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**Involving students in the assessment of game performance in physical education.**

Paper presented at the Flinders University 'Play to Educate' Sport in Education Conference, January 21<sup>st</sup> 2008.

**Abstract**

The assessment of games and sport in physical education has often not been authentic, as it has focussed on the technical product aspect of student performance through the use of standardised skill tests. This paper will discuss valid and reliable assessment of student performance in the teaching of games and sport in physical education. Valid and reliable game performance assessment tools for use in physical education settings have been developed from the analysis of game playing that was stimulated by the Teaching Games for Understanding (TGfU) (Bunker & Thorpe, 1982; Thorpe, Bunker & Almond, 1986) teaching approach.

**Introduction**

The increasing focus on teacher accountability in education is progressively challenging educators to substantiate claims of student learning and program effectiveness. In the past, physical education may have been able to get by with claims of learning achievement and program effectiveness based on the futures focused and largely subjective assertion that quality of life and health will be enhanced by what is learnt. Unfortunately, "PE has traditionally been a relatively 'data – poor' environment" because of "an absence of effective strategies to capture what learning has taken place" (Doherty & Brenna, 2008 p193) and student 'quality of life' and 'health' outcomes have occurred by being largely 'caught not taught'. It is as important for physical educators as it is all teachers to do more than assume achievement of curriculum objectives based upon anecdotal evidence gathered through informal observation. Assumptions should be authenticated with authentic evidence of student learning collected through systematic assessment tools which are both valid and reliable.

A consideration of valid and reliable physical education game assessment is relevant given an increasing focus on teacher accountability and the

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introduction of regulations accompanying the funding legislation for State and Territory education systems (Schools Assistance Act, DEST, 2005). This legislation requires compliance with the provision of common elements in student achievement reports to all parents. This includes student subject reports that contain grading referenced against achievement levels or bands clearly aligned with specific learning standards (DEST 2005).

A concern with the requirement to report relative to the achievement of specified learning standards is the potential for an over emphasis on assessment for the allocation of grades, while the learning functions of assessment are “under-emphasised” (Black and William, 1998, p.6). This concern may be addressed through the use of meaningful, valid and reliable assessment processes.

**Assessment**

Before a consideration of assessment specific to games teaching in physical education occurs a synopsis of assessment will be provided as a context for game and sport assessment in physical education . Conventional approaches to assessment traditionally are not ongoing and follow a linear ‘plan - teach – assess’ pathway. Assessment commonly occurs at the end of a unit of work and provides a summation of the learning that has occurred (Brooks, 2007). This form of assessment is often used to verify the degree to which students have learnt the subject content. It performs a sorting function for the purpose of ranking students for grading. This assessment of learning has been the dominant form of assessment in schools (Earl, 2003). Skill tests and game observation rubrics implemented at the end of a physical education unit of work are a typical example of assessment of learning.

In contrast to traditional assessment of learning, assessment for learning is focussed on the formative description of learning through the provision of continual feedback to students about their learning. Where the assessment process also provides students with the opportunity to self assess through the collection of data which they interpret and synthesis to further enhance their learning processes, assessment is learning (Earl, 2003). When the process of

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assessment provides assessment of learning, for learning and is learning through the meaningful application of knowledge and skills it is authentic.

Authentic assessment provides students with the opportunity to engage more fully with assessment tasks as the assessment is embedded and carried out continuously to both inform and progress the process of learning. A productive alliance of teaching, learning and assessment is then created as the assessment communicates expectations, facilitates the collection of information and assists in the regulation of student learning (Grehaigne & Godbout, 1998). The assessment is meaningful as the process of collecting and interpreting evidence is used by students and teachers to determine where students are at in their learning, where they need to go and how best to get there (Black & Wiliam, 1999). This process of assessment links the concepts to be taught with the assessment variables (Harvey, 2007). Assessment is valid as it is designed to assess what it is meant to assess (Brady & Kennedy, 2003) and reliable because the assessment assists the causes of the desired learning process (Brown & Hopper, 2006). Authentic assessment, therefore, involves the ongoing process of recording, monitoring and reflection to assist learning and to monitor learning. In addition to being an ongoing process, authentic assessment presents tasks that are worthwhile, significant and meaningful (Archibald & Newman, 1988).

**Physical Education Game Assessment**

Games and sport form a substantial component of most middle school and secondary physical education program content. The capacity for games and sport in physical to be authentic contexts for learning has been questioned by progressive physical education pedagogists (Bunker & Thorpe, 1982; Siedentop, 1994). Authentic assessment of students in games and sport is an essential but challenging task for physical education teachers. Traditionally, physical educators have relied upon standardised rating instruments or standardised tests, which evaluate motor skill execution, for the collection of evidence of the level of student performance.

“As PE teachers, too often we attempt to measure psychomotor competence in games units through skill tests, and we create contexts

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that mitigate against student success no matter how much effort they exert. These 'non-athletic' and 'unsuccessful' students inevitably become discouraged as they accept lower grades and try to 'protect' themselves from further failure by avoiding physical activity" (Brown & Hopper, 2006, p13).

