respond to situations in steps, helping us understand and improve skills.

The Ecological Model

The **Ecological Model** explains how the _____ influences your actions and decisions. It focuses on the interaction between you and your surroundings.

1. **Individual/Organismic:**

- Example:

2. **Task:**

- Example:

3. **Environment:**

- Example:

€ These models are respectively exemplified by schema theory and by ecological dynamics theory.

Yes, the **Information Processing M**_____ and the **E**_____ **Model** align respectively with **S**_____ **Theory** and **E**_____ **D**_____ **Theory**. Here's a simple explanation of how they connect:

Schema Theory and the Information Processing Model

- **Schema Theory** focuses on the brain storing "_____", which are mental frameworks or templates based on past experiences.
- These schemas help you quickly decide how to act in different situations by matching what you currently see (input) with what you already know.

Ecological Dynamics Theory and the Ecological Model

- **Ecological Dynamics Theory** focuses on the relationship between you and your _____, emphasising how actions emerge naturally based on opportunities in your surroundings (_____).

Key Difference:

- **Schema Theory** assumes:
- **Ecological Dynamics Theory** emphasises

Both approaches offer valuable insights, but they focus on different ways humans learn and perform tasks.

- € Motor learning theories include non-linear pedagogy and traditional linear pedagogy.

Traditional Linear Pedagogy

Non-Linear Pedagogy

- € Non-linear pedagogy is exemplified by:
- € ecological systems theory and dynamical systems theory—these theories include the concepts of
- € performance variability
- € degrees of freedom,
- € perception–action coupling
- € self-organization

Concept	Definition	Key Idea	Example
Performance Variability		It allows individuals to explore different movement patterns and refine techniques for adaptability.	
Degrees of Freedom		Skill acquisition involves reducing unnecessary movements to achieve smoother, coordinated actions.	
Perception–Action Coupling	The direct relationship between environmental perception and motor response.		

Self-Organization	The process by which systems naturally organize into stable patterns based on constraints.	Learners adapt movements autonomously to meet task demands and environmental conditions.	
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€ a constraints-led approach to skills acquisition: types of constraints and practical examples.

Constraints-Led Approach to Skill Acquisition

- **Definition:** Learning emerges from the interaction of **individual**, **task**, and **environmental constraints**, which guide the development of motor skills.
- **Types of Constraints:**
 - **Individual Constraints:**
 - **Task Constraints:**
 - **Environmental Constraints:**

- € Linear pedagogy is exemplified by:
- € open-loop and closed-loop theory
- € schema theory
- € generalized motor patterns and subordinate motor patterns

Aspect	Description	Example/Implication for Coaching
Open-Loop and Closed-Loop Theory	Open-Loop:	
	Closed-Loop:	
Schema Theory	Learners develop generalised motor programmes (GMPs) that can be applied to similar movements, refined through practice and variation.	
Generalised and Subordinate Motor Patterns	Generalised:	
	Subordinate:	

Phases of Learning:		
Cognitive Phase		
Associative Phase		
Autonomous Phase		

€ phases of learning that include

€ cognitive

€ associative

€ autonomous phases

€ the practical implications of coaching learners in each phase.

C.2.2 Attentional control

C.2.2.1—The proficient execution of specific skills requires the correct attentional focus.

Match the term to its description

Term		Description
Concentration		ability, as a result of practise to coordinate two or more actions at the same time. Active awareness of what you are observing
Selective Attention		athlete's deliberate decision to invest mental effort on what is most important in any given situation. Ability to perform with clear and present focus
Divided attention		is an athlete's perceptual ability to 'zoom in' on task-relevant information while ignoring potential distractions. Focus is central point of your attention

Provide examples of each of the terms above:

Define and give examples for the following types of attention:

Broad –

Narrow –

External –

Internal –

Breadth

Describe situational awareness and give 2 examples

List 3 examples of external distractions athletes may face:

Create a 5 tip summary on how to remain focused!

1.

2.

3.

4.

5.

Define internal distractions and provide 2 examples:

- controlled distraction: is a psychological strategy where an individual _____ shifts their _____ to a specific, manageable stimulus or task to prevent unhelpful thoughts (like a _____, self-doubt, or overthinking) from taking over.

List 3 benefits of using controlled distraction

- 1.
- 2.
- 3.

Compare and contrast how controlled distraction differs from uncontrolled distraction:

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Summary: Controlled distraction is _____ **by the athlete**; _____ distraction **uses the athlete**.

