

Data support booklet

Gathering, analysing and synthesising data

Setting students up for success in QCE Physical Education (2019)

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ACHPER Conference

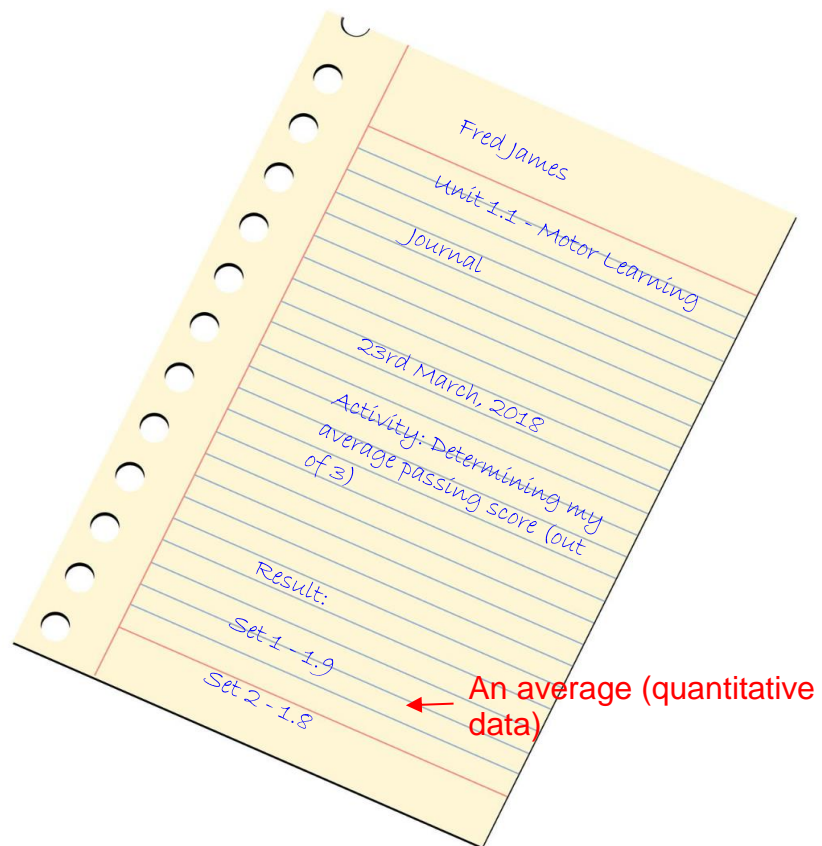
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Gathering, analysing and synthesising data – setting up students for success in QCE Physical Education (2019)

Primary data example – Motor learning



Data Collection Instrument – Ethics

Data Collection Instrument										
Topic: The effect of 'stakes' on ethical decision-making										
Date	Conditions of physical activity	Perceived stakes for winning			To what extent did you uphold the rules and play with integrity?				Reflection	
		High	Moderate	Low	Fully	Mostly	Some what	I didn't		
2/5	<u>Basketball:</u> Experienced players versus inexperienced players. Students will be told that this game will be used to determine their basketball ability.			✓	✓					Today's lesson was a little awkward to be honest. I was a member of the representative players' team which was so heavily stacked that the opposition struggled to score against us. I feel like it would have been a bit demoralising for them. Although the stakes were already low to begin with (for my team), they got lower and lower as the game went on. We almost had to make purposeful errors so that the other team could have a go.
9/5	<u>Dodgeball:</u> Mixed ability teams. Round-robin	✓							✓	There was absolutely no way I was going to be doing a beep test. I actually pulled my team aside at the start and told them that we were to win this at any cost. We developed a 'cheat plan' that

	<p>tournament structure. Winning team immune from performing the beep-test at the end of the lesson.</p>								<p>consisted of:</p> <ul style="list-style-type: none"> • Not owning up to being hit • Bringing players back onto the court when the ref wasn't looking • Claiming opposition players had been hit when the ball clearly missed them
30/5	<p><u>Volleyball:</u> 3 week tournament. Results made visible for student body to see on a leaderboard outside the staffroom. Along with these results,</p>		✓				✓		<p>I was really pumped for this and determined to be on the winner's board. My integrity was lower than normal because I wanted to win. There were two times I touched the net very slightly and pretended I didn't. I also stepped on the line when I served a couple of times because I knew the ref wasn't watching for foot faults. In the end, this didn't help and we lost anyway.</p>
6/6	<p>individual players photos will be ordered from best performer to worst performer on each given day.</p>		✓			✓			<p>After last week's demoralising loss, I lost motivation for this tournament but thinking there might still be hope for our team, I tried hard today to win. There was one time the ball touched my fingers when I blocked it and then went out. The other team called me on it but I denied it. Not sure why I did though as we were never going to win.</p>
13/6				✓		✓			<p>We've lost so much that we don't even care anymore .I've been on the loser board for the last two weeks and in doing so, have realised that not much has changed in my life. So, its inconsequential if I stay there. In fact, it's become a little bit funny and a novelty and I'm kind of enjoying losing.</p>

