Topic 3: Skill acquisition

3.2: The classification and transfer of skills
By the end of this lesson students should:

- Knowledge and understanding of skill classifications.
- Describe classification of continuums as gross/fine, internally paced/externally paced, discrete/serial/continuous.
- Describe open/closed continuum in relation to the sporting environment, decision-making and practice structure.
- Understand the uses of transfer of skills.
- Explain transfer as positive/negative, proactive/retroactive, bilateral and zero. Transfer as the effect of one skill on another as a result of practice/experience.

**Assessment:**
A*-B - extended answers, demonstrates an in-depth knowledge and understanding of the topic
C – can answer all questions, lacks the critical analyse of the topic.
D/E – cannot answer all the questions, lacks the quality in answers.
Starter

Are you born with skill? Write one sentence to explain.
Characteristics and definitions of skill

- The term **motor skill** is used to describe a **technique** within a game or sport (for example, passing, hitting, catching, controlling a ball), or in reference to the sport itself (diving, tennis, hammer throwing), or a quality possessed by a sportsperson. The characteristics of skill are that it should be coordinated, controlled, with good technique, efficient, or pre-determined by practice or the observation of others performing the skill perfectly. As such the skill will be well learned, efficient and consistent. The beauty or pleasing nature of a skill is its aesthetic quality.
Task 1: List the characteristics of skill.

- Controlled
- Good technique
- Aesthetic
- Learned
- Consistent
- Predetermined
- Efficient
- Coordinated
Task 2: Characteristics of ability

Ability is the foundation for skill learning. A successful sportsperson must be born with a number of relevant abilities. Ability is \textit{genetically determined}, since we are born with our abilities, which means that it is \textit{innate} and \textit{enduring} – it is part of our constitution and will last all our lives. For example, some children can quickly pick up skills (such as catching a ball or riding a bike), whereas other children take much longer and are less successful at any given skill.

\begin{center}
\textbf{Debate this statement as a group.}
\end{center}
Task 3: Motor (psychomotor) ability

1. Define motor ability. This is the ability to process information about how and when we move.

2. Give an example. A rugby player must react quickly to an oncoming player who changes direction.

3. Define gross motor ability. Is an ability in which the performer is able to move using simple muscle movements, for example, being able to run or ride a bike.
Task 4: Perceptual ability

1. Define:

Perceptual ability is the ability to sense and interpret sensory inputs or information.

2. Given an example.

The awareness of a rugby player of the positions and actions of opponents.

Ability is an enduring trait. We largely hold on to our abilities throughout our lives, for example, riding a bike.
Task 5: Specific abilities

1. Define specific abilities.

2. Give an example.

Gymnastics involves balance, strength and flexibility.
Groups of abilities

A good sportsperson may have many different groups of abilities.

For example, a good all round sportsmen could have different specific abilities such as good hand-eye co-ordination and balance, which could be transferred, to lots of different sports activities.
Task 6: Difference between skill and ability

- **Skill** is acquired.
- **Skills** must be *learned*, which can require an extended process including the copying of expert models. **Ability** is an **enduring** trait, which can last throughout a person’s life, and is genetic in basis.
- **Abilities** underpin and contribute to skills.
- **For example**, someone with good natural balance, shoulder and hip flexibility, and upper body and wrist strength, has all the abilities necessary to perform a handstand.
- But practice would be required to actually perform the skill of the handstand.

**Give me another example**
Task 7: Types of skill

1. Define psychomotor skill.

2. Define fundamental psychomotor skills.

3. Define perceptual skill.

4. Define cognitive skill.
Task 8: Muscular involvement

• The muscular involvement continuum deals with gross and fine skills. Gross skills are those that use large muscle movements.
• Fine skills are those that use small muscle movements.

1. Give example for gross skills. Weight lifting.

2. Give example for fine skills. Darts
Task 9: Pacing

The pacing continuum deals with self-paced and externally paced skills.

- **Self-paced skills** are those in which the performer has control over movement.
- **Externally-paced skills** are those in which the environment has more control.

1. Give an example of self-paced.
   - Serving in volleyball.

2. Give example of externally paced.
   - Blocking in volleyball.
Task 10: Continuity

The continuity continuum deals with discrete, serial and continuous skills.

1. **Discrete** skills are those that have a clear beginning and end. **Give an example.**

2. **Serial skills** are those that have a number of discrete elements linked together. **Give an example.**

3. **Continuous skills** are those that cannot be split up very easily into subroutines. **Give an example.**
Task 11: The Environment Influence

- The environmental influence continuum deals with range of skills labeled open to closed.

- **Open skills** are predominantly perceptual, with no clear beginning or end, are affected by environment, are externally paced, in response to many actions of others.
  
  Give an example: Receiving a pass at netball.

- **Closed skills** are predominantly habitual, with a clear beginning and end, and are not affected much by environment.
  
