Game Sense as a model for delivering quality teaching in physical education

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As a well developed indicator of high quality teaching in any subject area we use the NSW QTF in this article to identify what might constitute quality teaching in physical education and to suggest the extent to which Game Sense pedagogy can be seen to meet the expectations of the NSW QTF. We identify and discuss the pedagogical features of Game Sense that our examination suggests can provide quality teaching and learning to make suggestions about how this could inform the provision of high quality teaching across the practical curriculum.

# **Introduction**

In a climate of increasing accountability expectations that teachers understand and demonstrate high quality teaching in Australia are reflected across a range of government initiatives. At a state level these include the New South Wales (NSW) Quality Teaching Framework (QTF), the Victorian ‘Professional Learning in Effective Schools’ guiding principles and the South Australian ‘Teaching for Effective Learning’ (TfEL). These are also evident at a national level in the ‘Improving Teacher Quality National Partnership as a key strand of the cross-sector ‘Smarter Schools National Partnerships’. Although we recognize that the notion of ‘quality’ in education is highly contentious (Apple, 2002; Ball, 2006) most physical education teachers are likely to find it difficult to meet the expectations of quality teaching that feature across these state and national education policies in Australia. This is a particular challenge in the teaching of the practical areas of the curriculum where the ‘sport skills’ (Kirk, 2010) and ‘skill drills’ approach can present a barrier for the implementation of innovative teaching approaches to teaching such as Sport Education (SEPEP in Australia), Game Sense and Teaching Games for Understanding (TGfU).

 Similar challenges are faced by physical education teachers in other countries in meeting the expectations of quality teaching articulated in national policy (see for example, McNeill, Fry, Wright, Tan, Tan, & Schempp, 2004, Suzuki, in press). For example, in Singapore the Game Concept Approach (GCA) was mandated by the Ministry of Education to meet the expectations of the ‘Thinking schools, Learning Nation’ policy (see for example, Fry, Tan, McNeill, & Wright, 2010; Wright,McNeill,& Fry, 2009) . In Japan the shift of the new national physical education curriculum toward student-centred teaching (particularly in the games curriculum) presents a challenge or most teachers who are accustomed to a directive, teacher-centred approach (Suzuki, 2014). The Australian Government Quality Teacher Programme (AGQTP) also exerts some pressure on physical education teachers to demonstrate valuable academic learning with any inability to respond with suitably high quality teaching widening the gap between physical education and the ‘academic’ curriculum. As Australia moves towards a national curriculum there is a need for high quality pedagogy that highlights the possibilities for learning through movement in physical education.

 As a well-developed indicator of high quality teaching in any subject area we use the NSW QTF to identify what constitutes quality teaching and to suggest the extent to which Game Sense pedagogy can be seen to offer quality teaching *through movement* and not *instead* of it (also see, Pearson, Webb & McKeen, 2006). We identify the pedagogical features and characteristics of Game Sense pedagogy, and similar game-based approaches (GBA). These include TGfU (Bunker & Thorpe, 1982), the Games Concept Approach (McNeill, et al., 2004) and the Tactical Games approach (Griffin, Mitchell & Oslin, 1997) to suggest that these might form models for developing quality pedagogy in physical education beyond the teaching of games.

## Quality Teaching and the NSW QTF

The QTF (2003a) provides a framework for the development of high quality learning across the school curriculum and has had a significant impact upon teaching and learning in New South Wales (NSW) public schools. The NSW Department of Education and Training argues that recent developments in educational research have shed light on what constitutes quality teaching and has established a new model for pedagogy in NSW schools based upon the idea of providing quality teaching (NSW DET, 2003b). The NSW QTF model of quality pedagogy focuses on the teaching practices that research indicates can make the most difference when it comes to improving student learning outcomes. It has an emphasis on providing 1) intellectual quality, 2) a quality learning environment and 3) making the significance of learning explicit to students, to provide a valuable framework within which teachers can strive to deliver quality teaching (NSW DET, 2003c).

 In 2003 the NSW Department of Education and Training released the ‘Quality teaching in NSW public schools’ document. This was developed as a long-term strategic plan to support and focus on teaching and learning in NSW public schools and designed for implementation across all key learning area (KLAs) from Kindergarten to Year 12. Quality teaching and learning is the result of a long history of research that has tried to identify teaching practices that improve student learning. Until recently there had been little consensus about what quality pedagogy is because of the difficulty in isolating the independent effects of a specific teaching technique on student learning.