Data Collection Instrument – Ethics (blank template)

Data Collection Instrument									
Topic: Ethics									
Date	Conditions of physical activity	Insert independent variable here			Insert dependent variable here				Reflection
		High	Moderate	Low	Fully	Mostly	Some what	I didn't	

Sample primary Game Performance Assessment Instrument – Sport psychology

Game Performance Assessment Instrument							
Topic: The impact of pre-task routines							
Selected closed skill: <i>Badminton serve</i>							
Psychological Concept	Column A Without pre-task routine			Column B With pre-task routine			Notes
	Worse than usual	Same as usual	Better than usual	Worse than usual	Same as usual	Better than usual	
Confidence (How certain you felt making decisions and performing).		✓			✓		<i>Although I wouldn't say that my confidence or anxiety levels were any different with a pre-task routine, there was a distinct improvement in my concentration. Specifically, using a pre-task routine gave me time to evaluate what I needed to do with my serve before each</i>
Anxiety		✓			✓		

(the level of worry you had about your performance).									<p>point rather than rushing and hitting the shuttle without thought. I was more purposeful with my actions. Overall, my performance was definitely stronger, moving from 'ok' to 'good'.</p>
Concentration (how well you were able to block out distractions and focus on the task).		✓					✓		
Overall Performance	Poor	OK	Good	Excellent	Poor	OK	Good	Excellent	
		✓					✓		

Primary Game Performance Assessment Instrument – Sport psychology (blank template)

Games Performance Assessment Instrument							
Topic: The impact of pre-task routines							
Selected closed skill:							
Psychological Concept	Column A Without pre-task routine			Column B With pre-task routine			Notes
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Confidence (How certain you felt making decisions and performing).							
Anxiety							

(the level of worry you had about your performance).									
Concentration (how well you were able to block out distractions and focus on the task).									
Overall Performance	Poor	OK	Good	Excellent	Poor	OK	Good	Excellent	

Ethics secondary data examples (various sources)

Source 1: Online data (full news article)

Pressure to win 'turns children into sports cheats'

By Hannah Richardson
BBC News education reporter
15 April 2013

Two-thirds of UK children feel under pressure to cheat at sports because of a "win-at-all-costs" culture on the playing fields, a survey suggests.

A quarter of the children questioned for the survey thought teammates would cheat frequently if they could get away with it.

Ninety per cent of the 1,002 eight- to 16-year-olds said their teammates felt pressure to win while playing sport.

More than a third said they felt no remorse at winning by cheating.

The survey for the MCC and the Cricket Foundation charity found as many as one in 20 of those questioned said they were proud to have arrived at victory dishonestly.

Yet about half said they would have felt angry or frustrated if they lost a game because of cheating by the other team. And one in five insisted that their teammates had never cheated.

'Fouling and diving'

The majority of children said they felt the pressure to win came from other children and their teammates, while a smaller number said the pressure came from parents and teachers.

Examples of cheating cited by the respondents to the survey included tripping up or fouling people, diving and or hitting other players with hockey sticks. Other tricks used to win included not running the right number of laps in cross-country races.

Wasim Khan, chief executive of the Cricket Foundation, said: "It is a real concern to us that so many youngsters struggle in this 'pressure cooker' to win at all costs. We teach children the importance of playing sport competitively and fairly whilst also respecting the rules and the opposition."

The chief executive of the MCC, Derek Brewer, said: "This survey highlights the pressures children feel under when playing sport. With this backdrop it is vital that children are taught the importance of playing sport in the correct spirit."

The children were questioned by Opinion Matters in February and March.

The results come several weeks after the education secretary for England announced plans to increase the amount of competitive sport played in school, and at an earlier age.

The Cricket Foundation runs the Chance to Shine initiative, which aims to encourage the playing of competitive cricket in state schools.

Source: "Pressure to win 'turns children into sports cheats' - BBC News - BBC.com." <https://www.bbc.com/news/education-22126301>. Accessed 24 Jul. 2018.