  Give an example: An athlete performing a shot-putt.
Task 12: The skill continuum

- All skills have elements of all the classifications.
- Give an example and explain how:

A golf swing may be predominantly a closed skill but it can be affected by strong weather conditions, which would be an open skill characteristics.
3.2.2: The uses of transfer of skills

The term transfer describes the influence of one skill on the performance of another.
### Task 13: Which transfer goes where?

**Retroactive transfer, Positive transfer, Bilateral transfer, Zero transfer, Proactive transfer, Negative transfer**

<table>
<thead>
<tr>
<th>Transfer Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retroactive transfer</td>
<td>Transfer occurs when learning in another task enhances learning in one task. For example, learning a golf stroke may be enhanced by virtue of the fact that the player is a good cricketer.</td>
</tr>
<tr>
<td>Positive transfer</td>
<td>This occurs when the learning of a new task is interfered with by the knowledge of a similar activity. For example, the flexible use of the wrist needed for badminton may interfere with the firm wrist needed for tennis.</td>
</tr>
<tr>
<td>Bilateral transfer</td>
<td>Transfer refers to the influence of one skill on a skill yet to be learned. For example, having learned the forehand drive in tennis, the action is then modified to the forehand drive with topspin.</td>
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<td>Zero transfer</td>
<td>Transfer is where there is a negative influence of one skill on a skill that has previously been learned. For example, a hockey player learns the flicking skill, which may have a negative effect on the previously learned push (the push pass may be lifted unnecessarily).</td>
</tr>
<tr>
<td>Proactive transfer</td>
<td>No transfer at all may occur even between skills, which appear to be similar. For example, learning at squash may have zero transfer from weight training.</td>
</tr>
<tr>
<td>Negative transfer</td>
<td>The transfer, which takes place from one limb to another For example, a soccer player learns to kick a ball with the non-preferred foot, the actions are learnt through reference by the brain to the preferred foot.</td>
</tr>
</tbody>
</table>
**Homework**

In your course planner (this is the one I gave you at the start), make a comment on how you felt about this section. i.e. do I need to improve, how and why?
By the end of this lesson students should:

- Knowledge and understanding of skill classifications.
- Describe classification of continuums as gross/fine, internally paced/externally paced, discrete/serial/continuous.
- Describe open/closed continuum in relation to the sporting environment, decision-making and practice structure.
- Understand the uses of transfer of skills.
- Explain transfer as positive/negative, proactive/retroactive, bilateral and zero. Transfer as the effect of one skill on another as a result of practice/experience.

**Assessment:**

A*-B - extended answers, demonstrates an in-depth knowledge and understanding of the topic

C – can answer all questions, lacks the critical analyse of the topic.

D/E – cannot answer all the questions, lacks the quality in answers
Learning Objectives

- Knowledge and understanding of skill classifications.
- Describe classification of continuums as gross/fine, internally paced/externally paced, discrete/serial/continuous.
- Describe open/closed continuum in relation to the sporting environment, decision-making and practice structure.
- Understand the uses of transfer of skills.
- Explain transfer as positive/negative, proactive/retroactive, bilateral and zero. Transfer as the effect of one skill on another as a result of practice/experience.

Assessment

- A-B - extended answers, demonstrates an in–depth knowledge and understanding of the topic
- C – can answer all questions, lacks the critical analyse of the topic.
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Starter – are you born with skill? Write one sentence to explain.

Characteristics and definitions of skill

The term motor skill is used to describe a technique within a game or sport (for example, passing, hitting, catching, controlling a ball), or in reference to the sport itself (diving, tennis, hammer throwing), or a quality possessed by a sportsperson. The characteristics of skill are that it should be coordinated, controlled, with good technique, efficient, or pre-determined by practice or the observation of others performing the skill perfectly. As such the skill will be well learned, efficient and consistent. The beauty or pleasing nature of a skill is its aesthetic quality

Task 1: List the characteristics of skill

- 
- 
- 
- 

Difference between motor and perceptual abilities

Task 2: Characteristics of ability

Ability is the foundation for skill learning. A successful sportsperson must be born with a number of relevant abilities. Ability is genetically determined, since we are born with our abilities, which means that it is innate and enduring – it is part of our constitution and will last all our lives. For example, some children can quickly pick up skills (such as catching a ball or riding a bike), whereas other children take much longer and are less successful at any given skill.

Debate this statement as a group, make notes.
Task 3: Motor (psychomotor) ability: Answer the question
1. Define motor ability:

2. Give an example:

3. Define gross motor ability:

Task 4: Perceptual ability: Answer the question
1. Define:

2. Given an example.

Ability is an enduring trait. We largely hold on to our abilities throughout our lives, for example, riding a bike.

Task 5: Specific abilities: Answer the question
1. Define.

2. Give an example.

Groups of abilities
A good sportsperson may have many different groups of abilities. For example, a good all round sportsmen could have different specific abilities such as good hand-eye co-ordination and balance, which could be transferred, to lots of different sports activities.