Assessment of games and sport in physical education has often not been authentic as it has focussed on the technical product of student performance through the use of standardised skill tests (Grehaighe, Richard & Griffin, 2005) to measure motor skill development and performance (Oslin, 2005; Brown & Hopper, 2006) while neglecting other elements of game learning. The problematised nature of standardised tests and ratings instruments is described in the above quote. This type of assessment process provides little in the way of assessment for and as learning. Largely decontextualised, the assessment typically does not take into account the totality of game play by failing to consider tactical products and processes which form part of the total composition of game performance.

The nature of games and sport is such that participants are engaged in a constantly changing environment, continually requiring planning and effective problem solving. Standardised skill rating and testing instruments ignore the dynamic, chaotic and changing situations associated with game play (Richard & Griffin, 2003). "Skill tests may be appropriate for assessing beginning skills ... but are not appropriate for assessing game play ability" (Buck, Lund, Harrison & Blackmore Cook, 2007 p265). Physical education game assessment should therefore, appropriately take account of both the technical and tactical aspects of game play during game play in order to provide valid and reliable authentic game and sport assessment.

"If game performance is the central outcome then teacher's must be able to effectively assess game performance" (Griffin, Mitchell & Oslin, 1997). Contact, or possession, which supply the opportunity for motor skill assessment accounts for around only 10% of game time. Most game time is spent in movement 'off the ball' (Mitchell & Oslin, 1999).

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Authentic game assessment therefore needs to measure all aspects of game performance (Grehaighe, Richard & Griffin, 2005). It is therefore appropriate to give consideration to assessment instruments that collect evidence during game play of both possession and 'off the ball' play.

**Game Play Assessment Instruments**

Two assessment instruments have arisen from the TGfU (Bunker & Thorpe, 1982) conceptualisation of physical education games teaching. These instruments are the Game Performance Assessment Instrument (GPAI) (Griffin, Mitchel & Oslin; 1997) and the Team Sport Assessment Procedure (TSAP) (Grehaighe, Richard & Griffin; 2005). Both instruments have been developed for the contextually relevant collection of data for the assessment of student game performance. Game rubrics, such as GPAI and TSAP, are posited as a means of simultaneously assessing a number of game components. They contain the advantage of having the game performance criteria transparently available to students and the association of the concepts to be taught with the assessment variables (Harvey, 2007), providing benefits to both player and assessor (Brown & Hopper, 2006).

The GPAI (Figure 1) is constructed through seven identifiable game components for measurement and codification. The identified game components encompass both 'on the ball' and off the ball' game performance (see Figure 1). Physical education teachers select the components to be observed according to the type of game, the context of the game and the desired learning focus. As both effectiveness of skill execution, skill and tactical decision making and support movements are measured and codified the GPAI theoretically both rewards and illuminates the totality of game performance, not just who is the most skilled player (Griffin, Mitchel & Oslin; 1997).

<b>GAME PERFORMANCE ASSESSMENT INSTRUMENT</b>					
Evaluator	Class	Teacher			
Game					
Observation Dates a) _____ b) _____ c) _____ d) _____					
<u>Game Components</u>					
1. Decision Making: Making appropriate decisions about what to do with the implement during a game. (Read)					
2. Skill Execution: Efficient execution of the selected skills (React)					
3. Support: Provides Appropriate support for a team mate with the implement by being in or moving to a position to receive a pass or create space for forward movement of the on the ball player. (Respond and Recover)					
<b><u>Directions:</u></b>					
Using the Key: A = appropriate IA = inappropriate E = efficient IE = inefficient					
A. Codify your observation players game involvement					
B. Calculate Game Involvement Score (GI)					
<b>Game involvement</b> = number of appropriate + number of inappropriate decisions + number of efficient skill executions + number of inefficient skill executions + number of appropriate supporting movement (note: inappropriate supporting movements aren't counted as by nature they would not be a factor in game involvement).					
<b>C. Calculate Game performance (GP) = [DMI + SEI + SI] ÷ 3</b>					
<b>Decision-making index (DMI)</b> = number of appropriate decisions made ÷ total number of decisions made.					
<b>Skill execution index (SEI)</b> = number of efficient skill executions ÷ total number of skill executions.					
<b>Support index (SI)</b> = number of appropriate supporting movements ÷ total number supporting movements					
.....					
Player	Skill Execution	Decision Making	Support	Game Involvement	Game Performance

**Figure 1.** The Game Performance Assessment Instrument

Modified from

<http://uwadmnweb.uwyo.edu/WYhpenet/MarkAssessment/AssessingGameTeaching.doc>

(Mitchell & Oslin, 1999)

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BASE	Appropriate return of a performer to a "base" position between skill attempts.
DECISION MAKING SKILL EXECUTION	Making appropriate decisions about what to do with the implement during a game.
SUPPORT	Efficient execution of the selected skills.
GUARD/ MARK COVER	Provides appropriate support for a team mate with the implement by being in position to receive a pass.
ADJUST	Appropriate guarding/marketing of an opponent who may or may not have the implement.
	Provides appropriate defensive cover, help, or back-up for a player making a challenge for the implement.
	Movement of performer, either offensively or defensively, as necessitated by the game.