Source 2: Online data (excerpt from news discussion)

"...Yet the four athletes who were caught this year are a reminder that the pressure to cheat is still there. And it's growing more intense as technology advances and the stakes get higher in international competitions. "Doping appears remarkably widespread among elite athletes, and remains largely unchecked despite current biological testing," the authors of a 2017 World Anti-Doping Agency (WADA) study write."

Source: "Doping in sports: why "biological passports" could end it - Vox." 5 Mar. 2018, <https://www.vox.com/science-and-health/2018/3/3/17062670/doping-cheating-sports-olympics-wada>. Accessed 24 Jul. 2018

Secondary data example – web page (Motor learning)

Scoring Serve Receive Passing

The common practice among volleyball coaches is to score passing on a 0 to 3 scale. This is primarily for serve reception, but one could also rate free ball passing and even digging in the same way. The scale looks like this:

- 3 – Perfect or near perfect pass giving the setter all setting options
- 2 – Good pass, but the setter has primarily just two options (forward or back)
- 1 – Poor pass allowing the setter only one option, or forcing a non-setter to set.
- 0 – Ace or over-pass

Generally speaking, teams want to aim for an average score of 2.0 or better. Squads who are able to do that will usually run an effective offense.

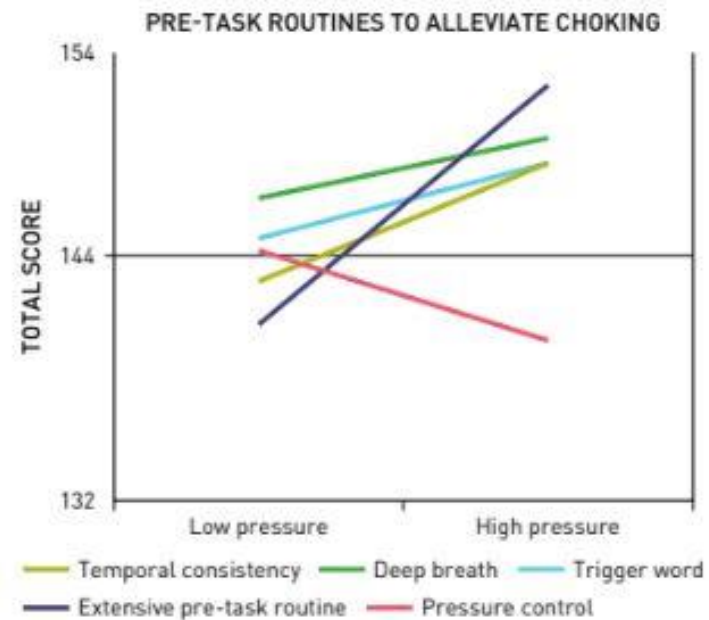
On an individual basis, the best passers will come in around the 2.3-2.4 level on average. Obviously, you probably won't see that kind of average for lower level players.

I have seen some coaches use modifications on this system. For example, 1 could be an over-pass, shifting the rest of the scale up such that a perfect pass is a 4 rather than a 3. This might be suitable for lower level teams where an over-pass doesn't translate into points for the opposition as frequently as it does at upper levels. In any case, feel free to adapt the system to suit the needs of your team.

Source: "Volleyball Tip: Scoring Serving and Passing Effectiveness." 1 Jul. 2013, <https://coachingvb.com/scoring-serving-and-passing-effectiveness/>. Accessed 24 Jul. 2018.

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Secondary data example – text book (Sport psychology)



SOURCE 1 The Mesagno and Mullane-Grant experiment reveals the importance and effectiveness of pre-task routines.

(Source: Physical Education for Queensland

Units 1 & 2 (Second edition) Oxford University Press)

Journal (blank template)

Name:

Date:

Physical activity:

Topic:

Dependent variable:

Performance summary (Link to data collected if available):

Independent variables	Summary (Include a brief description that provides context and relevance of the information)
Lesson experiences	
Playing conditions (Weather, equipment etc)	
Position played	
Mood (arousal, motivation, confidence, concentration etc)	
Physical condition (health, fitness, injury status etc)	
Team dynamics	
Other relevant information	

Synthesise your journal reflections to explain any factors that may have had an impact on your performance.

Skill drill – integrated practical activity

SKILL DRILL 2.4

Assess the impact of rate limiters on performance

TITLE

The impact of rate limiters on performance

Aim

Assess the impact of rate limiters on your physical performance in an authentic environment.

