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**1.6 Learning to Learn Unit Overview**

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| **Key Ideas / Concepts** | **Outline of possible activities** | **Suggested resources** |
| **Topic 1: Learning** | | |
| What is learning and how do we do it? | Brainstorm | Slide #2 |
| Overview of different ways people learn according to time and theorists | Students working in groups to become experts on different ways in which people have learnt in the past - using activities below  Observational learning: Look at the diagram and talk about how each era / age learnt through observation. This is still very apparent in how infants learn.  Learning through Rewards: Show diagram with 4 theorists who have studied this type of learning in depth. Issue each group with a worksheet and a link to a small video which explains their theorists work. Use this to unpack how “Learning’ is explained by each.  If you wanted to do a practical you could do a practical with reward/bonus points in a game to see if this influences behaviours  Learning through instructions: Go through the traditional information processing model: input = output.  **Practical activities**  **Observational Learning**  Discuss with students what observational learning is from the PowerPoint. Complete Minefield (spot activity), what did they see?  Note you could run the activity so that one group could be allowed to observe to complete the task, and the second group could have to do it with backs turned so no observation occurs. Discuss differences.  .  **Learning through instruction** (information processing): discuss the traditional input = output model and then complete the activity.  In pairs students sit back to back. One draws a simple picture and then gives instructions for their partner to follow instructions to draw the same picture.  This activity will help students critique such a simplistic model of learning that disregards other factors that may influence ‘output’ | Slide #3 - #7  [Student worksheet](https://docs.google.com/document/d/1pOy3UMV-ncfjvzjcTPdeOaVvtYIC3ugGTB5qgijfLbQ/edit)  Student practical with reward/bonus points in a game to see if this influences behaviours  [Spot/Grid activity](https://www.youtube.com/watch?v=er92AWG3Ho4)  Student practical activity sitting back to back to complete the drawing task - with [critical thinking questions](https://docs.google.com/document/d/1j5WgMr7Xixhvy3AdG1uv1Cu9dodB9Da7WbN0G66aCoo/edit)  [Pictures](https://docs.google.com/document/d/1E2fv5GAcj0Lgdvr7WeyraNYQltiweQUiIHd35VCUspQ/edit) |
| What is ‘skill’ or ‘skillful’ | Compare and critique the traditional definition of skill vs contemporary definition of skill definitions. | Slide #8 - #9 |
| **Topic 2: Perception drives Action** | | |
| Recap how we learn | Discussion recapping ideas from previous topic  What does non-linear mean? |  |
| Perception drives action | Students brainstorm what they think is needed to be able to perform a skill effectively.  Introduce the idea that the environment plays a key role in ones ability to perform a skill - link back to previous topic  Environment driving learning: watch the Danny McGaskin video and Parkour video  What is direct perception? Show video of David Lee’s Optic flow experiment.  How can we relate this to us? Discuss how the information we see in the environment has a direct impact or influence on how we move | Slide #2 - #3  Slide #4 - #5 |
| Perception action coupling | **Practical**: Split class into 2 groups(partners) - 1 group go outside. Group inside to act as observers - move some chairs around, then inside group watch what their partner does as they enter the room.  Explain to the group outside that they need to walk back into the classroom and find their seat as fast as they can.  As the outside groups enters the room inside group observes partner.  Discuss what they notice - how did their partners movement change due to changes in furniture.  Reinforce that action/movement is clearly linked/coupled to movement - use term ‘perception action coupling’  Discuss how this is different from the information processing model  **Practical:** in a small space get students to walk around that space, students are penalised if they touch somebody else – some students observe. What do they see? Then move onto a game of shoulder tag – see how students movement changes because of the place you have to tag. Have some people watching and completing [observation sheets](https://docs.google.com/document/d/1CBTJMM17igXvV7WeWbgjqMl9bJkmEYiJ3PyQ-S-kl3A/edit) | Practical activity as explained  Slide #6  Slide #7  Practical :[Have observers again](https://docs.google.com/document/d/1CBTJMM17igXvV7WeWbgjqMl9bJkmEYiJ3PyQ-S-kl3A/edit) |
| How much do we think to be able to move? | Discussion about how much do we think to be able to move?  Do we think more when we are learning a new movement? What effect does it have on our performance?  Brainstorm these ideas in small groups and then bring back together as whole class.  Why is this idea important when learning new skills? How does this change as we get better? What do we think about/look at when we get better at a skills? | Slide #8 |
