

# A-LEVEL **PHYSICAL EDUCATION**

(7582)

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**Example student response**

Golf Performer

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## EXAMPLE RESPONSE

Version 1.0



Whilst every attempt has been made to show a range of student response(s), the following response(s) and examiner comments provide teachers with the best opportunity to understand the application of the mark scheme. They are not intended to be viewed as 'model' answers and the marking has not been subject to the usual standardisation process.

## A-level Physical Education Example student response – Golf Performer

### **Analysis of Performance:**

AA2 – High Band 5

AA3 – Low Band 5

### **Evaluation of Performance:**

AA2 – High band 4 – although the links between cause and corrective measure are sometimes identified.

AA3 – High band 4 – although the links between cause and corrective measure are sometimes identified.

### **Overall**

**Analysis – Mid/High band 5 (19/20)**

**Evaluation – High band 4 (20/25)**

Clear heading for Area of Assessment 2 – advanced skills identified.

Weakness identified in competitive context.

Linked to impact on performance, but no mention as to why the shot was unsuccessful.

### **Analysis of Performance**

#### **Area of Assessment 2 (Long Iron/woods):**

Weakness – Lack of success when playing a draw

During my recent Scratch League match at Sleaford Golf Club technical errors in the alignment and downswing caused me to be unable to execute the draw shot as required on numerous occasions resulting in losing all three holes (4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup>) close together and although I played other holes well I was unable to claw back the deficit from the front nine holes and subsequently lost my match 3 and 2.

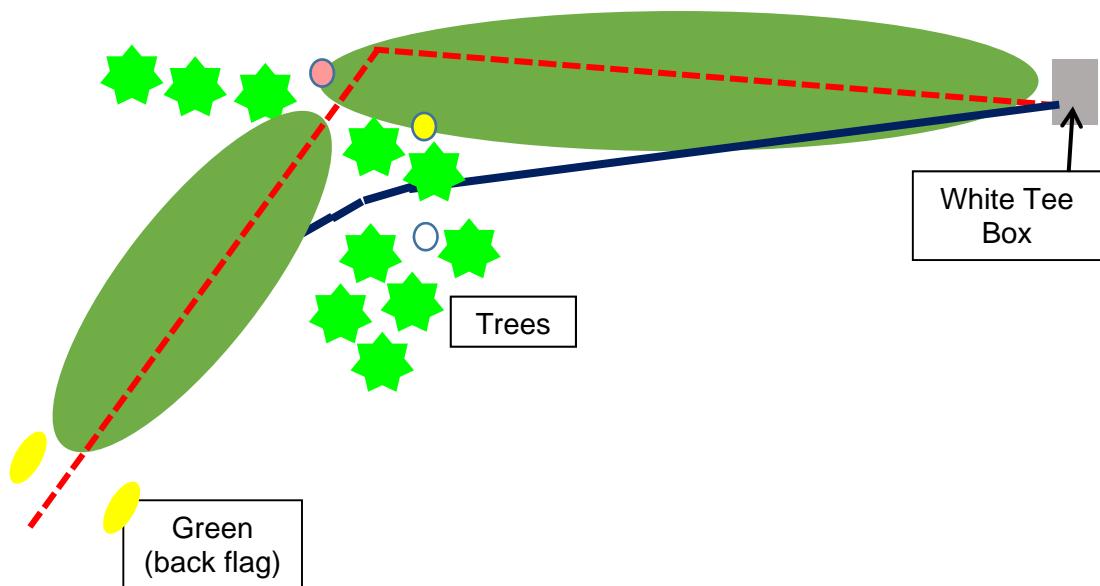
The draw is used to shorten holes that dog-leg to the left. That is they are 'L' shaped going straight from the tee, and turning left to approach the green (signified by the red line below). The draw shot shortens these holes significantly as the shot often 'cuts the corner' of the dog leg enabling me to approach the green with a short or medium iron. This was particularly important given the challenging back of the green location of the flag in this match. Without this shot I would have to play to the corner of the dog-leg from the tee leaving a more challenging approach shot (probably a hybrid from 200 yards) to a difficult flag position on the green.

Additional weakness identified.

As a player I do not hit the ball as far as some of my peers from the tee which adds pressure to the need to hit accurately. This has resulted from a slower than average swing speed, and an incomplete shoulder turn. It is this factor, along with the tee shot my opponent hit that encouraged me to attempt the draw shot around the corner, as opposed to playing out to the dog-leg and having a challenging second shot.

#### Hole No.4 Stroke Index 1 428yds White Tee

The yellow dot marks 200 yards from the tee, pink dot signifies opponents ball from tee, white dot signifies my tee shot result. Red line is the straight route to the corner of the dog-leg, the blue line is the desired route of my draw shot.



Impact on performance of skill error.

One of my areas of strength is my accuracy with my mid irons from 150yards and in, however due to poor execution of the draw shot I was left having to scramble to try to save the hole. This meant I had to chip out of the hedge and try to hit my third shot close to the hole from 155 yards and make the putt to halve the hole.

#### Preparation

With the match at all square, and my visiting opponent having tee'd off first and was safely at the corner of the dog leg, albeit with a long approach shot, I made the decision to try to take advantage on this hole knowing that the next few holes provide a lot of birdie opportunities which could turn the match quickly in either direction. Winning the hole would enable me to hit the first tee shot on the next hole, which would be important in a matchplay situation to dictate the shot selection of my opponent.

First technical error with grip position that is compared to elite model with comparative performance outcomes.

Impact of having a natural shot shape that doesn't suit the hole – this is not necessarily a weakness.

Appropriate technical language supported by accurate anatomical terms where appropriate.

Weakness – technical error developed as a result of excellent technical knowledge, although it has taken a while to get to this point.

Excellent awareness shown.