Task 6: Difference between skill and ability: Answer the question
- **Skill** is acquired.
- **Skills** must be *learned*, which can require an extended process including the copying of expert models. **Ability** is an *enduring* trait, which can last throughout a person’s life, and is genetic in basis.
- Abilities underpin and contribute to skills.
- For example, someone with good natural balance, shoulder and hip flexibility, and upper body and wrist strength, has all the abilities necessary to perform a handstand.
- But practice would be required to actually perform the skill of the handstand.

Task 7: Types of skill: Answer the question
1. Define psychomotor skill.
2. Define Fundamental psychomotor skills.

3. Define perceptual skill.

4. Define cognitive skill.

**Task 8: Muscular involvement: Answer the question**
The muscular involvement continuum deals with gross and fine skills. Gross skills are those that use large muscle movements. Fine skills are those that use small muscle movements,

1. Give example for gross skills. ____________________________
2. Give example for fine skills. ____________________________

**Task 9: Pacing**
The pacing continuum deals with self-paced and externally paced skills.

- Self-paced skills are those in which the performer has control over movement.
- Externally-paced skills are those in which the environment has more control.

1. Give an example of Self-paced skills. ____________________________
2. Give an example of Externally-paced skills. ____________________________

**Task 10: Continuity: Answer the question**
The continuity continuum deals with discrete, serial and continuous skills.

Discrete skills are those that have a clear beginning and end
1. Give an example. _____________________________________________

Serial skills are those that have a number of discrete elements linked together.
2. Give an example. _____________________________________________

Continuous skills are those that cannot be split up very easily into subroutines.
3. Give an example. _____________________________________________

**Task 11: The Environment Influence: Answer the question**
The environmental influence continuum deals with range of skills labeled open to closed.

Open skills are predominantly perceptual, with no clear beginning or end, are affected by environment, are externally paced, in response to many actions of others.

1. Give an example. _____________________________________________

Closed skills are predominantly habitual, with a clear beginning and end, and are not affected much by environment.
2. Give an example. _____________________________________________

**Task 12: The skill continuum: Answer the question**
All skills have elements of all the classifications.

1. Give an example and explain how:
3.2.2: The uses of transfer of skills

The term transfer describes the influence of one skill on the performance of another.

**PLAY CLIP** (only the first 5 minutes) [https://youtu.be/RRhuLsMQl4U](https://youtu.be/RRhuLsMQl4U)

**Task 13: Which transfer goes where? Mix and Match**

<table>
<thead>
<tr>
<th>Positive – Bilateral – Retroactive – Zero – Proactive - Negative</th>
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<td><strong>transfer</strong></td>
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<td>This type of transfer occurs when learning in another task enhances learning in one task. For example, learning a golf stroke may be enhanced by virtue of the fact that the player is a good cricketer.</td>
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<td>This type of transfer is where there is a negative influence of one skill on a skill that has previously been learned. For example, a hockey player learns the flicking skill, which may have a negative effect on the previously learned push (the push pass may be lifted unnecessarily).</td>
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<tr>
<td><strong>transfer</strong></td>
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<tr>
<td>This describes the situation where no transfer at all may occur even between skills, which appear to be similar. For example, learning at squash may have zero transfer from weight training.</td>
</tr>
<tr>
<td><strong>transfer (limb to limb)</strong></td>
</tr>
<tr>
<td>This is the transfer, which takes place from one limb to another, sometimes called lateralisation. For example, a soccer player learns to kick a ball with the non-preferred foot, the actions are learnt through reference by the brain to the preferred foot.</td>
</tr>
</tbody>
</table>

**Homework:** in your course planner (this is the one I gave you at the start), make a comment on how you felt about this section. i.e. do I need to improve, how and why?

A quick recap

- Classification continuums as gross/fine, internally paced/externally paced, discrete/serial/continuous.
- Open/closed continuum in relation to the sporting environment, decision-making and practice structure.
- Transfer of skills: positive/negative, proactive/retroactive, bilateral and zero.
- Transfer as the effect of one skill on another as a result of practice/experience. Example, if someone has played football before, an example of positive transfer is that they are likely to grasp the tactics of hockey quite quickly.
- Someone who has thrown a netball before is likely to be able to throw a basketball.
- An example of zero transfer is where the skills from one sport have no impact on learning a new sport. For example, a swimmer transferring to archery.

**Useful websites**

- [www.brianmac.co.uk/continuum.htm](http://www.brianmac.co.uk/continuum.htm)
- [https://www.youtube.com/watch?v=DT38s31gOvM - Classifications of skills](https://www.youtube.com/watch?v=DT38s31gOvM)
- [https://youtu.be/RRhuLsMQl4U - Transfer of Learning](https://youtu.be/RRhuLsMQl4U)

**Extension Work** (A - C grade students work)

The answers are at the very back, have ago at the questions and then check your answers. Do not cheat, because in the exam you won’t be able to.