That's a goal!
By the end of this skill drill you should be able to: <ul style="list-style-type: none">● implement specialised movement sequences and movement strategies to gather primary data about the outcomes, implications and limitations of decisions● analyse the influence of rate limiters on your performance in an authentic environment using primary data● devise a personal motor learning strategy to optimise your performance that considers rate limiters

Equipment

- Sport-specific equipment
- Copy of the criteria matrix (Source XX), available on your obook assess
- Pen

Method

Step 1: Identify 3 specialised movement sequences for your selected physical activity. Record these in the left hand column of Game Performance Assessment Instrument (GPAI) 1.

Step 2: Columns 2 -8 of GPAI 1 refer to 7 individual characteristics that can act as constraints for learning motor skills. A constraint can either

- a) cause an adjustment to your skill development/technique
- b) restrict your performance of the skill (i.e. act as a rate limiter)

Determine the impact of these individual characteristics on your ability to perform your specialised movement sequences. Your assessment will be based on whether the physical characteristic is:

- a constraint which impacts your technique/ skill development (+)
- a constraint which restricts your performance (rate limiter) (-)
- makes no difference to performing the skill (o).

Step 3: Write the 3 specialised movement sequences in the left hand column of GPAI 2.

Step 4: Participate in an authentic game environment for 20 minutes

Step 5: Analyse your performance of the three selected specialised movement sequences using GPAI 2. This will require you to determine whether your performance was *Excellent, Good, Ok or Poor* for each one. Tick the appropriate box based on your assessment.

GPAI 1: Individual Characteristics Analysis

Specialised Movement Sequences	Height	Power	Flexibility	Agility	Motor skill	Tactical knowledge	Confidence
1. Serve	+	0	0	0	+	-	+
2. Net kill	+	-	0	-	-	-	-
3. Transition to defensive (side-to-side) formation.	-	0	+	-	-	0	-

GPAl 2: Skill analysis

Specialised Movement Sequence	Skill analysis (after performance) (tick the relevant box)				
	Excellent (controlled and accurate)	Good (had a fair bit of control)	Ok (more good than bad)	Poor (needs a fair bit of improving)	N/A (Not enough data collected)
Serve	✓				
Net kill					✓
Transition to defensive (side-to-side) formation.			✓		

Analysis and discussion

- The data you have collected will provide you insight into the strengths and weaknesses of your performance which will then enable you to make decisions about strategies to optimise your performance.

a) Based on your skill analysis, identify which specialised movement sequence was (i) your strongest and (ii) your weakest.

My strongest specialised movement sequence was the serve. My weakest specialised movement sequence was my transition to defence; however, it could be argued that my net skill was my weakest skill.

b) Synthesise the data collected in GPAls 1 and 2 to briefly explain possible reasons for your strength and weakness.

My motor skills have enhanced my learning of the badminton serve this term. I spent a lot of time playing table tennis when I was younger and am used to playing a backhand style shot for serving. Being tall means I have a few more options with the angle of my racquet head and feel I have been able to disguise the type of serve I am playing as a result. I am confident and this helps me win. There have been no other physical limitations to me perfecting the performance of the serve. However, I do have poor agility and my technique for transitioning could be improved, so I find it difficult to transition back to a neutral position between shots. Due to my height, I sometimes feel unbalanced as I move and feel out of position. Because of this, I

think my shot selection was limited and my movement strategy was impacted. My GPAI indicates that my defensive transition was my weakest skill when performing this specialised movement sequence, but I feel like my net skills were also a big weakness. Because of my aforementioned inability to get into position for attack, I was never able to set up an opportunity to execute a net kill.

2. Data collection comes with varying degrees of validity and reliability (Refer to page XX to recap your understanding of validity and reliability). Ascertaining the extent to which you can rely on the data being accurate and valid will enable you to be more discerning about how you can use this information and the considerations and modifications you need to make to your recommendations as a result.
 - a) Evaluate the reliability of data you collected in this skill drill. Reliability refers to how likely the results would be the same if the skill drill was to be repeated on a different day.
 - i. If you were to repeat this skill drill tomorrow, how likely would it be to get the same results?
 - a) Very likely
 - b) Likely
 - c) Somewhat likely
 - d) Unlikely
 - ii. What factors could make a difference between the data you collected today and data from future skill analyses? Consider some of the following factors:
 - time to conduct the analysis
 - scope of the criteria in measuring skill success
 - objectivity of the criteria
 - other

Many factors impacted the way I collected data today, including time. I had to make my judgements relatively quickly today. In future, if I have more time to conduct the analysis I believe that I would be able to produce a more efficient analysis of the three specialised movement sequences. I found the scope of the criteria to be sufficient for measuring my skill success, and think it would be unlikely to cause any difference in the reliability of the data in a future skill analysis. Judging the criteria was fairly subjective, but the sub-criterion (e.g. excellent being controlled and accurate) was detailed enough to make my judgements objective.