I selected my driver and set up to the ball on the left-hand side of the tee box in order to promote the draw shape by hitting the ball on an in-to-out swing plane. My grip is a little 'weak' and this makes squaring the club at impact difficult, as a result my natural shot is a fade. As I look down at my hands, I see zero knuckles on my right hand, and the line that's formed between my thumb and the hand again is pointed more at my chin. This is significantly different to the early successful grip/posture that Tiger Woods would hit. He would demonstrate a more neutral grip, in particularly the right hand showing at least one knuckle. Woods was excellent at getting the clubface back square to the target at impact as a result of his set up position imitating the ball striking position. He was renown in his most successful part of his career for being able to control a low flying draw as a result of his grip, appropriate alignment and swing plane as well as control through the impact zone. He did this successfully in many of his major wins at the Masters where a draw is the required shot to set up easy birdie/eagle chances on the 13<sup>th</sup> hole.

Whilst my natural shape of a fade keeps the ball in play, and provides much more control of the golf ball, on this hole it would take me further away from the hole, lengthening the dog-leg significantly, and subsequently reducing the chance of making par on the hardest hole. This would increase the likelihood of losing this hole due to the challenging approach shot required. There is also a strong chance that with this type of shot I would have run into the long grass beyond the dog-leg to the right hand side of the fairway resulting in either a lost ball or a very difficult to control and relatively long approach shot to the narrow green. Having seen my opponent hit two good long approaches to the previous two holes I knew that he would have little difficulty getting on or close to the green on this hole.

### **Backswing**

In order to hit the draw I set up with the clubface square to the ball to target line (the blue line in the diagram). I used a divot in front of the ball to help my alignment off the tee. I often use a divot or other reference on the tee box to do so, regardless of the shot I am playing.

My feet and shoulders are aimed slightly to the right of the blue line, creating a closed stance enabling me to make the correct swing plane to bring about the draw. I positioned the ball a little bit further forward in my stance in order to promote a higher ball flight to clear the dog leg, but also to ensure that the club face is closing at the point of impact to create the draw spin.

I begin to take the club back using my upper body. The swing moves in this order: clubhead, hands, arms, shoulders, hips. My right arm abducts away from the side of my body, unlike most tour pro's. This was a concern as this can often lead to 'casting' or 'throwing' the club from the top of the swing. As my hands pass the right leg, my weight shifts to the right. When the driver reached parallel to the ground, it was pointing left of the desired target line, this was an early indication that the club was on the wrong plane. The driver clubface at that point was toe up. Then I begin to rotate my upper body around the vertebral column, along the longitudinal axis and in the horizontal plane.

Weakness developed further.

During my backswing the next error began to occur. Instead of taking the club back inside of the target line I have taken it back on my natural swing plane. This has occurred as a result of not closing my stance sufficiently during address. The natural swing plane coupled with the type of shot I am trying to play now begins to feel like the club face is going to be quite open at the top of the backswing. As a low handicap player kinaesthetic feel often provides information mid-swing that requires some correction before striking the ball. In this case that adjustment was unsuccessful.

Weakness developed further, although it is interspersed with correct technical elements.

Very good technical analysis of the striking pat of the gold swing, that focuses on the weakness in detail using detailed terminology.

Weakness fully developed and impact on performance identified.

### Downswing

At the top of my backswing, the hips are turned only half as far as my shoulders. My left arm remains straight, but not rigid, and my right elbow is now flexed using the biceps. My hands have swung back to 11 o'clock, with the hands and arms under the club, supporting its weight. My right hip and ankle and my left latissimus dorsi muscle feel stretched, with the latter ready to perform concentric contraction during the downswing.

My downswing begins with a more significant lateral shift, this error is the start of a poor execution of the downswing, as I feel I need to quickly bring the club back on plane to help get the face square at impact.

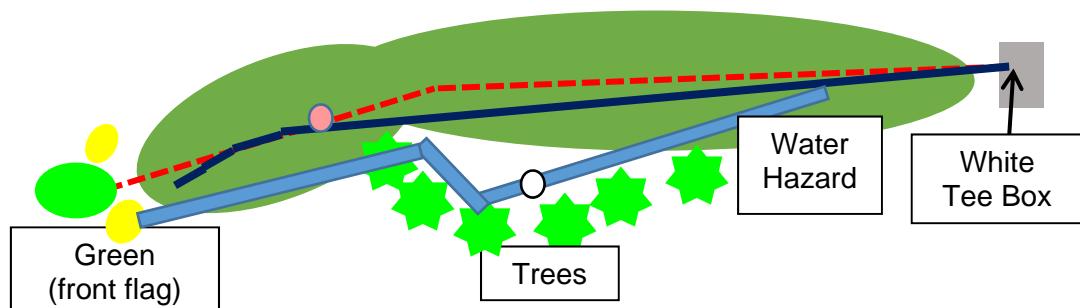
My abdominal region is still pointing at the ball, however the next error in the downswing occurs. As I try to compensate for the open feeling caused in the back swing I 'throw' the club from the top. This is a quick movement that caused my elbows and wrist to extend too early in the downswing, and ultimately resulted in a quick closing of the club face, and a hooked ball flight. In this shot, as I neared the impact zone my left forearm rotated (supination) too quickly. As I struck the ball the clubface had become too closed compared to the target line. When this occurred the closed club face de-lofted the driver, lowering the launch angle and resulting in a low flying, hooked tee shot that finished in the small bushes (white dot) left of the desired target line and short of the dog-leg.

Weakness occurs more than once in performance with additional contributing factor of trying to hit the ball harder. Full impact on performance explained.