**TOAL MARKS 8/__________**

1. If you were watching a number of performers in sport, what characteristics would you expect the movements of a skilled performer to have? 4 marks
2. By using examples from sport, explain what is meant by fundamental psychomotor skills and why they are so important. **4 marks**

**Answer:**
- Jumping, catching, throwing etc.
- Basis for the development of other skills.
- Learned through early experiences usually via play.
- Important because can draw on them for lifetime sports or healthy lifestyles.
- Helps personal development and self-esteem.

ANSWERS

1. If you were watching a number of performers in sport, what characteristics would you expect the movements of a skilled performer to have? **4 marks**

**Answer:**
- Movement seems effortless.
- There are many correct movements consistently performed.
- The movement follows a technical model.
- The movement is aesthetically pleasing.
- The movement is controlled and well co-ordinated.
Topic 3: Skill acquisition

3.3: Learners Theories

LEARNING THEORY

The Core of what we do.
By the end of this lesson students should:

- Describe and develop understanding of significance of associative theories and reinforcement to learning skills
- Apply theory to practical setting
- Describe and develop understanding of Thorndike’s work by application to example of personal development
- Apply theory of three stages to practice in practical setting

**Assessment:**
A*-B - extended answers, demonstrates an in–depth knowledge and understanding of the topic
C – can answer all questions, lacks the critical analyse of the topic.
D/E – cannot answer all the questions, lacks the quality in answers
**Starter:** what are theories?

Use the post it note and post it on the wall.
3.3.1 Associationalist theories - the S-R bond

Associationalist theories state that learning occurs as a result of the association or connection between a stimulus and a response, this stimulus-response connection is called the S-R bond.
Task 1: List theories of learning.

- Associationalist
- Classical conditioning
- Thorndike
- Insight Learning
- Cognitive Theory
- Social Learning Theory
- Reinforcement
- Operant Conditioning

You will learn about these during the course.
Classical and operant conditioning

- Watch the video and make your notes

PLAY CLIP
Task 2: Classical Conditioning

The connection between stimulus and response is due to conditioning, which is a form of training which makes certain behaviour into a habit (habitualised - unvarying). Such a habit is an ingrained and learned behavior, which becomes part of a person’s response to a stimulus.

A sports example of this would be the instant reaction of a soccer goalkeeper to a penalty taker’s strikes depending on the penalty taker’s stance or body position.

Since learning involves a change of behaviour, learning takes place when a connection is made between stimulus and response. An example of this could be the baton passing routine during a sprint relay. An incoming runner would shout ‘hand’, and the outgoing runner would present his or her hand to receive the baton. The shout is the stimulus, the reaching out of the hand the response. Eventually, the response is automatic (and learnt) and the baton will always be passed successfully.
Task 3: Operant conditioning

Read the text and **highlight** the key words on your worksheet.

Operant Conditioning

- **Reinforcement**
  - Increase Behavior
  - **Positive**
    - Add appetitive stimulus following correct behavior
    - Giving a treat when the dog sits
  - **Negative**
    - Remove noxious stimuli following correct behavior
    - Turning off an alarm clock by pressing the snooze button

- **Punishment**
  - Decrease Behavior
  - **Positive**
    - Add noxious stimuli following behavior
    - Spanking a child for cursing
  - **Negative**
    - Remove appetitive stimulus following behavior
    - Telling the child to go to his room for cursing

**Terms**:
- **Positive** presence of a stimulus
- **Negative** absence of a stimulus
- **Reinforcement** increases behavior
- **Punishment** decreases behavior
- **Escape** removes a stimulus
- **Avoidance** prevents a stimulus
Task 4: Cognitive theories

Define cognitive:

- concerned with thinking and understanding rather than connecting certain stimuli to certain responses. Trail and error has no place in cognitive theories.
Task 5: Social learning theory

Define Social learning:

Bandura's social learning theory describes learning by copying others (observational learning). In this theory, the performer is more likely to copy 'significant others', those who are seen as high status role models.
Task 6: Reinforcement of movement behaviours

1. Define positive reinforcement.

2. Give an example of positive reinforcement.

Reinforcement is concerned with ensuring the correct response is repeated.
Task 7: Negative reinforcement

1. Define negative reinforcement.

2. Example of negative reinforcement.

Withdrawing rewards.

The same footballer may not receive a bonus when he fails to score a goal, the gymnast would not be praised if he or she performed inadequately.
Task 8: Punishment

1. Define punishment.

Inflicting retribution on a learner who performs incorrectly. This breaks a bond between the learner's learning process and an incorrect performance.