A sprinter may only focus on the sound of the starting gun and their reaction, tuning everything else out. This is known as _____. It can be **helpful** when it _____

_____.
But it can also be **harmful** if _____

_____.

What happens during attentional narrowing in high-arousal situations? Provide an example from sports:

What is over-fixated attentional narrowing, and how can it impact performance?

List two strategies athletes use to control attentional focus

How can performance goals and trigger words improve attention control during a match?

Describe a routine an athlete might use before a game to enhance attentional focus.

How are motor learning and attention control linked? Provide one example to illustrate your answer.

1. What does "broad attention" focus on?

- A. A single cue like a shuttlecock
- B. Multiple cues, such as tracking the ball in flight and positioning the body
- C. Internal thoughts and strategies
- D. External distractions like crowd noise

2. Which of the following is an example of narrow attention?

- A. Watching a football match to analyze strategies
- B. Tracking a shuttlecock in badminton
- C. Observing crowd movement
- D. Listening to teammates' communication

3. What is internal attention?

- A. Focusing on external cues like an opponent's movement
- B. Concentrating on inward thoughts or feelings

- C. Paying attention to the weather
 - D. Being aware of visual and auditory distractions
- 4. What is selective attention?**
- A. Deliberately ignoring external distractions to focus on task-relevant information
 - B. Switching focus between multiple tasks simultaneously
 - C. Reacting to internal distractors like fatigue
 - D. A natural ability to concentrate on surroundings
- 5. What is divided attention?**
- A. Focusing on one key element while ignoring others
 - B. Balancing two or more actions simultaneously through practice
 - C. Redirecting focus after a distraction
 - D. A heightened state of attention in stressful situations
- 6. Which of the following is an external distractor?**
- A. Worry about performance
 - B. Fatigue
 - C. Crowd noise
 - D. Daydreaming
- 7. Which of the following is an internal distractor?**
- A. Photography by the audience
 - B. Officiating decisions
 - C. Negative self-talk
 - D. Weather conditions
- 8. What is the purpose of controlled distraction?**
- A. To lose focus and reset later
 - B. To engage in unplanned distractions
 - C. To improve focus and prevent cognitive overload
 - D. To train athletes to ignore all distractions
- 9. What is attentional narrowing?**
- A. Paying attention to a broad range of cues
 - B. Focusing on unimportant details during low arousal
 - C. Filtering out irrelevant cues during high-arousal situations
 - D. Alternating between broad and narrow focus
- 10. What can happen during over-fixated attentional narrowing?**
- A. Athletes filter out irrelevant cues effectively
 - B. Mental fatigue is reduced

- C. Athletes focus too much on one task and miss key information
- D. Creativity and focus are enhanced

11. Which method can help control attentional focus?

- A. Ignoring all cues entirely
- B. Self-talk and goal setting
- C. Reacting to distractions immediately
- D. Practicing multitasking

12. What is the role of performance goals in attention control?

- A. To increase external distractions
- B. To provide a mental break from the task
- C. To guide focus and improve task execution
- D. To manage arousal levels

13. What is an example of an external attentional focus?

- A. Focusing on breathing techniques
- B. Watching an opponent's movement in tennis
- C. Thinking about past mistakes
- D. Daydreaming about winning the game

14. How does high arousal impact attentional focus?

- A. It broadens the range of cues an athlete can focus on
- B. It reduces an athlete's ability to filter out irrelevant cues
- C. It leads to attentional narrowing, allowing athletes to ignore distractions
- D. It eliminates the need for controlled distraction

15. How is attentional control linked to motor learning?

- A. It disrupts motor skills by dividing focus
- B. It enhances the ability to perform tasks automatically through practice
- C. It encourages athletes to rely solely on instincts
- D. It limits athletes' ability to learn new skills

16. Performance variability is essential for skill acquisition because it allows learners to:

- A. Focus solely on perfecting one specific movement.
- B. Explore and refine a variety of movement patterns.
- C. Eliminate unnecessary movements immediately.
- D. Avoid errors during practice.

17. Which of the following is a key characteristic of the associative phase of learning?

- A. Complete reliance on feedback for performance.
- B. Exploration of new movement patterns.

- C. Gradual reduction in errors and improved consistency.
- D. Automatic execution of movements with minimal conscious effort.

18. Degrees of freedom in motor control refer to:

- A. The number of ways an athlete can move their body to achieve a goal.
- B. The flexibility of joint movement during exercise.
- C. The adaptability of a motor programme to varied conditions.
- D. The total range of motion an individual has.