 Building on research such as that conducted by Newman and Associates (1996) in the USA and the ‘productive pedagogies’ work in Queensland (Queensland School Reform Longitudinal Study, 2001) the NSW model identifies three key dimensions of quality pedagogy as being that which:

 (1) Is fundamentally based on promoting high levels of *intellectual quality*

 (2) Is soundly based on promoting a *quality learning environment*

 (3) Develops and makes explicit to students the *significance*of their work.

To integrate *intellectual quality* into any PDHPE (Personal Development, Health and Physical Education) or HPE (Health and Physical Education) program, we suggest there is a need to identify what the central concepts and ideas are that we want students to learn and the relationships or connections between each of these concepts. Providing a *quality learning environment* focuses on the need to make students aware of expectations for learning, and to ensure that they are challenging enough to extend and engage students yet are achievable. This involves students having the opportunity to exercise control over what and how they learn. The quality, learning environmentneeds to have an emphasis on clarity of what is to be learned by students, high expectations of achievement and social support. Students demonstrate this through engagement in learning, self-regulation and self-direction.

 The dimension of *significance* is important for physical education because students need to clearly see the relevance of what and how they learn that in the gym or on the field for living in their *real world*. This is not limited to seeing how particular skills or tactical knowledge learnt in physical education classes can improve performance in sport outside school. Significance needs to go beyond this to demonstrate how broader and deeper learning developed in physical education classes is applicable in their lives outside sport and recreation. Understanding *how* they learn in physical education can also be of significance for learning how to learn in the ‘real world’ outside school and sport.

 The focus of the QTF on intellectual quality does not present a problem for teaching in health, personal development or in the senior physical education syllabi that are removed from actual movement experiences because this can follow well-established approaches to teaching in other subject areas. However, demonstrably providing *intellectual quality*, a *quality, learning environment* and making explicit to students the *significance*of their work, provides a significant challenge for most physical education teachers working with the year 7-10 syllabi and the few specialist physical education teachers operating in primary schools.

 Although we focus on the NSW QTF, similar ideas underpin other state level documents in Australia such the Victorian Department of Education and Training’s Professional Learning in Effective Schools’. This document contends that effective teachers draw on and work with students’ pre-existing understandings, create learning conditions for ‘in-depth’ studies of subject matter and promote ‘thinking about thinking’ (metacognitive skills), reflecting the influence of constructivist learning theory on it. It also has expectations of teachers, “being aware of, and having control over the thinking processes involved in learning” (Department of Education and training, Victoria, 2005, p. 5). Informed by the NSW QTF and the Queensland ‘productive pedagogy’ work, the South Australian TfEL framework, also reflects an interest in shaping pedagogy for quality learning. Specifically, domains two, three and four focus on context with an aim of having teachers, ‘create safe conditions for rigorous learning’, ‘develop expert learners’ and personalize and connect learning’ (Department of Education and Children’s Services, South Australia, 2010). A common theme across all state documents in Australia is concern with intellectual quality, setting up a learning environment and making links between the curriculum and students’ lives.

## Game Sense

In 1982 Bunker and Thorpe published an outline of their ideas for addressing a problem they observed with students developing good skills yet not being good games players. They proposed that learning to play games should be located within games modified to suit the learners’ abilities and the teacher’s aims with an emphasis on understanding not only how to do skills but also when, where and why. Thirty years on, their Teaching Games for Understanding (TGfU) has developed a global following and produced a range of versions of it that, despite distinct differences, follow the same basic approach. A version of TGfU was developed in the USA as the Tactical Games approach (see for example, Griffin, Mitchell & Oslin, 1997) that, in turn, influenced the more structured approach of the Games Concept Approach (GCA) in Singapore (see for example, McNeill,et al., 2004). The ideas that informed TGfU were evident in Europe in the work of scholars such as Mahlo (1974) and have informed European versions of TGfU and most noticeably the French, Tactical Decision Learning Model (Gréhaigne, Richard & Griffin, 2005).

