'Skill consists of the ability to bring about some end result with maximum certainty and minimum outlay of energy…' (Guthrie, 1952)

Welford described the concept of skill as 'An organised co-ordinated activity in relation to an object or situation which involves a whole chain of sensory, central and motor mechanisms.'

Every sport requires different types of skill, as each sport has individual requirements. The four main elements of the classification system are; body involvement, environmental conditions, continuity and pacing. (Physical Education and the Study of Sport. Davis et al) Skills are further categorised into open or closed, discrete, serial or continuous, self or externally paced, and fine or gross skills. (Advanced PE for Edexcel; Galligan, Maskery, Spence, Howe, Barry, Ruson, Crawford)

Closed and open skills can be placed on Knapp's open-closed continuum

closed   0   1   2   3   4   5   6   7   8   9   10   open

3   **2**   **1**   **5**   **4**
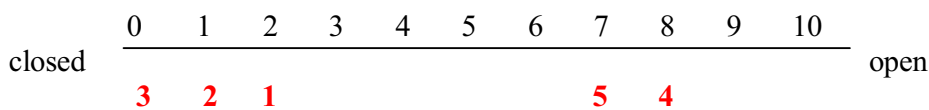
Closed skills;
- o Have no outside influence
- o Are consistently performed the same each time
- o Have a stable and predictable environment

(Advanced PE for Edexcel. Galligan et al)

Examples of closed skill are;
1. **Tennis serve.** I have placed this at 2 on the continuum. The server is not affected by their opposition and time limits, and they are also allowed a second serve. The reason it is not completely closed is because the server may be slightly affected by environment conditions, such as bright sunlight or strong winds.
2. **Basketball free throw.** This is placed at 1 on the scale. The player is completely in control of the free throw and cannot be interrupted. The game will be situated on a basketball court, which is usually inside, so the environment will not affect them. However, the pressure to score could slightly hinder their performance.
3. **Gymnastics routine.** This is placed at 0. This has no outside influences that can affect the gymnast. The environment is constant, there is no opposition so it should be performed the same each time.
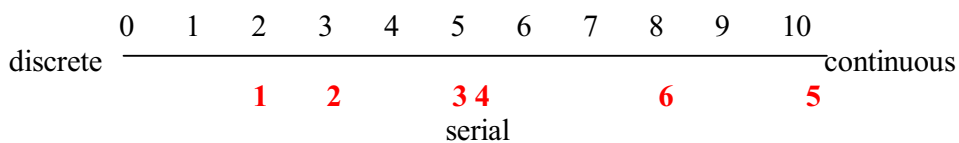
An open skill is one which;
- o Is affected by the environment
- o Has unstable and variable outside influences
- o Is never performed exactly the same each time

(Advanced PE for Edexcel. Galligan et al)

Examples of open skill are;

4   Receiving a tennis serve. This is placed at 8 on the scale. The serve strength, speed, height and direction are entirely influenced by the server. There are also outside variables such as a slippy court or the ball has spin on it. However, the receiver can decide to take the ball early or late, by moving forwards or backwards. Also the server may remain consistent with their serves, in which case the receiver may be able to predict where they will land, and move accordingly.

5   Basketball dribble. I have chosen to place this at 7 on the continuum. In a competitive situation it is an open skill, because the opposition can intercept the dribbler at ant time. In a non-competitive environment it would be a closed skill because there is no opposition to provide the outside influences.

The second set of categories in which skills can be placed is discrete, serial or continuous. This is shown on the organisation continuum.

```
          0   1   2   3   4   5   6   7   8   9   10
discrete ─────────────────────────────────────────── continuous
              1       2       3 4           6           5
                                  serial
```

Discrete skills;
- o   Are a single specific drill
- o   Have a clear beginning and end
- o   Can be removed from a sport and practised on their own.

(Advanced PE for Edexcel. Galligan et al)

Examples of discrete skills are;
1   Receiving a netball pass. I have placed this at 2 on the organisation continuum. Catching the pass is a clearly defined skill that can be taken from a game of netball and practised. Running to catch the pass would mean the skill moves slightly up the continuum, because running is a continuous skill.
 2   A squash serve. This is situated at 3. The actual serve is a discrete skill with a clear beginning and end, but when throwing the ball up, and stepping forwards are combined, it becomes more of a serial skill.

Serial skills are those that have several discrete or continuous elements put together to from a sequence. Such as;
  3   A javelin throw. This individual sport is at 5 on the continuum. It has the discrete skill of the actual throw, and the continuous skill of running. With these to skills combined it is a serial skill.
  4   Running forehand in tennis. This is positioned at 5 because it is also a mixture of discrete and continuous. The running to receive the ball is a continuous skill, whereas hitting the ball is a discrete skill.

Finally, continuous skills are those;
- o   That have no obvious start or finish
- o   The end of one cycle is the beginning of the next
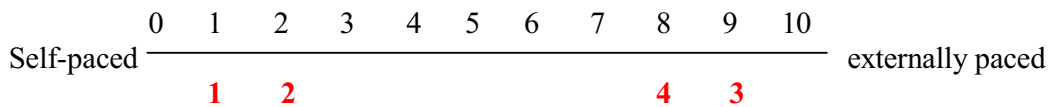- o   That include repetition of the same skill or movement

(Advanced PE for Edexcel. Galligan et al)

Examples of continuous skills are;
5. **Running.** This is at 10 because it is entirely continuous. There is not one skill in running that can be taken out and perfected, the skill just flows from element to element.
6. **Football dribble.** This is placed at 8. The running part means it is a continuous skill, whereas kicking the ball is a discrete skill. With the skills combined it has no clear beginning and end so it is therefore continuous.