The subsequent impact on performance was quite significant. On this hole I lost the hole to a par 4 as I was unable to get up and down from 155 yards having chipped out from the bushes. Having halved the next hole, the same swing error occurred on the 284 yard par 4 6th hole. This also dog-leg's to the left but is an easy birdie hole if you can draw the ball around the trees onto the green. On this occasion my hooked tee shot ended up in the lateral water hazard, and I forfeited the hole. The final example of this same error occurred on the 8th hole. Whilst being 2 holes down and needing to make birdie on this occasion the increased swing speed I generated trying to get both distance and the draw shape on the par 5 hole resulted in another hook into the trees. The increased emphasis on distance not only caused an overswing on the backswing, but the rapid acceleration into the downswing caused significant lateral movement resulting in the clubface closing and a hooked tee shot. I was unable to equal my opponents birdie on this hole and was now 3 holes down after 7 holes played.

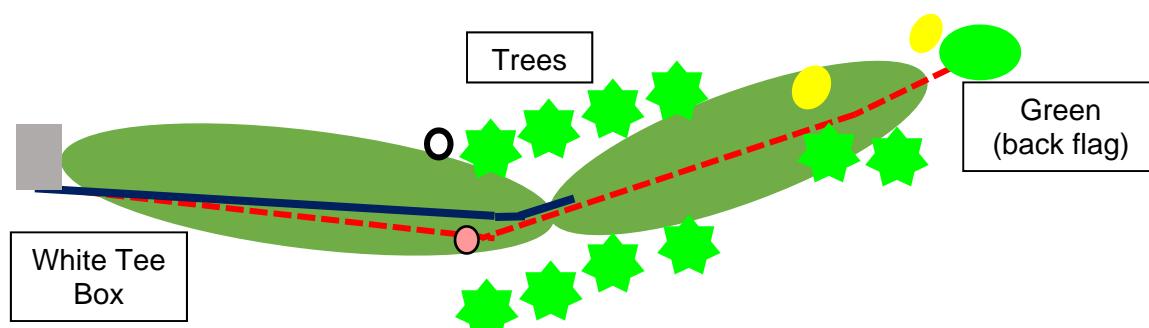
*Hole No.6 Stroke Index 11 284yds White Tee*

The pink dot signifies opponents ball from tee, white dot signifies my tee shot result. Red line is the straight route to the corner of the dog-leg, the blue line is the desired route of my draw shot.



*Hole No.8 Stroke Index 7 499yds White Tee*

The pink dot signifies opponents ball from tee, white dot signifies my tee shot result. Red line is the straight route to the corner of the dog-leg, the blue line is the desired route of my draw shot.



Clear heading for correct area of assessment.

Content taken directly from specification.

Specific range of specification identified above. Completed below.

Very good depth of relevant theory from the specification.

Link between theory and the weakness observed.

## Evaluation of Performance

### Area of Assessment 2

Causes: Achievement Motivation (Incentive value and probability of success and situation component of achievement motivation) – Intrinsic Feedback

#### Achievement Motivation

Achievement Motivation links personality with the degree of competitiveness shown by an individual. Its main focus is the extent to which an individual is motivated to attain success. Conversely, Bandura (1977) believed that a competitive drive was a product of learning.

Achievement motivation identified a performers need for achievement as being linked to their personality. Competition is described as a 'achievement situation'; in other words the performer is putting themselves in a situation where they have the potential to succeed or fail, but still a situation whereby achievement can be measured . In the case of my performance I have been selected for a team event, and have placed myself in a situation which may end with a win, loss or draw. There are people that are more willing to put themselves into the 'achievement situations' and can be labelled as ' achievement orientated'. I volunteer to play either as the first or last member of the team in playing order. This often means playing one of the oppositions stronger players. On this day I was playing first, hoping to set the tone for the rest of my team's performance.

The theory most relevant to this section is an interactionist approach proposed by Atkinson and McClelland (1976). These view achievement motivation as a personality trait which is activated by a situation.

The situation comprises the "probability of success" and the "incentive value of success"

He claims that a performer will weigh up: The probability of success and the incentive value of that success.

Probability of success: The extent to which success is likely; for example, success is more likely if the task is found by the individual to be easy. In relation to performing the draw shot from the tee in competition the probability of success is relatively high. I was playing a course I play very often, so I was used to the type of shot, playing conditions and distances I would have to hit the ball. I practice this shape of shot regularly (albeit from the forward tees) and so had every confidence that I could execute the shot on that day. However as I progressed to holes 6 and 8, it became more apparent that I had technical errors in my swing that were reducing the likelihood of a successful outcome when playing the draw shot. Selecting to play the draw shot on all three holes demonstrated Mastery Orientation: The strong motive to succeed found in a high achiever. This type of person will expect to succeed but will persist when failure is experienced. As a result of this I returned to my natural fade shot for the remainder of the back 9. This may

Linked to impact on performance.

Clear link to specification content.

Appropriate depth for this type of feedback only. No requirement to discuss other types.

have been approaching learned helplessness behaviour, where failure to execute the draw shot on that day was inevitable.

Incentive value of success: The intrinsic value experienced by the individual after success has been achieved; for example, the harder the task the greater will be the incentive value because the probability of success is reduced. In this case the incentive value was high. As I identified in the analysis section, I was approaching a key part of the course which often determines the outcome of matchplay matches. Had I been successful in the execution of the first draw shot, then choosing to play it on later holes and successfully executing it would have been much higher. This would certainly have prevented me from losing all 3 of the holes.

There are two personality traits that determine achievement motivation. High need to achieve (High Nach): This is also associated with low need to avoid failure (Low Naf). With these characteristics, the desire to succeed far outweighs the fear of failure. I consider myself to be in this category, taking on a risky shot in order to bring about a maximum return in terms of winning the holes. This demonstrates approach behaviour. A

Low need to achieve (Low Nach): This is also associated with a high need to avoid failure (High Naf). With these characteristics the fear of failure far outweighs the desire for success. Low in achievement motivation and referred to as low achievers.