 Game Sense is a variation of TGfU developed for coaching through collaboration between Rod Thorpe, the Australian Sports Commission (ASC) and Australian coaches during the 1990s (Light, 2004). It focuses on the game and not on the discrete skills or techniques that traditional approaches see as needing to be mastered before playing the game. While we focus on Game Sense in this article our ideas and the features of it that we identify and discuss are equally relevant for and applicable to other GBA (game based approaches) such as TGfU, GCA, Tactical Games, TDLM and other variations as well as to similar approaches that have developed in parallel with TGfU such as Play Practice (Launder, 2001).

 Game Sense teaching aims to locate learning within modified games to give it meaning and relevance to the full game or sport and to develop skill at the same time as understanding (Light, 2012). This involves beginning by reducing the technical demands placed upon the students so that they can grapple with its tactical dimensions with skill seen to develop in context as game complexity is progressively increased. GBA have been shown to improve tactical awareness in learners when compared to directive, technique-focused teaching with a recent study by Vande Broek, Boen, Claessens and Feys and Ceux (2011) suggesting this was critically facilitated by the use of questioning (also see, Díaz-Cueto, Hernández-Álvarez and Castejón, 2010). Li and Cruz (2008) also reported that positive responses to TGfU by pre-service teachers’ who believed that it contributed to cognitive development and made learning fun.

 Originating in the work of Vygotsky (1978) as later developed by Bruner (see for example, 1996), social constructivism highlights the fundamental role that social interaction plays in learning linked to the notion of distributed thinking and the idea that we learn more through interaction with others than we can on our own. In Game Sense, the range of skills and understanding that can be developed from verbal and non-verbal interaction between the teacher and students or between peers exceeds that which can be attained alone. The use of language and reflection upon experience is the main aspect of learning in Game Sense that has encouraged researchers to argue that it, and similar approaches offer opportunities to intellectualize games teaching in physical education (see for example, Light & Fawns, 2003, Howarth 2000).

 Dewey (1916/97) argues that learning occurs through experience in two ways: through the initial experience and again through the experience of immediate reflection upon that experience. The Game Sense teacher engages students in dialogue and structures opportunities for dialogue between students. This collective reflection and problem solving can take place as a class but more typically occurs during the ‘team talks’ involved in playing small-sided games that is sometimes referred to as the debate of ideas (see for example, Gréhaigne, Richard & Griffin, 2005). During game activities students regularly stop and reflect through group discussions that contribute toward the development of understanding to scaffold knowledge and develop skills as the complexity of the games is increased (Light & Georgakis, 2005).

 There are times in Game Sense when direct teaching of skills is appropriate but generally, skills are developed within the framework of the rules and manipulation of time and space in games (Light, 2013). Tactics and strategies need to be learnt in unison with technique developed in context (Kirk & MacPhail, 2002). Games Sense teaching is a student-centered, inquiry-based approach where the teacher acts as a facilitator of learning rather than a director of it. He/she often needs to be creative and capable of lateral thinking in constructing learning experiences, which can be a significant challenge for teachers accustomed to highly structured direct teaching (see for example, Roberts, 2011; Harvey, Cushion and Massa-Gonzalez 2010; Wright, McNeill & Fry 2009). Within this approach good questioning guides learning by engaging students intellectually in the game (McNeill,Fry, Wright, Tan & Rossi, 2008). Like TGfU, Game Sense emphasizes the importance of affiliation (social interaction, making friends), achievement (doing something well or noticing improvement), and self-direction (opportunities making choices) through playing games (Werner, Thorpe & Bunker, 1996). Fry and McNeill (2011) identified increased excitement and engagement for learners taught using GCA when compared to traditional directive, technical approach. It has also been shown to increase motivation due to a sense of self direction and achievement in meeting the challenges presented by the teacher and the affiliation involved (McNeill, Fry & Hairil, 2011).

 The focus of Game Sense on the intellectual aspects of games and sport includes a significant emphasis on higher order thinking associated with tactical and strategic thinking and problem solving (individually and collaboratively). In Game Sense learning occurs through engaging with the (physical) learning environment (Dewey, 1916/97) and the use of language in dialogue. Dialogue and interaction occurs between students and between teachers and students in discussion about and analysis of, play, identifying the problems arising from it, the formulation of solutions that are tested, and the evaluation of them (Light & Fawns, 2003).