Self and externally paced are measures of whether the performer has control over the timing of the skill.
The pacing continuum recognises the two paces, and fits other skills in between.

```
                0   1   2   3   4   5   6   7   8   9   10
Self-paced  ────────────────────────────────────────────  externally paced
                    1       2                       4       3
```

Self-paced are those, which the performer controls the rate at which the skill is carried out.

Examples of self-paced skills;
1. **Golf drive.** This skill is entirely self-paced. The player can decide in their own time when and how to hit the ball. They are not forced to play the shot at a particular time or speed.
2. **Triple jump.** This would be placed at 2 because the individual decides when to jump. The time duration in which they can jump, might not be very long in some competitive situations. This means it becomes very slightly externally paced.

Externally paced skills often involve the performers reaction time because an outside instigator controls the timing of the performance.

Examples of externally paced skills;
3. **A catch in rounders.** The bowler's job in rounders is externally paced. The hitter strikes the ball and determines the speed and direction. This strongly influences the fielder when trying to catch the ball, so it is externally paced, controlled mainly by the bowler. However the fielder can run forwards or backwards, deciding whether to catch the ball early or late.
4. **A Return serve in squash.** This is placed at 8 on the continuum. The server has control over the pacing of the ball, but the receiver can either step forward and volley the ball, or wait and hit it from the back wall. Despite this, the receiver only has a slight influence over the timing of the ball.

Fine and gross skills determine the body involvement of a skill.
Fine skills are those that only involve small or intricate movements of specific body parts. Such as;
   o **Rifle shooting**. This involves just the movement of the trigger finger

o **Snooker shot**. This involves movement only in the arm, to move the cue.

Gross skills are those that involve large muscle groups, or movement of the whole body. Such as;
  o **High jump**. The whole body is lifted up, over the bar and onto the crash mat.
  o **Sprinting**. This involves almost all muscle groups, predominantly legs and arms.

Skills such as a basketball free throw would feature in between fine and gross skills. It involves muscles in the arms and legs, but does not affect the whole body.

When we perform skills in sports we can be in various situations, these skills are known as individual, coactive and interactive.
Individual skills are those performed in isolation, so you are the only performer at a particular time. They can include skills such as basketball free throw, or diving.
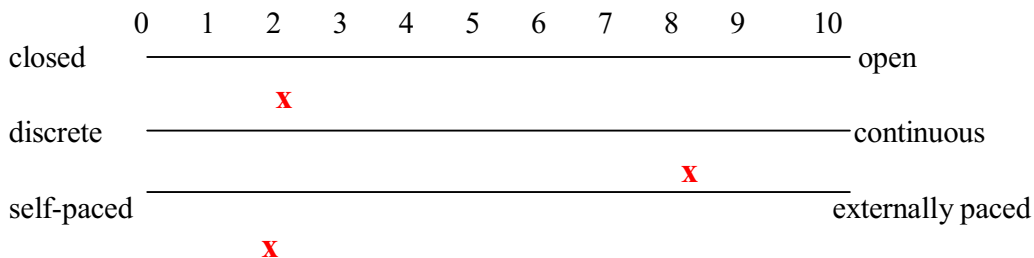Coactive skills are performed alongside others, but without direct involvement. For example, in a 100-metre race we perform with others but do not physically influence them.
Finally are interactive skills, where other performers are directly involved. Examples of these are team sports, such as football, where a tackle is a direct confrontation.
 (Advanced PE for Edexcel. Galligan et al)

Many of the skills mentioned earlier have direct links with each other. Some connections are that most individual skills tend to be closed skills and are also often associated with motor and gross skills because they involve muscular systems and concern movement. Interactive are usually open skills, because they take place in an unpredictable environment and have some form of opposition. Interactive skills also require perceptual skills, which are skills that require interpretation of stimuli.
To demonstrate the fact that games involve several different skills, continuums can be linked and a profile of the skill requirements of the game can be formed. For example skipping around cones is a closed, continuous and self-paced skill, so its profile will look like this.

```
        0    1    2    3    4    5    6    7    8    9    10
closed  ─────────────────────────────────────────────── open
                  X
discrete ──────────────────────────────────────────────── continuous
                                          X
self-paced ─────────────────────────────────────────────── externally paced
                  X
```

Classifying skill is a useful way of constructing a model to further our understanding of the way different skills are performed. The knowledge of the classification of skills will help to determine the teaching strategies used, and this in turn, will help to optimise performance.

Few skills can be easily categorised so continuums are used to show to what degree the skill fits into the category.

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Davis B Bull R Roscoe J Roscoe D	1997	Physical Education and the Study of Sport	Mosby
Ed. By Beashel P Taylor J	1996	Advanced Studies in Physical Education and Sport	Thomson publishing company
Honeybourne J Hill M Moors H	1996	Advanced Physical Education and Sport	Stanley Thornes