Whilst the above theory outlines the subsequent errors and impact on performance when executing the draw shot across all three holes, understanding the cause of the technical error is imperative in order to correct the technical execution in the future

### **Intrinsic Feedback**

Intrinsic Feedback – Comes from within; proprioceptors and kinaesthesia, concerning the feel of the movement. This type of feedback is important for autonomous learners who are at a level where they know themselves what needs to be corrected purely by the feeling of the skill.

The conscious brain, using a collection of learned movements, controls the action when we choose to move. For the movement to progress successfully the athlete requires feedback which then allows the athlete to evaluate the effectiveness of the movement performed. There are three loops in this feedback process:

- **Exteroceptive feedback** - the outcome of the movement through the athlete's senses, observation of the outcome by the athlete, observations from the coach, observations via video
- **Proprioceptive feedback** - from proprioceptors in the muscle and tendons and the balance sensors that provide information on the 'feel'

Cause developed and directly linked to weakness in technical execution of the shot.

Both corrective measures appear in the specification.

- of the movement. Athletes can use this feedback to make fine adjustments to the movement
- **Kinaesthetic feedback** - information fed directly into the spinal cord from the muscles, tendons and joints to give information that can be responded to without conscious control

Proprioceptors are sensors that provide information about orientation of the body relative to the body's orientation with respect to gravity, movement of the body relative to the external medium and movements and forces in localised regions of the body. Muscle spindles are primarily responsible for position and movement sense, Golgi tendon organs provide the sense of force and the vestibular system provides the sense of balance. Feedback from proprioceptors feedback is essential for the accurate execution of movement execution. For voluntary limb movements proprioceptive feedback can regulate the generation of motor command by correcting errors using negative feedback loops. This is crucial in quick movements that provide little time for closed loop control such as the golf swing.

As I identified in the analysis section:

*The natural swing plane coupled with the type of shot I am trying to play now begins to feel like the club face is going to be quite open at the top of the backswing. As a low handicap player kinaesthetic feel often provides information mid-swing that requires some correction before striking the ball. In this case that adjustment was unsuccessful.*

As an autonomous performer I have a good understanding of how my golf swing feels. The corrections that take place during the swing are as a result of information from a combination of proprioceptive and kinaesthetic feedback. In the error above, messages received from proprioceptors informed me that the swing didn't feel as it should, and as a result I incorrectly compensated for this in the downswing :

*I 'throw' the club from the top. This is a quick movement that caused my elbows and wrist to extend too early in the downswing, and ultimately resulted in a quick closing of the club face, and a hooked ball flight.*

This resulted in a closed club face de-lofting the driver, lowering the launch angle and resulting in a low flying, hooked tee shot that lost distance in its flight finishing shorter than it should have done.

This ultimately cost me the hole.

#### Corrective Measures: Guidance and Practice

In order to improve my execution of the draw shot I believe that the most appropriate corrective measures will require a combination of guidance and practice. I need to develop the feeling of the draw shot, whilst building a repetitive swing based on stance and alignment. This will ensure that the skill execution is successful when placed in a highly challenging competitive context. As my weak grip contributes to the execution of my natural shot of a fade, I will use the practice session and guidance types to review the position of my right hand, and try to create a more neutral position.

Good depth to the detail guidance.  
Types. Appropriate to improve technical error.

More specific to the technical error in the weakness.

Justification for corrective measure selection.

### **Guidance:**

Guidance looks at methods of helping the learner through movement patterns. There are four types of guidance technique that can be used in conjunction with teaching and practice methods: **visual, verbal, manual and mechanical**. The two that will be most useful to refine my golf swing in order to execute a draw successfully are visual and mechanical. I will not be using verbal guidance as I intend to work through the technical errors during practice sessions on the range. I have also chosen not to use manual guidance as I have a good feel for many components of my swing.

**Visual guidance** is a demonstration of the required task. It is useful for beginners by forming a mental picture or image. It is often a video, chart or book. I will be using an app based video to slow my swing down and compare it to expected stance and swing planes in a split screen mode. This should be effective at showing me the identified weakness. I will also take this opportunity to review my grip position, and try to move it into a more neutral position.

As an autonomous performer I can overcome the problem associated with visual guidance as whereby a performer might not be capable of matching the expected/desired performance to the performance showing the weakness. I have used video technology regularly to review my swing and make corrections in the past.

### **Mechanical guidance**

This is when a device is used to help performance. In the case of executing the draw shot, I will use alignment sticks to help me to build my stance correctly and ensure that the club is at the correct position at address, as well as taking the club away on the correct plane during the backswing. These will play a significant role in correcting the errors that occurred during my competitive performance and build my confidence in the execution of this 'unnatural' shot.

One of the problems associated with mechanical guidance is that if used too much it will interfere with kinaesthesia. Therefore I will use the distributed practice session to swap between attempts with the alignment sticks, and attempts without, mixing this with the video to compare my alignment and takeaway between the two.

### **Practice:**

I believe the most relevant corrective practice will be to use distributed practice in order to improve the learning and performance of the draw shot. If the skill is over-learned the dominant habit has a greater likelihood of occurring as arousal levels increase. The reason for selecting distributed practice as opposed to massed or variable is that, when combined with the video analysis will enable me to review my swing during the breaks. It will also enable me to hit a significant number of balls during the practice sessions with a range of long clubs.

Link between the corrective measure and its impact on the cause.

In this session I will have attempts at the skill which are divided up with intervals in between to allow for rest, review of the video guidance and mental rehearsal. This type of practice is suited to closed skills such as the golf swing. Massed practice causes fatigue, and as a result may lead to the learning of bad habits once tired. The breaks will also enable me to remain motivated during a long session.