2. Example of punishment.

The footballer might be dropped from the team after he fails to score a goal, or a player is sent from the field if he or she fouls an opponent.
Task 9: Students Deliver

- There are two theories coming up, that you have to deliver to the class.
- Half of the class will present one theory, whilst the others present the other one.
- You can either present the theories practically or lecture style, you decide.
- Watch the video clips to aid your performance.
- Thorndike’s laws: PLAY CLIP
- Fitts and Posner’s three stages of learning PLAY CLIP
Homework

To work on your theories, ready to present tomorrow, be creative...
By the end of this lesson students should:

- Describe and develop understanding of significance of associative theories and reinforcement to learning skills
- Apply theory to practical setting
- Describe and develop understanding of Thorndike’s work by application to example of personal development
- Apply theory of three stages to practice in practical setting

**Assessment:**
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3.3.1 Associationalist theories - the S-R bond

Associationalist theories state that learning occurs as a result of the association or connection between a stimulus and a response, this stimulus-response connection is called the S-R bond.

Task 1: List the theories of learning

Classical and operant

Watch the video and make your notes: https://www.youtube.com/watch?v=H6LEcM0E0io
Task 2: Classical conditioning: Fill in the missing words
The connection between ______________________ and ______________________ is due to conditioning, which is a form of training which makes certain ______________________ into a habit (habitualised - unvarying). Such a habit is an ingrained and learned behavior, which becomes part of a person’s ______________________ response to a stimulus.

A sports example of this would be the instant reaction of a soccer goalkeeper to a penalty taker’s strikes depending on the penalty taker’s stance or body position.

Since learning involves a change of behaviour, learning takes place when a connection is made between stimulus and response. An example of this could be the baton passing routine during a sprint relay. An incoming runner would shout ‘hand’, and the outgoing runner would present his or her hand to receive the baton. The shout is the ______________________, the reaching out of the hand the ______________________. Eventually, the response is automatic (and learnt) and the baton will always be passed successfully.

Task 3: Operant conditioning: Read the text and highlight the key words
Operant conditioning is concerned with modifying behaviour and hence response to a specific situation. This is the work of Skinner who used pigeons to whom he gave food if they pecked at and then hit a table tennis ball with their beaks.

Eventually, by developing the reinforcement (giving of food) when the desired response was achieved, the pigeons were able to knock a ball back and forth between them. This is based on trial and error, with the correct response reinforced (see page 137).

This can be used to learn from a demonstration that teaches how to perform the skill (shaping), and then reinforced after the performer has performed the skill successfully (through knowledge of results). For example, suppose a rugby player kicks when he or she should pass the ball. By rewarding (reinforcing using praise) every time the player passes, gradually the player learns to pass the ball (behaviour has been modified). The learner may not know why the response is correct only that it will be rewarded. To be effective, a reward will closely follow a correct response, and a coach will be concerned to strengthen a correct S-R bond, and weaken an incorrect S-R bond.

Task 4: Cognitive theories: Answer the question
Define Cognitive:

Task 5: Social learning theory Answer the question
Define social learning:

Task 6: Reinforcement of movement behaviours: Answer the questions
Reinforcement is concerned with ensuring the correct response is repeated.

Define Positive reinforcement
Example:

**Task 7: Negative reinforcement: Answer the questions**

Define Negative reinforcement

Example.

**Task 8: Punishment: Answer the questions**

Define Punishment

Example.

**Task 9: Students Deliver**
- There are two theories coming up, that you have to deliver to the class.
- Half of the class will present one theory, whilst the others present the other one.
- You can either present the theories practically or lecture style, you decide.
- Watch the video clips to aid your performance.
- Thorndike’s laws: [https://www.youtube.com/watch?v=opt05kUJZw](https://www.youtube.com/watch?v=opt05kUJZw)
- Fitts and Posner’s three stages of learning [https://www.youtube.com/watch?v=EFNwuB5XjY](https://www.youtube.com/watch?v=EFNwuB5XjY)

**3.3.2 Thorndike’s laws**
Thorndike’s laws are concerned with strengthening the S-R bond, and hence the concept of reinforcement.

- **The law of exercise** explains that repetition strengthens the S-R bond.
  For example, the more a discus thrower practices throwing the more likely it is that this correct throwing technique will be repeated in the competitive situation. So practice is very important.
  For example, the more a discus thrower practises throwing the more likely it is that this correct throwing technique will be repeated in the competitive situation. So practice is very important.
The law of effect uses reinforcement (by praise, reward or observed success), which strengthens the S-R bond. Satisfying reinforces (ones which make the learner feel good) increase the likelihood of a response being repeated.

For example, if the thrower feels that the movement is correct then he or she is more likely to repeat the movement. A trial and error process can produce this effect, since success reinforces a response, whereas failure forces the performer to try new methods to achieve success.

The law of readiness says that learning can only occur when the nervous system (and muscular system) is sufficiently mature to allow the appropriate S-R bond to happen.

For example, the more a thrower is physically and mentally prepared to perform a throw then it is more likely to be performed well. People should learn simple basic skills (and become basically fit) before attempting to learn more complex skills. Also the performer needs to be psychologically ready.