Furthermore, the fact that there was a fifth column allowed for greater objectivity. Often in PE, I find that we don't get an opportunity to demonstrate all the skills that we learn and practice. This might be because the position that you play on field is limiting, or because you are outmatched by your opponent, or the conditions that you are playing in. Whatever the case, having that fifth 'N/A' column on the GPAI enables a more detailed and accurate analysis.

In future, I think a reflective analysis would be helpful to form conclusions. I had to reflect back on my performance and remember what I did rather than being able to make a note of things as they happened. The fact that I had to play against the same opponent the whole time meant that my

data was negatively impacted. If I played the same player the next day, I would probably get similar results but if the player changed, my results would change.

iii. Make recommendations to increase the reliability of this experiment.

For data reliability, I should play the same opponent each time, in the same weather conditions.

b) Evaluate the validity of the data you collected in this skill drill. Validity of an analysis refers to how closely the results gained reflect the reality of the situation.

i. How closely do the results you collected in this skill drill, compare with the expected results. For example, do your results for your overall skill analysis match the expectations you have about your level of skill?

My results are different to the results that I expected. My opponent today as a very strong player, and because of that I feel like my net skills and transitioning into defence skills suffered. However, looking at the results I think that I performed better than expected. I believe that if I had played against a weaker opponent I may have been more successful in my transitioning and had more opportunity to perform net kills with success.

ii. If there was a deviation from this result, how would you explain this? Consider the following factors:

- Psychological: How you felt when performing.
- Social: Teacher / Peers / Spectators/ position on team
- Perceptual: environment conditions such as the playing surface, weather etc.

The biggest impact on my performance was my opponent, which had an immediate psychological impact on me right away. Playing against my opponent weakened my confidence and made me over-stimulated, over-thinking things too much. I think it was hard for me to be accurate in my data collection because I had to do it based on recollection after the game that I had lost.

iii. What measures could be put in place to increase the validity of this experiment? Consider methods, variables, measurement techniques and sample size.

I believe that the method of the experiment could be altered to increase the time of the game analysis. Instead of collecting the data post-game based on memory, having someone else take down the statistics of winning/ losing shots in the game or videoing the performance to analyse later would help make my analysis more accurate. To further increase validity, I would repeat the performance analysis several times and collate the results. This would also leave room to vary the opponents played in that time; meaning that the data collected would more accurately reflect my performance standard rather than be a comparison between my skills and my opponent's outstanding skills.

3. Rate limiters impact your learning potential of your specialised movement sequence. A consideration of how rate limiters have impacted your performance can help you to tailor a strategy to suit your personalised needs in your selected physical activity.

a) Describe how one rate limiter has negatively impacted your performance of any of the three selected specialised movement sequences?

I believe that my height was a rate limiter. When transitioning around the court, I felt unbalanced and was not able to manoeuvre quickly into the correct position after performing a shot.

b) What strategy could you implement in an authentic environment to overcome this 'rate limiter'? For example if height was a rate limiter for executing an effective spike in volleyball, you could (i) set the ball across the net, deep into the court instead of spiking, (ii) develop your digging skills to be a libero or (iii) have the ball set to you such that you could hit a spike away from the net and add a topspin to hit with some pace and land the ball inside the court.

To improve my balance and stability, I could try to widen my base of support and lower my centre of gravity when I move. I have done some further reading, and found that www.badminton-information.com suggests that, in the ready position a player should keep their knees slightly bent and shoulder width apart and staggered slightly one in front of the other. When I move to hit a shot, I could try to take less small steps and instead take a lunge step when retrieving low drop shots to keep me more balanced. This means that I will need to work on my leg strength to allow me to use this movement strategy effectively.

c) Select one of the other specialised movement sequences from GPA1 1 and consider which individual characteristics act as rate limiters to your performance. Develop one simple strategy to perform this skill with more success in an authentic environment (*Hint: identifying when to use the skill might be more strategic or working to your strengths when making strategic decisions*).

Tactical knowledge is limiting my performance of the serve. There are two ways that I think I can effectively reduce the impact of this rate limiter:

1) I can start journaling the various serve strategies I uncover during my learning of this sport and begin trialling these in practice situations.

I will record the success I have with each tactic, gathering a set of 'best options' depending on the situation.

2) I will aim to improve my use of the transition time between the end of one point and the beginning of the next, ensuring I purposefully evaluate the match situation and use that to inform tactical selections.

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 - a) Based on your skill analysis, identify which specialised movement sequence was (i) your strongest and (ii) your weakest.
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