The practice session would involve:

A warm up with involving normal pre-round practice of: 5 half wedges, 5 full wedges and 5-8 irons with a normal set up accompanied by static upper and lower body stretching (incorporating: Seated trapezius stretch, Shoulder stretch, Triceps stretch, Lower back, Hip flexor stretch, Hamstring stretch, Quadriceps stretch, Calf stretch).

I will then hit 5 6-Irons, before moving to hit 5 6-irons with the draw set up. To set up the draw practice I will place one of the alignment sticks on the ball to target line (to help encourage the correct swing plane), the other will be placed in front of my feet aiming approximately 30 degrees to the right of the target line, enabling me to close the stance, creating the draw shape swing action.

I will hit alternate 5 balls with the draw set up with alignment sticks present, and 5 draw shots without the alignment aids in order to reduce the reliance upon them. I shall continue to use markers in front of the ball to help with my alignment just as I would on the course.

This improvement in the execution of the shot should enable me to improve my scoring on the right to left dog-leg holes in future. Not only will my technique be more reliable, and have a greater kinaesthetic feeling of hitting successful draw shots, but if placed in a situation of an unsuccessful shot, I should be able to rely further on the probability of success leading to a positive outcome in matchplay events. This type of practice inevitably will develop intrinsic feedback. Feedback from proprioceptors feedback is essential for the accurate execution of movement execution. For voluntary limb movements, proprioceptive feedback can regulate the generation of motor command by correcting errors using negative feedback loops as evidenced in the golf swing.

## Analysis of Performance

### Area of Assessment 3

**Control of distance: Weakness – Lack control of distance when long putting leading to three putting**

During my first round of the Club Championship at Sleaford Golf Club technical errors in execution of my long putting which caused me to take three putts on a number of holes. This resulted in me scoring 78 (6 over par), which was 5 shots over my handicap. As this was the first round of the Championships, it placed additional pressure on my final round the following day, but also caused my handicap to go out 0.1 shots taking it to 1.5 (handicap of 2).

As a low handicap golfer I consider myself to have strengths in the number of greens I hit in regulation and also in the accuracy of my approach shots, which often leads to a lot of birdies. During the Club Championships some of the flags had been placed in difficult positions, meaning that I had to play to safer areas of the green and leaving long putts.

**Weakness linked correct to AA3 – control of shot distance.**

**Brief development of how this occurred in the performance.**

**Technical error described, linked to impact on the execution of the shot, with result on performance.**

During the round technical errors caused me to make many mistakes on controlling the length of my long putts. Firstly I had an inconsistent tempo to my swing, which affected the speed of the putter at impact, secondly the length of backswing being increased caused me to have a closed clubface at impact which in turn caused me to either underhit or overhit the putts. On several occasions I left myself the wrong side of the hole leaving tricky long putts down hill.

Taking each of the errors in turn I will attempt to explain how they occurred and the impact on my performance on that hole. The first error occurred on the 2<sup>nd</sup> hole. The green and the bottom of the flag is hidden from vision when I hit my approach shot. As a result of not knowing the exact distance to the flag, I played a 5 iron to the middle of the green. I hit this shot a little ‘fat’ which resulted in losing distance. When I reached the green I found I had left myself a 40ft downhill putt, as the flag was at the back of the green.

Having read the break (of which there wasn’t much) I tried to concentrate on putting the ball within a metre of the hole in order to make a par on the hole and continue my par start to the round.

When hitting the putt, I set my spine angle and got into my putting posture, making sure my elbows are connected to my midriff. From there I let my arms hang naturally down. I create momentum by rocking my shoulders back and forth. This error provokes entirely the wrong move, as my elbows became disconnected from my body. As a result the stroke was controlled by the elbow and wrists. This causes a hinging through the hitting area, which in this case resulted in the ball being struck above its equator, causing more topspin to be applied to the ball. That accompanied by the quicker swing caused me to overhit the putt by 10ft. Although I saw how the ball turned after the hole (one advantage of hitting the first putt past the hole) I was unable to get the correct pace on the return putt, as a result of feeling I had hit the previous putt far too hard, leaving it just short of the hole and making a bogey 5 on the hole.

Second weakness when controlling shot distance explained.

Linked comparison to elite performer.

Description of weakness, based around aim rather than technique. This is appropriate for AA3 as it is a tactic/strategy.

Technical weakness explained, including the link to performance impact.

The next error came at the 3<sup>rd</sup> hole. At this hole I was able to control the length of my approach shot well, however as the hole was close to the bunker on the right of the green, I pulled my shot left, leaving a putt of approximately 30ft across the green. What was to cause this next weakness was my inability to factor in the break on sloping putts. In order to again try to get the ball within a metre of the hole required aiming considerably right of the hole to accommodate the slope. Getting putts of this nature right involves combining the right pace to allow the ball to return to the hole under the effect of the green's slope. As a result of hitting the last putt short I wanted to be positive with this putt. When I placed the ball in front of my marker, I didn't aim my target line on the ball accurately enough. When compared to a successful putter such as Jordan Speith he will carefully position the target line marked on his golf ball to ensure that the ball is set on the correct line once it has been struck. As a result of failing to get this simple alignment task correct, I set up to address the ball aiming too far right of my intended line. I struck the ball with the pace I intended to, however as I hit further up the break, the slope slowed the ball quickly, and then started to turn it away from the hole much sooner than I anticipated. The result of this was a putt for par from 8ft with a very big break in it. With my confidence starting to ebb away, I pulled the next putt left of the hole, resulting in my second bogey of the round.