3.3.3 Fitts and Posner’s three stages of learning

The phases or stages of movement skill learning

Cognitive
The cognitive (early) phase, in which the learner attempts to understand the skill, begins to look at techniques and memorise what is required, begins to practise and repeat the skill according to a simple model, and learns by trial and error. In this phase guidance would tend to be predominantly visual, with manual or mechanical guidance also being used, as basic body positions and movements are learnt. Here feedback involves reinforcement of success by the coach, with mistakes corrected by reference to the model. This phase applies to the novice player who can require a lot of support in order to achieve success.

Associative
The associative (intermediate) phase, in which the learner will understand the skill, and movement patterns will be more fluent and established (can be repeated at a reasonable level without much thought). In this phase guidance is more likely to be visual and verbal with some manual guidance to illustrate specific body positions or movements. The coach will give a lot of detail within this guidance. Here feedback involves the learner associating the ‘feel’ of the activity (via kinaesthesis) with the end results. This phase applies to the competent performer who still requires full support from a coach to correct mistakes.

Autonomous
The autonomous (final) phase, in which movements are well integrated and automatic, with the learner able to perform without conscious effort. The performer can now give attention to the environment and wider cues about play (such as the position and movements of opponents). Guidance would not need to be extensive, but highly specific to situations which the performer would already have realised need attention. Verbal guidance would be the predominant method, with feedback being mostly via the learner being able to judge performances and make corrections by him or herself (often with the aid of video analysis of the performance). This phase applies to the player who can perform by him or herself, who can make decisions about tactics without prompting, and whose skill under pressure is stable.

Homework: work on your theories, ready to present tomorrow.

Useful Website
- https://youtu.be/Ry0awoLKS2E
- https://www.youtube.com/watch?v=zxkaLQwi34c - Covers work on classical conditioning
- https://www.youtube.com/watch?v=PsTlJyoxOKg - Covers work on classical conditioning
- https://www.youtube.com/watch?v=H6LcMOEOio - Covers work on classical conditioning
- https://www.youtube.com/watch?v=8Bhb8pYIrvgY - Covers work on classical conditioning
- https://www.youtube.com/watch?v=VHS8p0lJkHE - Includes operant conditioning
- https://www.youtube.com/watch?v=FSJ2eX49Z1c - Comparing Classical to Operant Conditioning
- https://youtu.be/kUCkJisu4Ds - Stages of Learning
- https://www.youtube.com/watch?v=05v2HiXebU - Includes Social Learning Theory
- https://www.youtube.com/watch?v=8zgyNL6uWM - Covers Social Learning Theory
- https://www.youtube.com/watch?v=opt05kIj2w - Covers Thordike’s three laws
- www.teachpe.com/sports_psychology/learning_theories.php
Recap

- **Associative theories** - classical and operant conditioning
- **Operant conditioning** - the consequences of our actions determine whether we will repeat it or not.
- **Skinner's theory of operant conditioning** - involves the correct response to a situation or task being rewarded. This reinforces the correct response.
- This behaviour is shaped by the coach and the player need not understand why they are performing like this, just that they will be rewarded if they do it correctly.
- **Examples**: football shooting practice. The coach may direct the players to strike the ball into the right of the goal. If this is done they are rewarded. The area is then reduced to the top half of the right side, and then maybe the top right hand corner only. Rewarding this behaviour strengthens the link.
- **Reinforcement** should be understood (positive, negative, punishment and stimulus–response (S–R) bond and its use in skill learning. Different types of reinforcement work better in different practical’s.
- **Positive reinforcement** through praise and encouragement from a coach should encourage performers to want to repeat the skill.
- Noted that punishment and negative reinforcement are not the same.
- **Thorndike’s three laws**: understand the laws and apply them to practical
  - The law of readiness,
  - The law of effect
  - The law of exercise
- **Example**: law of effect there are satisfiers (where the desired response is rewarded) which will strengthen the stimulus response bond whereas annoyers will weaken the response.
- **Fitts and Posner’s three stages of learning (cognitive, associative and autonomous)**
- **Example**: when someone is first learning a skill and is in the cognitive stage coaches need to supply plenty of feedback which could be visual (demos), verbal (instructions) or manual (guidance) to assist the learners in knowing how to do the skill correctly.

**Extension Work** (A - C grade students work)
The answers are at the very back, have ago at the questions and then check your answers. Do not cheat, because in the exam you won’t be able to.
TOTAL MARKS 6/__________

1. One way of learning a new skill is through operant conditioning which involves reinforcement to strengthen the stimulus-response bond. Use examples to distinguish between the different types of reinforcement. *(3 marks)*

2. Apart from reinforcement, how else could a coach make sure that operant conditioning is likely to result in the successful learning of a new skill? *(3 marks)*
ANSWERS
1. One way of learning a new skill is through operant conditioning which involves reinforcement to strengthen the stimulus-response bond. Use examples to distinguish between the different types of reinforcement. (3 marks)
A. Positive and negative reinforcement
B. Positive - Use of praise/rewards/self-satisfaction to encourage correct behaviour
C. Negative - Removal of criticism/unpleasant stimulus to encourage desired response/eg coach stops shouting