| How does perception help us move? | How do we use what we see to help us know how to move? - discussion  Watch video - crazy dribbling. Is this a learned skill or is it perception driving the action?  **Practical:** choose an appropriate activity to demonstrate the idea of perception, and how what we see or pick up in the environment will help us determine how to move. See [practical sheet](https://docs.google.com/document/d/1qtrsT1M6x89xNnxboT0zJTLUTlhNvbnY14sAKIfw_Ag/edit) for Topic 2  **Link to assessment**: question students on whether they think a learner who is flexible and can adapt movement according to the environment is one who is showing a high level of skill? Improved learning? | Slide #9 - #10  Practicals :  Chaos coaching examples  Crazy catch activity |
| **Topic 3: Constraints Led Approach** | | |
| Linear vs Non-linear | Discuss Fitts & Posner’s model of motor skill acquisition. This is a traditional theory that assumes learning happens in a linear fashion. Bullet points on slide help to unpack the model. Whereas a more contemporary approach to skill acquisition acknowledges that learning is messy, non-predictable and non-linear.  Challenge Fitts & Posner’s assumption that cognitive understanding comes first. Watch crawling videos which clearly shows discovery and the environment driving how movement will occur | Slide #2  Slide #3 |
| What are constraints? | Discuss the Triangle diagram. Become familiar with the basic terminology which includes: Individual constraint, Environmental constraint, Task constraint | Slide #4 |
| Individual, Environmental and Task constraints | Go over the 3 slides that help to explain what the 3 areas are.  **Individual constraint practical**: Play piggy in the middle. Try and match up 3’s who are different in heights and use the observational checklist for students to note down the different ways people move to achieve the task of either thrower or piggy.  **Environmental constraints practical:** Hitting shuttle in pairs over net in the gym to see how many can get in a row / rally. Then take the same activity outside over the tennis nets where wind is likely to effect to the shuttle greatly. Again, use the observational sheet to record how people move.  **Task constraints practical:** Play indoor hockey/football (any invasion type activity will work) firstly with just the one standard goal to aim for. Then in subsequent rounds add in the following changes:   * 1 point for standard goal scored * 5 points for scoring in goals located in corners of baseline * 2 point every time you use an outlet pass to reserves spread on sideline   Use the observational sheet to record how people moved in each of the tasks.  **Link to assessment** - Explain clearly to students that the use of ‘Task Constraints’ will be one of the ‘strategies’ that we will be applying in the Handball unit. In this instance the *teacher* will be applying the strategy of using task constraints (Quality of practice) and the *student* will evaluate the impact this had on their learning | Slide #5 - #7  [Observational sheet](https://docs.google.com/document/d/1XYBbnjfRZOc6e2tfd_ZVeln-93ugC_5mwN0jtDUOS_0/edit) to record how the three constraints influenced movement in the practical activities.  Reflection slide #8 |
| Putting theory into practice | Students will take part in an activity which is then manipulated to highlight how a change to any of the constraints will result in the performer moving in a different way. Teachers can use the suggested basketball type activities and adapt for chosen sports context if they wish.  Discuss that a coach ‘would’ take a more instructional approach that focuses on technique and technique correction if what they observe the performer doing is likely to lead to injury or could limit effectiveness of movement / performance | [CLA theory into practice practical session instructions](https://docs.google.com/document/d/113tYF_0E6k4f4Qry6OaWeWk0_HH9T50g2uwOE0TZ5tE/edit) |
| **Topic 4: Newell’s model of skill acquisition** | | |
| Degrees of Freedom | Practical demonstration of number of DOF used:  Stand on 1 foot with eyes open. Then stand on 1 foot with eyes closed. Students can reflect on what they noticed eg. feeling the smaller movements in the foot to control balance, as well as bigger joints like knees, hips. May not have considered all the smaller foot joints prior to that.  Level 1 understanding can be kept as simple as ‘a joint’ = ‘1 degree of freedom’ (DOF). The body has over 200 DOF and movement involves often multiple DOF. It is impossible for the body to individually control each one so over time it becomes efficient at coupling/co-ordinating them. Use a practical example that students will understand.  **Practical demonstrations of coupling**:  Students to sign name with dominant hand on large paper from all sorts of angles. Look at how similar it always turns out due to coupling over the years of DOF. Then use non-dominant hand to do signature with.  Do a cartwheel, javelin throw, tennis ball throwing etc. Then try and do it the other way or with non-dominant hand. For most our body has developed couplings over time and these strengthen the more we perform it. When trying to introduce new couplings this takes time to form. We can use task constraints to help eg. dots on ground for placement of hands and feet etc | Slide #3  Paper and pens  Dots/Mats  Balls  Javelins etc |