**Figure 2.** Game components forming the GPAI instrument (Mitchell & Oslin, 1999)

The TSAP (Figure 4) was developed for summative and formative assessment of game play through the direct involvement of students in the collection of assessment evidence as part of the learning process. It is based on two features of game performance; 1. How a player gains possession and, 2. How a player disposes possession. Specific behaviours (see Figure 3) related to these two features are observed and codified. Unlike the GPAI which attempts to cover the totality of game behaviour the TSAP focuses on offensive motor skill and tactical game behaviour. Learning to observe and focus attention on specific game behaviours is required for the successful use of both the GPAI and the TSAP (Grehaigine & Godbout, 1998). The process of learning to observe and focus attention should continue one game variable at a time with an observer focus on a single player. Once familiarity with the game variables is achieved the observers may be able to reliably focus attention on multiple variables for one student, or a single variable for multiple students. Testing of the TSAP suggests that students in Years 5-8 are capable of using the tool with precision and reliability (Richard, Godbout & Grehaigine; 2000).

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Observation Items	Information Collected
Received balls (RB)	Involvement of the player in the team's play (availability, accessibility to receive a pass)
Conquered balls (CB)	Information related to the player's defensive capacities
Offensive balls (OB)	Player's capacity to make significant passes to his or her partners (offensive capacities)
Successful shots (SS)	Information related to the player's offensive capacities
Volume of play (PB = RB + CB)	General involvement of the player in the game
Lost balls (LB)	A small number reflects a good adaptation to the game

**Figure 3.** TSAP game behaviours for observation and codification (Grehaigine, Richard & Griffin; 2005 p.90).

**Team Sport Assessment Procedure for Invasion Games**

Name \_\_\_\_\_  
Class \_\_\_\_\_

Observer \_\_\_\_\_  
Date \_\_\_\_\_

Directions: Observe student's game play and place a tally mark in the appropriate box.

Gaining possession of the ball

Played Balls (PB)  
Conquered Ball (CB)    Received Ball (RB)

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Disposing of the ball

Lost Ball (LB)	Neutral Ball (NB)	Pass (P)	Successful Shot (SS)

**Figure 4.** The Team Sport Assessment Procedure (Grehaigine, Richard & Griffin; 2005 p91).

It is postulated that both assessment instruments help physical education teachers organise a planning cycle within and across lessons that links tactical problems, situated game play, student and teacher reflection and, assessment (Grehaigine, Richard & Griffin; 2005 p.90). Both instruments are designed to be used by students as well as teachers for authentic game performance assessment. The potential to create a physical education learning environment promoting student self construction of knowledge and understanding through the systematic observation of game play behaviour has been suggested (Richard & Wallian, 2005). Such a construction of a physical education learning environment, where students are purposefully

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positioned as self and co creators of knowledge and understanding, relates strongly with current constructivist views of teaching and learning (Richard & Wallian, 2005).

Both the GPAI and the TSAP satisfy the criteria previously discussed for valid and reliable authentic game play assessment. The tools provide for continuous assessment of, for and the assessment is learning when used in a contextual setting, such as self or peer analysis of game play. The process of assessment parallels that of the 'real world' application of player performance evaluation in sport. Data can be collected by students and teachers for interpretation and use by students and teachers to determine where students are in their learning, where they need to go and how best to get there. The GPAI and TSAP can be considered authentic physical education assessment procedures as the collection of data can be part of the teaching instructional process, as opposed to traditional assessment which is 'apart' from it (Rink, 2006). The data collected through the GPAI or TSAP can contribute to the discovery of whether the students knows, understands or can do a pre-determined game behaviour as well as to what the students knows, understands or can do to continue the process of learning.

Using the GPAI and TSAP procedures for physical education assessment can focus physical educators and student's attention to the totality of game behaviours required for successful game performance. It directs attention to the 'off the ball' movements requiring students to read and respond to the context of play as well as the execution of skill and movement to recover and reposition for continued game involvement (Hopper, 2003). It provides physical educators the opportunity to develop player understanding of the key moments in games that provide a tactical advantage, the nature of the advantage provided as well as the way game variables can be manipulated to provide key moments of advantage (Bell, 2003). In this fashion, the use of authentic assessment of game play as an embedded aspect of the teaching – learning process potentially provides for a richer tapestry of game education than the limited nature of the assessment of the moment of skill execution.

## **Conclusion**

This paper has discussed game play assessment in physical education as authentic assessment. Authentic game and sport play physical education assessment in physical education has been presented as the process of collecting data, interpreting data, and using data to create knowledge and further develop learning. Procedures, such as the TSAP and GPAI, when embedded in the teaching-learning process, do more than provide evidence for summative assessment. The procedures provide for both valid and reliable assessment that continuously inform teaching and learning. The GPAI and TSAP are examples of authentic physical education game assessment as they facilitate learning as well as provide for the collection of evidence of learning having occurred.

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