2. Apart from reinforcement, how else could a coach make sure that operant conditioning is likely to result in the successful learning of a new skill? (3 marks)
A. Use of punishment
B. Correcting mistakes/equiv
C. ‘Trial and error’ learning
D. Manipulating the environment to obtain desired response
E. ‘Shaping’
F. Eg use of target areas/feeders/equipment/etc;
Topic 3: Skill acquisition
3.4: Practices

Name:_____________________________________________________________ Form_______________

Learning Objectives
- Knowledge and understanding of practice methods and structure as a coach and for a performer and their impact on performance.
- Practice methods as part, progressive part, whole, whole-part-whole.
- Practice structure as in massed, distributed, fixed and variable.
- Measuring effectiveness – quality and quantity.
- Understand the role and effectiveness of mental practice and how it can enhance performance.

Assessment
- A*-B extended answers, demonstrates an in–depth knowledge and understanding of the topic
- C – can answer all questions, lacks the critical analyse of the topic.
- D/E – cannot answer all the questions, lacks the quality in answers

PRACTICAL
- For the next 2 lessons you will be involved in learning practices methods of teaching.
- Instead of been in the classroom you will be outside learning about the practice methods in a practical situation.
- However, you must make sure that you read the hand-out and do any task or extension work where required.

Starter – Do practice, make perfect?
Agree or Disagree.

Extension Work (A* - C grade students work) Answers are at the back of the sheet

Generally a skill should be taught as a whole as far as possible. Give reasons for this.
Some skills need to be split up into parts to be taught effectively. What are the advantages and disadvantages of this type of skill presentation? (12 marks)

LS –Topic 3: Skill acquisition. 3.4: Practices
Key Words/Terms/Examples

<table>
<thead>
<tr>
<th>Key Words</th>
<th>Terms</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrete skills</td>
<td>Distinct and easily determined beginning and end points</td>
<td>Serving</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Throwing a punch</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swinging a golf club</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Throwing a ball</td>
</tr>
<tr>
<td>Serial Skills</td>
<td>A series of discrete actions linked together</td>
<td>Pass and attack sequence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Volleyball rally</td>
</tr>
<tr>
<td>Continuous Skills</td>
<td>Actions are repetitive. No distinct and easily determined beginning and end points.</td>
<td>Cycling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Running</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swimming</td>
</tr>
</tbody>
</table>

3.4.1, 3.4.2: The impact of practice on improving learning
This reflects the ways in which a skill can be taught to facilitate learning and maximise performance.

Factors affecting choice of method
- The type of skills to be taught.
- The complexity of the skill,
- The classification of the skill,
- The environment,
- The ability level of the performer.
- Motivational level of the performer.

The Whole method
In this method, the skill is practised in total. The method should be preferred where the skill or task:
- Is of low complexity or is a simple task.
- Has high organisation.
- Consists of interrelated subroutines.
- Has discrete skills of short duration (the movement is rapid or ballistic).

This method should be preferred where the skill or task:
- Cannot be broken down into parts.
- Or requires temporal or spatial coordination.

Examples of skills or activities where the whole method would be appropriate are:
- Somersault or tumble in gymnastics.
- Dart throw.
- Snooker or pool shot.
- Tennis serve.
- Soccer penalty kick.

The performer:
- Would be experienced.
- Has high levels of attention.
- Is in the later stages of learning.
- Is older and highly motivated.
- Uses distributed practice.

**Teacher:** will teach forwards roll.

**The Part method**

In this method, the skill as a whole is **broken down into parts** for practice. The part method should be preferred **where the skill or task:**

- Has high complexity.
- Is of low organisation.
- Has independent subroutines.
- Has slow or serial tasks, where the skill as a whole is of long duration.
- Or for dangerous skills.

Examples of skills or activities where the part method would be appropriate are:

- Triple jump in athletics.
- Full trampoline routine with ten different moves.
- Clean and jerk in weight lifting.

The **performer:**

- Is a beginner.
- Has limited attention span.
- Is in the early stages of learning.
- Is having problems with a particular aspect of a skill.
- Has limited motivation.
- Uses massed practice.

**Teacher:** will teach clean and jerk in weight training

**The Progressive Part Method**

In this method, parts are practiced separately, then combined into slightly bigger elements for practice, which in turn can be combined into the whole movement or bigger parts for further practice and so on. Also refereed to as “chaining”. This method is suitable for:

- Complex tasks or skills.
- Chaining of complex skills learned independently.
- Skills which have limited attentional demands.
- Skills which require coordination of spatial / temporal components.
- Skills, which have a good **transfer** to the whole movement.

**Teacher:** will teach the triple jump

**The whole-part-whole method**

This method is a **combination** of whole and part methods having the advantage of flexible application to almost any task and situation depending on the stage of learning of the performer and the task difficulty. A learner would first practice the whole movement and identify difficult components, which would then be practiced separately. These difficult components might be different for different people. When sufficiently fluent, the parts can then be re-combined into the whole for further practice.