Arriving at the 7<sup>th</sup> hole I left myself between clubs for the approach shot in. In trying to get the ball to the back left flag position I chose to try to hit the shorter club harder. In doing so the loft of the club caused a steeper trajectory, resulting in the ball losing distance. As a result of my positive strike I generated a lot of backspin that caused the ball to roll backwards towards the front of the green. I had left myself a 40ft putt relatively straight but uphill to the back tier of the green.

The combination of the uphill long putt made me realise I had to make a positive stroke to get the ball to the hole. Having struggled over the two previous holes to control the tempo of my putter, I wanted to use the length of the putting stroke to determine the length of the shot. In taking away the putter my hands became quite active in the stroke early, this error again causes the hinging action which affects the consistency of the stroke. The putting stroke begins to mirror a chipping/pitching takeaway which begins to affect the control of the lower body. As the putter had to come a long way back, I noticed another significant error that there was a lateral shift occurring in my legs. In elite players such as Jordan Speith the legs remain passive in the putting stroke, forming the base and aiding alignment. This allows the upper body to control this fine action. However during this putt my lateral shift of the lower body caused the upper body to come away from its swing plane, this meant as I returned the putter back to the ball I struck the floor first before the ball, causing the putter to decelerate on impact. This deceleration shortened my follow through on this stroke. This resulted in the putt falling 15ft short of the hole. Again, I had left myself a difficult putt to save my par, and missed it by overhitting it, resulting in another bogey 5.

I was now 3 over par and struggling to play to my handicap. As the confidence started to ebb away from my putting I was unable to convert any of the good birdie chances I created and finished the round with a 78, leaving my in 18<sup>th</sup> place in the competition.

3 causes identified all from the specification.

Appropriate depth of theoretical content for Newton's Laws with linked understanding to Impulse.

Link between the cause and weakness explained.

## Evaluation of Performance

### Area of Assessment 3

#### Causes: Newton's Laws of Motion Application of Force - Impulse – Schema

I believe that many of the causes of the error in performance were linked to the mechanics of striking the golf ball, and the lack of different experiences of putting from such long distances.

#### **Impulse & Newton's Laws:**

Impulse can be defined as 'force applied over a period of time'. When considering impulse it is important to remember that impulse is also equal to the change in momentum of an object.

Muscular force and its relationship with reaction force is central to impulse.

Newton's first Law (Inertia): A force larger than the inertia of the object must be applied in order to change its state of motion. When striking a long putt I must ensure that there is sufficient backswing and swing speed to strike the ball with a force of this magnitude.

Newton's Third Law (Reaction): For every action there is an equal and opposite reaction. In the case of the putting stroke, the action is the force in which the ball is struck by the putter, the reaction force is that imparted by the ball to the putter face, resulting in the ball being propelled towards the hole.

The most important rule relative to my weaknesses in controlling the distance of a long putt is Newton's Second Law: (Acceleration): The greater the magnitude of the force being applied (in a given direction) the greater the rate of acceleration. So impulse considers not only the magnitude (amount) of force being applied, but also the time this takes to be applied. The greater the amount of time a force is applied, the greater will be the acceleration of the body or object to which it is applied. It makes considerable sense to suggest that the greater the force being applied, the less time it needs to be applied for. In striking the golf ball the larger magnitude of the force required will lead to a longer putting distance being achieved. It is my failure to control the magnitude of the force being applied that resulted in the over-hit putt on the 2<sup>nd</sup> hole, and the under-hit putt on the 3<sup>rd</sup> hole. The error when striking the putt on the 7<sup>th</sup> hole, (i.e. when the club face hit the floor before the ball causing a miss-hit) is linked in two ways to Newton's Laws. Firstly, the putter face making contact with the floor caused a change in velocity (deceleration) of the swinging putter. As a result of the magnitude of the collision with the ground there was a change in the putter's state of motion. Secondly, as the putter was now going slower than intended through the ball striking area, the lower magnitude of force has resulted in a lesser rate of acceleration towards the hole, resulting in a putt that was left considerably short of the hole, resulting in a bogey and a lost hole.

First time this aspect mentioned.

Linked explanation of impulse to controlling length of shot.

Link between the cause and the error in performance.

- On the 7<sup>th</sup> hole my putting stroke had a much shorter follow through. This shortens the time in which the force was being applied.
- *However during this putt my lateral shift of the lower body caused the upper body to come away from its swing plane, this meant as I returned the putter back to the ball I struck the floor first before the ball, causing the putter to decelerate on impact. This deceleration shortened my follow through on this stroke. This resulted in the putt falling 15ft short of the hole*

The follow through is not responsible for any added force, it does however enable me to maintain the contact for the accelerating force for as long as possible. The longer time of force application, as a result of a follow through, would lead to this greater change in momentum (impulse) and ultimately velocity, and therefore achieve the desired distance on the longer putts.

### **Schema Theory:**

My other reason for not controlling the length of the longer putts, is underpinned by Schema Theory. Although I consider myself to be an autonomous stage performer, the accuracy of my iron play means I rarely have so many long putts in a round, and therefore have less reference points to call upon in my recall schema.

Schema theory suggests that a performer uses the basic movement pattern of putting stored in the memory in the form of a motor programme and then adapt them with some internal feedback to suit a specific situation. Therefore the motor programme of putting I refine regularly through a series of drills on putts less than 10ft in length. Schema relies upon experience to build it up and there are four parts of the schema that need to be used whenever I apply the theory.

Schema involves the following:

#### **RECALL SCHEMA**

Responsible for initiating the movement before the action has taking place - adapting the motor programme from the memory. This includes:

— Initial Conditions: I need to gather information from the environment. In the example on all three holes I would identify how far away from the hole I am, the distance that I am from the hole, the amount the slope or break would need to be factored in. In the case of the error on the 3<sup>rd</sup> hole, I underestimated the effect of the slope would have on the putt. I often pace out long putts to help me with an indication of how far from the hole I am, however I failed to do this on this occasion.