| What does ‘new’ learning look like | Show slides and talk about learning in its many forms. Could be a young person or someone learning a new skill for the first time. Often starts off with experimentation (boy on stomach on skateboard), there will be mistakes/failures (falling off bikes/boards), discovery. Less DOF are often used by new learners but not always eg. stiff body vs crazy spaghetti body on a skateboard / surfboard etc  Collage activity - in small groups students to create a collage of what they now think ‘early/new learning’ looks like. This can include pictures and words. | Slide #4  Paper, magazines, glue  Or digital collage |
| Newell’s Model of Learning | Introduce the model and the 3 stages. Reiterate again its nonlinearity intentions. Simple phrases /words have been used to name the 3 stages instead of the actual names which are as follows: (we have simplified to capitalized words)   * Assembling a coordinated motor pattern: COORDINATION * Control of a coordinated structure: CONTROL * Skilled optimization of control: SKILLFUL   Go over each stage, slides have bullet-points to summarise learning in this phase  Stage 1: Coordination- talk about importance of experimentation at this stage. Learners need to work out ‘what they can do’ not ‘what they think they should do’. Explain freezing of body/stiffening meaning less DOF are generally used. Skateboarding good example to explain. Again, reiterate not linear, not all learners in this stage for some time, similar couplings from other activities might mean this stage is short for some eg, tennis serve - volleyball serve  *Task*: Students to select a sport / activity they are confident/knowledgeable about. Explain using key words what a performer in this stage might like look in the chosen activity.  Stage 2: Control - talk about the ability of the learner to now put more body parts together and becoming more adaptable to a variant environment.  *Task*: Students to use same sport as above, and explain what a learner in this stage might now look like. What can they now do? What do they look like? What can they still not do maybe?  Stage 3: Skillful  *Task*: Students to use same sport as above and explain what a learner in this stage might now look like. What can they now do? What do they look like? What could push you back to Stage 2?  Continuum activity: Use the key words to make a “learning continuum’ going from early learning or novice learners through to expert learners.  **Practical** activity: Newell's model practical activity. This is a rotation of a series of activities that allows students to observe learning in the different stages, to think about DOF and also to consider how changing the environment changes the way we move.  After the activities and observations are done get them to reflect on Newell’s model, and what types of things might happen to push us forward or backward in the model / between stages, and why? | Slide #5  Slide #6 - #8  [Continuum words](https://docs.google.com/document/d/1yO7D0KBbLo8nCwnCk6odtot103vwLIqE4CR0vw34ves/edit?usp=sharing)  [Activity Cards](https://docs.google.com/document/d/1ZhH0vRumMm8a1FF5988LYSawkCqFu-IIK_V49KARpMg/edit?usp=sharing)  [Observation sheets](https://docs.google.com/document/d/1y20SgN7vb_SKsIa-qmMEtLHB0mJfXcQp-RESFJRHedE/edit?usp=sharing)  Skateboards, Scooters, Swiss balls, Volleyballs, Soccer balls, dots, cones. |
| **Topic 5: Learning vs Performance & Representative Practice design**  **Learning vs Performance** | | |
| Recap : Newell's model and coupling | There is overlap between the stages which is influenced by constraints. This is fluid not linear. | Slide #1 - 2 |
| Movement variability | We want learners to be variable and flexible so they can adapt to a range of varying environments. **It is critical that a skillful performer can constantly adapt**.  Coupling helps the body to move efficiently. Couplings form automatically and find the most efficient way to move.  Question on what is Learning vs Performance?  **Practical** - Piggy in the Middle (but this time no overhead / lob passes are allowed.  Or Basketball shooting - firstly on own *(performance)* and then with a  Defender (*Learning*). The shooter will ‘learn’ to vary the performance  from when just shooting on own to enable success when there is a defender.  Both practicals will also bring in deception which is hard to coach, it is simply learnt from experimenting and being directed by environmental cues.  The key is that having to work out solutions for self will increase the likelihood of retaining it. Much more so than ‘instructional’ coaching.  **Link to assessment**   Students will be planning some practice sessions themselves for AS 1.6 for ‘Knowledge of technique’. These sessions will be the student’s chance to work on a ‘specific skill’ that they have identified they want to improve on. Note that improvement / learning doesn’t mean ‘perfect or ideal technique’ This concept of movement variability is an important one for them to consider for the skill they have chosen to practice on. | Slides #3 - #6 |
| **Representative Practice design** | | |