### Providing quality teaching with Game Sense

In this section we suggest how Game Sense pedagogy can provide quality teaching and learning by outlining how it meets the core expectations of the NSW QTF. These are that quality teaching provides: *intellectual quality*, *a quality learning environment*and has*significance* for the learner.

***Intellectual Quality***

Intellectual quality is a feature of Game Sense and its focus on the intellectual aspects of game play distinguishes it from traditional directive, technique-focused approaches that ‘dumb down’ games play (Light & Fawns, 2003). Although outcomes based curricula in Australia set out clear expectations of learning that students are expected to gain from physical education there is no identification as to how this can, or should, be achieved. The emphasis that Game Sense places on higher order thinking aligns with the stress on intellectual quality in the Quality of Teaching Framework.

 Thinking and learning occurs during games in an embodied way that bypasses language as students take in cues, perceive what is happening around them and make a range of instant decisions (Light & Fawns, 2003). These are what Dewey (1936/86) calls the body’s ‘mindful actions’ in the form of intelligent movement in games. However, higher order thinking is rational and occurs through the use of language. This takes place in discussions between students seeking to solve tactical problems that arise in games and the class reflections upon action in the game that the teacher encourages with generative questioning during and at the conclusion of the lesson.

 When the class breaks from playing games to reflect and discuss, rational thinking is expressed and enabled through speech where the students are encouraged to develop strategies, linked to big ideas (Fosnot, 1996) and concepts. This, in turn, encourages the students to think about the body’s movement and its relationship to the dynamics of space and time through higher order thinking:

… TGfU lesson can be seen as a holistic learning process in which the movements of the body are the grammar of the game informed by the articulated reasoning between games. This allows us to see the continuity between the reasoned articulations of play and the students’ informed movement in games. In this way, speech, thought and action interact to construct individual and collective understandings in a more integrated, cohesive, and human class dialogue.

 (Light & Fawn 2003, p 167.)

*Deep knowledge* is provided in Game Sense as students learn the concepts and key ideas informing game play and apply this knowledge when playing. They not only develop knowledge of games that can be articulated but also enact knowledge as knowledge-in-action (Schön, 1983) within games. Forrest, Webb and Pearson (2006) suggest that deep knowledge is developed in and of games over the four stages of: 1) Elementary understandings of games within a game category, 2) elementary understandings of games across game categories, 3) Advanced understandings of games within game categories and, 4) Advanced understandings of games across game categories. Research confirms that tactical transferbetween games within the same classification can occur through the use of GBA (see for example, Memmert and Harvey 2010; Memmert, 2006; Harvey 2009) but the claim that learning across categories, with the exception of a small study suggesting the development of some understanding across game categories (Jarrett, 2011), is yet to be substantiated at advanced levels.

 The four game categories of invasion, striking, net wall and target emphasize the common tactical dimensions of games within a category. Recognizing and understanding the common tactical concerns games within categories share suggests that the development of deep knowledge is significant in the ways that it can be applied beyond the limits of just the one sport. For example, the long ball in soccer (football) is a tactic used when the attacking side has an advantage in the height and aggression of its forwards in competing to head the ball in the air. This is the same in Australian football when forwards compete to ‘mark’ a long high ball in front of goal. In both cases the time that the ball is in the air gives both sides time to contest it. Some similarities are also evident with the use of a high punt in rugby union or rugby league. There would, however, clearly be significant variation in the transfer between games or sports in the same category. For example the transfer between football (soccer) and field hockey would likely be far more significant than between Australian football and American football.

 Deep understanding is cultivated when students are encouraged to think when stimulated by teacher questioning and demonstrate their understanding in informed action within games (McNeill,Fry, Wright, Tan, & Rossi, 2008). The complexity of games play is addressed in Game Sense with students encouraged to explore multiple and sometimes conflicting interpretations and to link the range of specific problems encountered to larger concepts and big ideas. In Game Sense students explore and negotiate different strategies, discuss how effective they would be, test them in games, evaluate the results and build on this to scaffold on previous knowledge (Light, 2013). They analyze what has taken place in games and the ways in which they could improve in the game as an individual and as a team.