Response Specification: Information about how the environment affects possible options – what I need to do based on the information around you. I now need to know what to do in terms of the putt I need to strike, ie, how hard to strike the ball, where do I need to aim the ball to allow for the slope between the ball and the hole.

Appropriate corrective measure from specification.

Justification of selection.

## RECOGNITION SCHEMA

This controls what happens and updates movements during the action.

Sensory consequences: Using the senses to guide the performance, information about the feel of the movement. In the example on the 3<sup>rd</sup> hole, I had decided upon a line I would have to hit the putt to compensate for the slope, however I did not aim my ball (and consequently the face of the putter) up properly in order to hit the ball on the right line resulting in the under-hit putt.

Response outcomes: Using the results / outcomes of a performance to update motor programmes. As a result of executing some of the putts in this round, I made changes to both the speed of the swing and also the length of the backswing in order to improve my future success at long putting during the round. This is exemplified by my errors at the 7<sup>th</sup> hole:

The combination of the uphill long putt made me realise I had to make a positive stroke to get the ball to the hole (changes from response outcomes.). Having struggled over the two previous holes to control the tempo of my putter, I wanted to use the length of the putting stroke to determine the length of the shot. In taking away the putter my hands became quite active in the stroke early, this error again causes the hinging action which affected the consistency of the stroke

## Corrective Measures: Variable Practice

The decision of whether to use fixed or variable practice depends on the nature of the activity being practised. When the activity contains a lot of open skills (such as the environmental changes when hitting long putts in golf) and interaction between performers, practice should be **varied** so that performers can come into contact with a range of different experiences that relate directly to performance in the full activity. This is because relevant experiences are stored in the long-term memory and the motor programmes can be drawn on in future situations. The learner practises the same task in a number of different ways.

I believe the most relevant corrective practice will be to use variable practice in order to improve the distance control when long putting. If the skill is over-learned the dominant habit has a greater likelihood of occurring as arousal levels increase. The reason for selecting varied practice is to ensure that I can develop my recall schema.

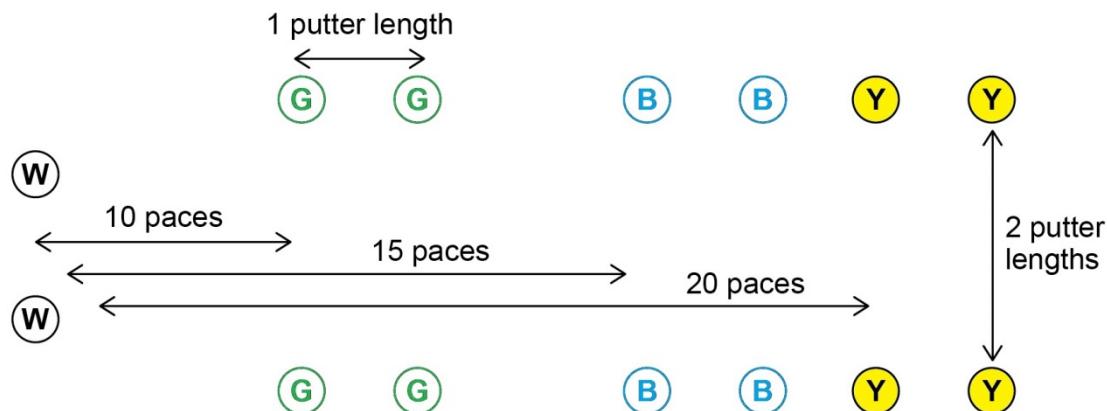
In this session I will have attempts at the skill which are spread across a range of different types of long putt including uphill, downhill, across breaks and over a range of distances from 20-40ft.

I will use two different practice sessions to ensure that the variety of challenge is different. The first practice session would involve:

A warm up with involving normal pre-round putting practice of: 3 putts from 3 feet on straight uphill putts, moving to 5 putts from 5 feet across the same line of putt.

Session 1:

Practice drill organisation:



In a relatively flat, non-breaking putt:

Drill 1: 6 balls from the white cones

First two aimed to finish in the space between the green cones

Next two aimed to finish between the blue cones

Last two aimed to finish between the yellow cones

Drill 2: 6 balls from the white cones

First two aimed to finish in the space between the green cones

Next two aimed to finish between the yellow cones

Last two aimed to finish between the blue cones

Drill 3: 6 balls from the white cones

Ball 1 – Yellow

Ball 2 – Green

Ball 3 – Blue

Ball 4 – Green

Ball 5 – Yellow

Ball 6 Blue

The whole series of drills is then repeated for:

1. An uphill putt
2. A downhill putt
3. A putt that turns right to left
4. A putt that turns left to right.

Well explained practice sessions that could be replicated, consideration given to the understanding of developing schema when designing the sessions.

Linking the corrective measure to the anticipated improvement in schema, and obvious improvement in long putting.

For Session 2, the following adjustments would take place:

1. Start as above on a flat green and complete drill number 1.
2. Move in the same sequence as above completing drill one only.
3. After finishing with Number 4 above, start drill 2 on a flat green and move again around the other 4 types of out in the sequence above
4. Complete the session by completing drill 3 using the same process I have just done for drill 1 and 2.

The expected improvement from the corrective measure will be to increase the use of recall and recognition scheme through my exposure to a variety of long putting situations. This should enable me to use this knowledge well to adjust the response specification when long putting. My ability to control the length of long putts should improve as I make better adjustments of the motor programme for putting as recognition and recall schema enable me to refine the execution of the skill.

Not only will my technique be more reliable, but if placed in a situation of a long putt in future, I should be able to ensure that the force application to the first putt is controlled well enough to ensure if it is not holed, that it finishes so close to the hole that it becomes easy to tap in, reducing the chance of dropping shots in a strokeplay event.