**Teacher:** will teach lay up, break it down, back to the lay-up

**Practice Conditions - variable practice**

Variable practice is a method in which practice **conditions are varied** to encourage the formation of the **patterns in the brain, which enable a sportsperson to perform skills with fluency and competence.** Practice activities would include several different activities, which could be performed in different ways. Conditions should be as **realistic** as possible in **as many situations** as possible, as near to the **competitive** or match situation as possible. The method is relevant to **open skills.**
### Distributed practice

Distributed practice is a method, in which training sessions include rest intervals which could involve mental practice. Sessions would be short and spread over time with recovery periods between. Good for the **beginner** and most **skill learning**, gives **time to recover** physically and mentally and is good for potentially **dangerous** situations.

### Massed practice

Massed practice is a method in which practice is done with **no rest intervals** with sessions **long in duration**. In this method, a single training session will last a relatively long time, and all the activities are performed one after the other. This method is good for ‘grooving’ of skills and to encourage an **habitual** response, is good for **discrete skills** of short duration, but can lead to **fatigue** and boredom and there may be elements of **negative transfer**.

**Teacher:** will teach the different kind of throws, jogging, throwing, jogging - all in basketball

### Overlearning

Overlearning involves a learned skill that is **habitual** because of many **repetitions**. **Such skills** are performed ‘**automatically**’ in response to a game or sporting situation (stimulus). Hence **attention** can be directed **peripherally** to **other elements** of a game (for example, tactics or strategy).

**Teacher:** teach the Centre pass in netball

### Mental Practice

Mental practice works by producing **small muscle contractions** in the same sequence as an actual practice, and since the gross movement of the skill does not actually happen, it **prevents** wear and tear.

**Uses of Mental Practice**

- imagine success or avoid failure
- mental warm-up, readiness for action
- must be as realistic as possible
- used during rest periods
- prevents wear and tear
- mental picture of a skill
- simulate a whole movement sequence
- control arousal before performance
- building self-confidence
- focus attention on important aspects of skill
- small muscle contractions same as actual practice

**Mental practice or rehearsal**

- Creates a **mental picture** of a skill.
- Can be used to **simulate** a whole movement sequence or just part of it.
- Can be used to **imagine** and envisage success and avoid failure in a competitive situation.
- Can provide a mental warm-up in order to promote a state of **readiness** for action.
- Must be as **realistic** as possible to be effective.
- Can be used during **rest** and **recovery** periods during **performance** or in between performances.
- Can be used to focus **attention** on important aspects of a skill.
- Builds **self-confidence** for an upcoming performance.
- **Controls arousal** and induce calmness before a performance.
- Can be used to enable the learner to **memorise** a skill or movement more effectively.

**Teacher:** will talk to the students about mentally scoring a goal in football.

**Homework:** Read through this sheet and make notes or highlight key words.

**Useful Website:**

- www.brianmac.co.uk/teaching.htm has explanations of the practice methods.
- https://www.youtube.com/watch?v=6YWJ95bHjXU
- https://www.youtube.com/watch?v=pOkK4rOhMGo
• https://www.youtube.com/watch?v=vPtHjGRWuY  
• https://www.youtube.com/watch?v=MCC0bbXXhII  
• https://www.youtube.com/watch?v=oC5kJKUEiAQ

Recap
• Practice methods are part, progressive part, whole and whole part whole.  
• Practice structure as in massed, distributed, fixed and variable.  
• Need to understand why one structure would be more beneficial to another, supported with examples.  
• If given two different structures or methods - explain which is most appropriate for a particular athlete and why.  
• Coach might teach a complex skill like a tennis serve as whole part whole, because the coach would want them to see the whole thing. They would then teach them the elements before putting it back into the whole skill again.  
• Mental practice can enhance performance by linking this to their knowledge of learning.  
• The effects of mental practice versus no practice or physical practice only on an athlete.

Extension Work (A* - C grade students work)

Generally a skill should be taught as a whole as far as possible. Give reasons for this.  
Some skills need to be split up into parts to be taught effectively. What are the advantages and disadvantages of this type of skill presentation. (12 Marks)

Answer:
Teaching skill as a whole:
• The performer can appreciate skill in its entirety.  
• Has overall kinaesthetic sense of the skill.  
• The flow of the skill is not interfered with.  
• Much more efficient in skill learning and is therefore quicker to learn.  
• Can help understanding and hence the cognitive development of the performer.

Splitting into parts:
Advantages:
• Useful if skill is dangerous and will lower fear level.  
• Good for complex or difficult skills.  
• Good for serial skills.  
• Gives success at each stage and less likely to fail overall skill.  
• Helps confidence and motivation.

Disadvantages:
• Transfer of movements from the part skill to the whole may not work.  
• Some skills cannot be split up into subroutines very easily.  
• Loses the overall kinaesthetic sense.  
• Loses the flow of the skill.  
• Takes up too much time.