 Game Sense meets higher-order thinking expectations of the QTF when teachers provide opportunities for students to share, develop and demonstrate knowledge that encourages them to create new meaning and understanding, to solve problems and to learn how to solve problems. Meta-language incorporates showing how language and symbols can be used. In Game Sense, the teacher needs to be explicit about how symbols work and to encourage students to incorporate them into a game. This may be in the form of tactics or in the discussions when some aspect of the language is discussed. Substantive communication incorporates the question/response that takes place during ‘team talks’ but goes beyond this where sustained and reciprocal interaction occurs. This can take place in any form and students are encouraged to scaffold the conversation.

***Quality learning environment***

Quality learning environmentrefers to pedagogy that creates environments where students work productively and are clearly focused on learning. As Dewey (1916/97) suggests, children don’t learn through direct instruction but through engaging with the environment. The teacher’s most important task is, therefore, not to instruct but to structure and create a suitable learning environment. While there are typically situations in which direct instruction is helpful, or even necessary, we draw on Dewey to argue for emphasizing learning through the environment. This is a feature of the Game Sense approach in which the teacher creates both a particular physical (modified games), and social, learning environment. The students engage with the physical learning environment of modified games to explore, experiment, analyze, and solve the range of problems that arise in playing games as the primary pedagogical tool for learning in Game Sense teaching. Indeed, the design of the modified games is of prime importance for learning in Game Sense (Bunker & Thorpe, 2008). This typically involves designing a series of modified, small-sided games that progressively move from simple to more complex games culminating in the full game or modified version of it that the teacher expects the students to be able to play at the end of the unit. The games increase, not only in tactical complexity but also in the skills required to play them. The focus here is on students learning through engagement with the learning environment *facilitated* by the teacher who guides, shapes and enhances learning but does not determine it.

 The students can also decide the design of the games when they have adapted to this style of teaching (see for example, Hastie, 2010). The teacher (and/or students) modifies the games used to suit the needs and abilities of the students, their interests and the expected learning outcomes. This learning initially occurs as articulated knowledge where students can talk about what they should do in games or how tactical problems can be solved. However, as Light and Fawns (2003) argue, real learning is expressed as knowledge-in-action in the game.

In the QTF quality teaching encourages students to analyze the quality of work they are producing. In Game Sense this would include their participation in, interaction within the group/team and the standard of their performance, physically, mentally and socially. The criteria for quality performance they need to meet would be reinforced throughout the game. Engagement is ensuring that students are on task and are deeply involved almost all of the time in the game. This would include physical participation and intellectual and affective engagement involved in taking the games seriously. High expectations encourage students to take risks in the games and be recognized for doing so. The games thus need to be challenging yet provide opportunities for all students to achieve goals and taste success which would in turn motivate students to strive for greater success.

 In addition to structuring learning opportunities through the design of the physical environment the Game Sense teacher needs to build a socio-moral environment in which students are motivated to learn, encouraged to speak up and to test ideas and solutions without fear of failure (De Vries & Zan, 1996). This is very important because students are expected to come up with ideas and solutions for game tactical problems that they put into action in the game. With this approach there is no failure because when a plan or idea does not work the team or class reflects upon it, analyzes it and learns from it (Light, 2013). A supportive socio-moral environment is thus crucial to learning in Game Sense.

 Social support would involve supportive behaviours and comments from peers and teachers within a class culture built by the teacher over time. This would typically involve taking a positive approach that uses praise, encourages teamwork the opportunity to build collaborative understanding and knowledge. This needs to involve providing support for reluctant students and ensuring that all contributions are valued and acknowledged. This inclusive, social nature of learning in Game Sense and other GBA that have been shown to make a significant contribution to positive affective experiences and learning (see for example, McNeill, Fry, & Hairil, 2011).

 When the teacher designs the modified games to be used they typically encourage the inclusion of all players regardless of ability. Rules such as limiting dribbling in basketball to three bounds prevents individual players dominating through superior skill and confidence yet facilitates their learning. With this rule in place the player in possession is forced to look for other players to pass to then reposition him/herself to receive again. The use of team talks where players discuss tactics is also involves the less physically capable students.

 Building a culture of trust and support among students further contributes toward the development of a quality and supportive learning environment (see for example, Chen & Light, 2006). Students’ self-regulation is encouraged in Game Sense through the way in which it allows students to demonstrate autonomy and initiative in regulating their own behaviours (see for example, McNeill, Fry & Hairil, 2011). Student direction encourages students to determine many of the significant aspects of the lesson or game independently and can provide personal meaning for them.