19. In schema theory, generalised motor programmes (GMPs) are refined by:

- A. Repeating the exact same movement in a controlled environment.
- B. Practising varied movements under different conditions.
- C. Avoiding environmental constraints during practice.
- D. Ensuring movements remain consistent across all tasks.

20. Which concept involves a learner adapting movements in response to task and environmental constraints?

- A. Open-loop control.
- B. Schema theory.
- C. Self-organisation.
- D. Subordinate motor patterns.

21. Perception–action coupling is demonstrated when an athlete:

- A. Reacts instinctively to environmental stimuli.
- B. Executes a pre-learned movement without assessing the environment.
- C. Ignores feedback from their surroundings during performance.
- D. Plans movements independently of environmental changes.

22. In a constraints-led approach, which type of constraint is represented by the size of a ball used in training?

- A. Environmental.
- B. Task.
- C. Organismic.
- D. Cognitive.

23. Dynamical systems theory suggests that movement patterns emerge due to:

- A. Predetermined motor programmes stored in the brain.
- B. A linear progression of learning stages.
- C. The interaction of individual, task, and environmental constraints.
- D. The elimination of performance variability.

24. What is the primary coaching goal during the cognitive phase of learning?

- A. To refine performance through task variability.
- B. To automate movement patterns.

- C. To build an understanding of the basic skill.
- D. To develop strategic decision-making.

25. Which coaching strategy is most suitable for the autonomous phase of learning?

- A. Providing detailed step-by-step instructions.
- B. Increasing the frequency of external feedback.
- C. Focusing on advanced tactics and situational practice.
- D. Repeating basic drills to reinforce the fundamentals.

26. Open-loop control is best suited for:

- A. Continuous skills requiring real-time feedback.
- B. Movements requiring on-the-spot adjustments.
- C. Pre-planned, rapid actions.
- D. Activities involving extensive decision-making.

27. A basketball player adjusting their shot mid-flight is an example of:

- A. Generalised motor patterns.
- B. Open-loop control.
- C. Closed-loop control.
- D. Schema refinement.

28. The term "degrees of freedom" is primarily concerned with:

- A. Enhancing task simplicity by restricting movement.
- B. Balancing joint movements for complex actions.
- C. Managing the multiple ways joints and muscles can move.
- D. Focusing exclusively on one motor task at a time.

29. In the constraints-led approach, an organismic constraint is demonstrated by:

- A. A player's physical height influencing their ability to perform a slam dunk.
- B. A slippery court impacting movement during a match.
- C. The rules restricting the number of steps allowed in handball.
- D. The size of the ball used during practice.

30. Which of the following best describes a task constraint?

- A. The surrounding weather conditions.
- B. The skill level of the athlete.
- C. The shape of the playing field.
- D. The objective or rules of the activity.

31. Which coaching intervention aligns with ecological systems theory?

- A. Breaking down a movement into isolated parts for practice.
- B. Providing varied practice environments to encourage adaptability.
- C. Emphasising error elimination through repetition.
- D. Using standardised equipment for all learners.

32. A rugby coach uses uneven team sizes in a training drill to encourage faster decision-making. This represents which constraint?

- A. Organismic.
- B. Task.
- C. Environmental.
- D. Autonomous.

33. How does performance variability enhance learning?

- A. By maintaining consistency across all attempts.
- B. By reducing errors in a single specific movement.
- C. By promoting adaptability to different conditions.
- D. By isolating each component of a skill.

34. When a footballer adjusts their movement to a muddy pitch, it exemplifies:

- A. Task constraint adaptation.
- B. Perception–action coupling.
- C. Subordinate motor pattern development.
- D. Linear pedagogy principles.

35. During practice, a gymnast encounters varying levels of resistance on a trampoline. This is an example of:

- A. Schema theory in action.
- B. Environmental constraint adaptation.
- C. Open-loop control refinement.
- D. Degrees of freedom reduction.

1. **(4 marks)** Explain how attentional narrowing can be beneficial and harmful during high-pressure sporting situations. Use one example.

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2. (3 marks) Describe the difference between internal and external attention and provide a sporting example of each.

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3. (4 marks) Outline the concept of selective attention and explain how it supports skill execution in a netball match.

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4. (5 marks) Compare controlled distraction and uncontrolled distraction. Include the impact each can have on performance in a competitive setting.