| Planning for learning | Students to discuss pictures  Lead discussion around the importance of the practice linking with what you want the outcome to be.  How could swimming in a pool hinder performance in a open water racing situation? Think about things like sunlight, temperature, waves, currents, distance etc.  How could you change the practice to help with the final race? Think about the last picture - how has their body position changed. How does swimming in a pool help with this?  What could we do about this? | Slide #8 |
| Perception-action couplings  (Perception drives Action) | This may be a hard concept for some students (in terms of terminology). Key idea is to get students to understand that when they perform skills, they adjust their movements based on what cues they are receiving from movement around them. They looked at this in Topic 2 and now need to think more deeply about how it might pan out in a sports situation like Handball / Futsall  Discuss:  Athletes/students need to understand how to pick up on couplings/information such as speed and angle of the ball - this is a key skill. (Not just the coupling of specific movements)  How do our practices allow us to do this?  What experiences do students have? Discuss in relation to their own sports.  How can we add different ideas to our training/practice sessions to allow individuals to develop these skills?  How can we relate these ideas to the netball picture - what cues does the Centre use to make the decision? How is she having to adjust her movements to achieve the outcome?  Discuss what happens to the performer if we don’t develop/learn this? | Slide #9 - #10 |
| Designing practices | Key idea when designing any sort of practice - what do the individuals want to learn/improve? What are the movements that you are trying to do?  What information do I need to get better at the skill I want to improve?  It is really important to keep the key skill in the practice and them modify the activity to change/experiment with how they might perform the key skill.  Note: This could be a good place to now introduce the practical context for assessment purposes eg. Handball/Futsall. Take part in some kind of pre-test opportunity so students can observe themselves in action and identify areas they want to try and improve on for AS 1.6  Students could brainstorm what is needed for their sport/assessment context | Slide #11-12 |
| Errors in practices | Students to look at the pictures and discuss what is wrong with the practices that they can see.  Get students to think about how they would fit into a game?  What changes could they make to help these become good practices?  **Practical**  If you want to do a practical here to highlight the idea of perception-action coupling you could use this slide and set up the practice scenarios as shown in the pictures. Get students to participate in the ‘drills’ and then to debrief what might be wrong with these practice situations (reflecting on the concept of perception driving action and what players are faced with in a game situation)  Get students to devise a practice situation which would be more preferable. They may have come up with ideas when looking at these pictures in the previous lesson | Slide #13 |
| Planning for learning | This is a good opportunity to bring students back to together and discuss what they have learnt in the various topics.  Students can then work in groups to design at least 1 practice using their new knowledge that will help them learn/improve their performance in the chosen skill/sport. | Slide #14 |
| **Planning Strategies for Learning** | | |
| Traditional practice methods | Traditional practice methods in Skill Acquisition removed the athlete from the environment in which they perform.  Early on in a performance improvement programme it was assumed that individuals will benefit from drill type situations, with limited variation of practice conditions, skills will be broken down and performed in isolation.  ‘Strategies’ with this type of approach would include things such as Drill practice, Part practice, Whole-part practice, Massed practice, Distributed practice, Feedback (Knowledge of performance, Knowledge of results) etc |  |
| Contemporary practice methods - Constraints Led approach | In comparison a constraints led approach, or dynamical systems approach to learning acknowledges that learning is messy and non linear. It acknowledges the importance of the coupling of the environment with the movement – this is not a pre-determined  ‘Strategies; with this type of approach that will be   * Use of Task constraints (Quality of practice) - teacher led * Variable practice/experimentation or Representative task design (Knowledge of Technique) - student led |  |
| Achievement Standard 1.6 (90967): Demonstrate strategies to improve the performance of a physical activity and describe the outcomes | Students will now take part in a Constraints-Led Skill acquisition programme in a given context.  The learning in the unit can now be applied to students demonstrating ‘strategies’ from the areas noted in EN3. The assessment tasks written in the production of this unit of work used the following areas:   * Knowledge of Technique * Quality of Practice   However, others from EN3 could also be a good fit such as:   * Type of practice * Knowledge of tactics and strategies   (See the assessment resources on the website for examples of some of the activities done during the skill acquisition programme in the context of European Handball – these could be used as ideas for your own context) |  |

 