## Best Fit Marking for Analysis: Mid-High Band 5. Appropriate mark = 19/20

**V** = AA2 Weakness**✓** = AA3 Weakness

A-Level Analysis of Performance (20 marks)	Level (Mark)	Identify Weakness(es)	Explain Weakness(es)	Level of Analysis of weakness(es)	Effect of technical performance	Level of technical knowledge in analysis	Use of technical terminology
	5 17-20	Able to identify illustrating an Excellent level of awareness.	Able to explain illustrating an Excellent level of awareness.	Excellent levels of depth and/or breadth when analysing	Consistently highlighting the effect of prominent technical errors upon overall skill performance.	Excellent knowledge and understanding of the different techniques.	Uses appropriate and correct technical terminology consistently.
	4 13-16	Usually able to identify illustrating a very good level of awareness	Usually able to explain illustrating a very good level of awareness	Very good levels of depth and/or breadth when analysing	Usually highlighting the effect of technical errors upon overall skill execution and performance	Very good knowledge and understanding of the different techniques.	Usually uses appropriate and correct technical terminology, but the use of this may occasionally be inconsistent
	3 9-12	Sometimes able to identify illustrating a good level of awareness	Sometimes able to explain illustrating a good level of awareness	Good levels of depth and breadth when analysing	Sometimes highlighting the effect of relevant technical errors upon overall skill execution and performance. May be some inaccuracy when analysing Advanced skills / tactics	Good knowledge and understanding of the different techniques used.	Sometimes uses appropriate and correct technical terminology, but the use of this may sometimes be inconsistent
	2 5-8	Occasionally able to identify illustrating a moderate level of awareness	Occasionally able to explain illustrating a moderate level of awareness	Student demonstrates moderate levels of depth and breadth when analysing	Occasionally highlighting the effect of relevant technical errors upon overall skill execution & performance. There may be some inaccuracy when analysing Core skills	Moderate knowledge and understanding of the different techniques.	Occasionally uses appropriate and correct technical terminology but the use of this is often inconsistent
	1 1-4	Rarely able to identify illustrating a limited level of awareness	Rarely able to explain illustrating a limited level of awareness	Student demonstrates limited levels of depth and breadth when analysing	Rarely highlighting the effect of technical errors upon overall skill execution & performance	Limited knowledge and understanding of the different techniques.	Rarely uses appropriate and correct technical terminology
	0	Nothing Credit worthy	Nothing Credit worthy	Nothing Credit worthy	Nothing Credit worthy	Nothing Credit worthy	Nothing Credit worthy

## Best Fit Marking for Evaluation: High Band 4. Appropriate mark = 20/25

**V** = AA2 Weakness**v** = AA3 Weakness

A-Level Evaluation of Performance (25 marks)	Level	Depth of knowledge of cause(s)	Depth of knowledge of correction(s)	Link between weakness(es) and cause(s)	Link between cause(s) and corrective measures	Level of technical language
	5 21-25	Excellent depth of knowledge of relevant theoretical cause(s) in line with the detail required in the specification for that topic	Excellent depth of knowledge of relevant correction(s) in line with the detail required in the specification for that topic	The cause(s) are developed and directly linked back to the weakness(es) with a detailed explanation which contains few if any inaccuracies <b>V</b>	Relevant corrective measures for weaknesses are identified and linked back to the cause(s) using theory from the specification with almost no inaccuracies <b>V</b>	Almost always uses an excellent level of technical language throughout this section of work. <b>V V</b>
	4 16-20	Very good depth of knowledge of relevant theoretical cause(s) in line with the detail required in the specification for that topic	Very good depth of knowledge of relevant correction(s) in line with the detail required in the specification for that topic	The cause(s) are usually developed and directly linked back to the weakness(es) with a clear explanation which contains only occasional inaccuracies <b>V V</b>	Relevant corrective measures for weaknesses are usually identified and linked back to the cause(s) using theory from the specification with few inaccuracies. <b>V</b>	Student uses a very good level of technical language throughout this section of work although there may be occasional inconsistency
	3 11-15	Good depth of knowledge of relevant theoretical cause(s) in line with the detail required in the specification for that topic	Student demonstrates good depth of knowledge of relevant correction(s) in line with the detail required in the specification for that topic	The cause(s) are sometimes developed and directly linked back to the weakness(es) with an explanation which may be lacking in depth with some inaccuracies	Relevant corrective measures for weaknesses are sometimes identified and linked back to the cause(s) with theory from the specification but with some inaccuracies	Good level of technical language throughout this section of work although there are likely to be some inconsistencies
	2 6-10	Moderate depth of knowledge of relevant theoretical cause(s) in line with the detail required in the specification for that topic	Moderate depth of knowledge of relevant correction(s) in line with the detail required in the specification for that topic	The cause(s) are occasionally developed to a basic level and may be linked back to the weakness(es) with an explanation which is likely to be lacking in depth with inaccuracies	Relevant corrective measures for weaknesses are occasionally identified and linked back to the cause(s) with theory from the specification but with inaccuracies	Reasonable level of technical language throughout this section of work, but with inconsistencies
	1 1-5	Limited depth of knowledge of relevant theoretical cause(s) in line with the detail required in the specification for that topic	Limited depth of knowledge of relevant correction(s) in line with the detail required in the specification for that topic	The causes are rarely developed or linked back to the weaknesses	Relevant corrective measures for weaknesses may be occasionally identified but are rarely linked back to the cause(s) with theory from the specification	Limited level of technical language throughout this section of work and there are inconsistencies
	0	Nothing worthy of credit	Nothing worthy of credit	Nothing worthy of credit	Nothing worthy of credit	Nothing worthy of credit

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