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5. (3 marks) Define over-fixated attentional narrowing and describe how it can negatively affect decision-making during a basketball game.

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6. (4 marks) Explain how athletes can use performance goals and trigger words to maintain attentional control during a match.

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7. (4 marks) Describe how routines before a game can enhance attentional focus, using a gymnastics or diving example.

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8. (3 marks) List and explain three benefits of using controlled distraction in high-stress sports environments.

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9. (5 marks) Explain how attentional control is linked to motor learning. Use an example from learning to serve in volleyball.

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10. (5 marks)

Describe how divided attention and selective attention differ, and explain how they develop as motor skills become more automatic in team sports like hockey or football.

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11. Explain the difference between open-loop and closed-loop control systems in motor learning.

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12. Discuss how the degrees of freedom concept influences the coordination of movement. Include practical examples of how this applies to a sporting context.

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13. Describe the phases of learning according to linear pedagogy. How can coaching strategies be adapted to support a learner in each phase?

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14. Using the constraints-led approach, explain how an athlete's performance can be influenced by environmental, task, and organismic constraints. Provide an example for each.

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15. In schema theory, how do generalised motor programmes (GMPs) evolve with practice? Discuss the importance of variability in skill development and provide a sporting example.

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16. How does perception-action coupling contribute to skill acquisition and performance? Provide an example of how this works in a dynamic sport scenario.

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17. Compare and contrast the cognitive and associative phases of learning. How can a coach provide effective feedback to support learners in each phase?

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18. Evaluate the role of performance variability in enhancing an athlete's ability to adapt to changing conditions. Provide examples from team sports or individual sports.

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19. Using dynamical systems theory, explain how self-organization occurs in motor learning and outline what implications does this have for coaching practices?

1. (4 marks)

- A. Attentional narrowing helps filter out irrelevant stimuli under pressure.
- B. It becomes harmful if the athlete ignores relevant cues (over-fixation).
- C. High-pressure examples (e.g., ignoring defenders in football).
- D. Clear explanation of both benefit and risk in context.

2. (3 marks)

- A. Internal attention = focus on own thoughts or feelings.
- B. External attention = focus on environment or object (e.g., ball or opponent).
- C. One accurate sporting example of each.

3. (4 marks)

- A. Selective attention = prioritising task-relevant stimuli.
- B. Helps avoid distractions during play.
- C. Netball example (e.g., focusing on teammate's lead vs. crowd noise).
- D. Link to improved decision-making or pass execution.

4. (5 marks)

- A. Controlled distraction = intentional strategy to shift focus and reset.
- B. Uncontrolled distraction = unintentional loss of focus.
- C. Performance impact comparison (e.g., increased composure vs. drop in skill).
- D. Example in competitive setting (e.g., tennis or football).
- E. Overall evaluation of impact.

5. (3 marks)

- A. Over-fixated attentional narrowing = too much focus on one aspect.
- B. Leads to missing important external cues.
- C. Basketball example (e.g., fixating on hoop, missing defender).

6. (4 marks)

- A. Performance goals give athletes something specific to focus on.
- B. Trigger words cue intended actions (e.g., "explode" or "calm").
- C. Helps manage pressure and attention under stress.
- D. Match situation example.

7. (4 marks)

- A. Pre-performance routines create mental consistency and focus.
- B. Reduces anxiety and distractions.
- C. Example in gymnastics/diving (e.g., same breathing or physical routine).
- D. Link to improved attentional control.

8. (3 marks)

- A. Helps reset after errors or pressure spikes.
- B. Prevents mental fatigue or overload.
- C. Enhances overall focus and composure in critical moments.

9. (5 marks)

- A. Attentional control = ability to focus on task-relevant stimuli.
- B. Linked to motor learning by supporting correct repetitions.
- C. Example: learning to serve in volleyball—focus on ball toss, contact.
- D. Reduces errors and reinforces technique.
- E. Helps transition from cognitive to associative phase.

10. (5 marks)

- A. Selective attention = focusing on one relevant cue.
- B. Divided attention = managing multiple cues simultaneously.
- C. Early learners rely more on selective attention.
- D. As skill becomes automatic, divided attention improves.
- E. Example in hockey/football (e.g., passing while scanning field).

11. Explain the difference between open-loop and closed-loop control systems in motor learning. [4]

- A. Open-loop control is used for rapid, pre-planned movements with no time for feedback (e.g., golf swing).
- B. Closed-loop control involves ongoing feedback to adjust movement during execution (e.g., dribbling in football).
- C. Explanation of how each system processes feedback (or lack thereof) and links to performance.
- D. Example(s) to illustrate both systems clearly in sport.

12. Discuss how the degrees of freedom concept influences the coordination of movement. Include practical examples of how this applies to a sporting context. [6]

- A. Definition: Degrees of freedom = number of movement options available through joints/muscles.
- B. Beginners "freeze" degrees of freedom to simplify control.
- C. Skilled performers "free" degrees of freedom for smoother, more efficient movement.
- D. Example of progression: novice vs. expert tennis player or gymnast.
- E. Discussion of implications for coordination and control in dynamic settings.
- F. Application to coaching—importance of gradually increasing movement complexity.

13. Describe the phases of learning according to linear pedagogy. How can coaching strategies be adapted to support a learner in each phase? [6]

- A. Cognitive phase: learning what to do—needs clear demonstration, verbal instruction.
- B. Associative phase: refining the skill—requires feedback and practice with variability.
- C. Autonomous phase: skill becomes automatic—focus on tactics and self-correction.
- D. Clear sport-specific examples for each phase.
- E. Coaching strategies matched appropriately to each phase.
- F. Explanation of how progression occurs from phase to phase.

14. Using the constraints-led approach, explain how an athlete's performance can be influenced by environmental, task, and organismic constraints. Provide an example for each. [6]

- A. Definition of constraints-led approach.
- B. Environmental constraint (e.g., weather, surface type)—affecting movement choices.
- C. Task constraint (e.g., rules, goals, equipment)—shaping technique and strategy.
- D. Organismic (individual) constraint (e.g., strength, fatigue, height).
- E. Example for each constraint, linked to sport performance.
- F. Discussion of how manipulating constraints supports learning.

15. In schema theory, how do generalised motor programmes (GMPs) evolve with practice? Discuss the importance of variability in skill development and provide a sporting example. [6]

- A. Schema theory: motor skills developed through GMPs + variable parameters.
- B. GMP becomes more adaptable through varied practice experiences.
- C. Importance of recall and recognition schemas.
- D. Variability aids learning by improving adaptability to novel situations.
- E. Sporting example (e.g., passing in football, throwing in handball).
- F. Explanation of how variability improves performance across environments.

16. How does perception–action coupling contribute to skill acquisition and performance? Provide an example of how this works in a dynamic sport scenario. [4]

- A. Perception–action coupling: continuous loop between environmental cues and motor response.
- B. Skills are not performed in isolation but linked to the environment.
- C. Example: tennis player reacting to opponent's shot direction.
- D. Explanation of how this supports real-time decision-making and learning.

17. Compare and contrast the cognitive and associative phases of learning. How can a coach provide effective feedback to support learners in each phase? [6]

- A. Cognitive phase: high error rate, mental rehearsal, requires frequent external feedback.
- B. Associative phase: more refined movements, fewer errors, internal feedback becomes

relevant.

C. Comparison of attention, error rate, feedback needs.

D. Coach feedback in cognitive phase: visual, verbal, descriptive.

E. Coach feedback in associative phase: more specific, faded, delayed.

F. Example to illustrate feedback in both phases.

18. Evaluate the role of performance variability in enhancing an athlete's ability to adapt to changing conditions. Provide examples from team sports or individual sports. [6]

A. Definition of performance variability.

B. Variability promotes adaptability and decision-making in dynamic conditions.

C. Supports skill transfer and generalisation across scenarios.

D. Team sport example (e.g., varied passing drills in soccer).

E. Individual sport example (e.g., adapting to different swim conditions).

F. Critical evaluation: balance needed—too much variability can hinder early learners.

19. Using dynamical systems theory, explain how self-organization occurs in motor learning and outline what implications this has for coaching practices. [6]

A. Dynamical systems theory: movement arises from interaction of constraints.

B. Self-organization: patterns emerge without central control (e.g., player adapting naturally).

C. Learning is non-linear and individualised.

D. Coaches manipulate constraints to guide exploration.

E. Implication: less prescriptive instruction, more guided discovery.

F. Sport-specific example showing emergent movement solution.

1. B	12. C	23. C
2. B	13. B	24. C
3. B	14. C	25. C
4. A	15. B	26. C
5. B	16. B	27. C
6. C	17. C	28. C
7. C	18. A	29. A
8. C	19. B	30. D
9. C	20. C	31. B
10. C	21. A	32. B
11. B	22. B	33. C

34. B

35. B