***Significance.***

Games taught using a Game Sense approach give students opportunities to develop social skills and problem solving abilities that they can use in life situations. While students learn to be better game players there is also a wide range of social, affective and intellectual learning and development that arises from the process of learning in Game Sense. Game Sense involves a way of being in the world that involves relations with people, things and places in which, “students are not just speakers, writers and thinkers but also doers” (Light & Fawns, 2003). The NSW Department of Education and Training (2003b) defines two elements of quality teaching that are highly relevant to Game Sense. *Background Knowledge* refers to lessons that regularly and explicitly build from students’ existing, real life background knowledge in terms of prior school knowledge, as well as other aspects of their personal lives. *Connectedness* involves learning activities that rely on the application of school knowledge in real-life contexts or problems, and provides opportunities for students to share their work with audiences beyond the classroom and school. (p.15). Background Knowledge is backward looking and makes connections with previously existing experience or knowledge while connectedness is forward looking and makes connections with newly acquired knowledge or experience.

 Game Sense draws on students’ background knowledge of other games and asks them to draw on this knowledge (and experience) to solve problems and build upon it as games develop in complexity in the lesson or unit. This includes rules, skills, tactics and previously observed sport/game interactions, as well as personal significance with the peer group. Knowledge integration ensures we regularly make connections between topics and subjects and this is done in a number of ways in Game Sense. We question students about different strategies needed in games to improve their success that might include concepts from science and mathematics, such as speed, direction and velocity measurement. We also draw on other interaction and social skills that are developed in a number of key learning areas. There is also considerable significance for day-to-day life.

 In many ways games are like life with the tactics, methods of problem solving and relationships developed in Game Sense lessons applicable to social life outside school (Light & Fawns, 2003). For example, when students gather in groups to develop tactical solutions for developing a defense in a 5 Vs 3 small-sided game of touch (rugby) football they are leaning more than tactical understanding. They are also learning how to cooperate, how to draw on others’ ideas to arrive at collective solutions and how to best contribute toward a group goal. This is important and significant social learning. Not only is there pedagogy for identifying and solving tactical and technical problems but also for solving moral and interpersonal problems. When issues of right and wrong arise in games the same collective problem solving, facilitated by the teacher, can be used to discuss and deal with such problems.

 The expectation to be inclusive is met in Game Sense as students from all groups are included in all aspects of the lesson and their inclusion is both significant and equivalent. The reduction in the demands of technique, modified rules that prevent domination through superior power, speed or skill (such as a three-bounce dribble limit in basketball) and the emphasis on group collaboration all provide for inclusion and a supportive social environment. Connectedness is achieved when students recognize and explore connections between classroom/gym/playing field knowledge and situations outside the classroom in ways that highlight the significance of the knowledge for their lives. Game Sense achieves this as students apply skills and knowledge they have gained in the classroom, working within and using rules, teamwork, working in groups and social skills. Narrative is used throughout the lesson to enhance the significance of the substance of the lesson and particularly during ‘team talks’ where ideas are discussed, questions asked and answered and strategies are developed, tested and evaluated.

**Using Game Sense as a Pedagogical Model**

Game Sense pedagogy can be used to meet the expectations of the QTF by providing high quality learning in the teaching of games. This is very promising for teaching games but what about the rest of the practical curriculum? For example, what about teaching technique-intensive sports such as swimming or athletics or in outdoor education? Clearly, throwing a javelin, swimming freestyle or climbing a rock face is not a game but if we identify the core pedagogical features of Game Sense they can be applied to any area of teaching in which experience, the body and movement are central concerns such as in swimming (Light &Wallian, 2008) and athletics (Gaskin & Martin, 2004; Light, 2008). This has also been demonstrated in constructivist-informed teaching in physical education in dance (Chen, 2001) and primary school movement classes (Rovegno & Chen, 2000). Here we suggest three pedagogical features of Game Sense with relevance to the QTF that can be applied to other aspects of the physical education curriculum within which the body and movement are central concerns.

***1. Designing a learning environment.***

Game Sense pedagogy focuses on the game itself rather than on the idea of distinct components of it such as skills or techniques that are learnt out of the game. This view implies that the game and the people playing it are one entity and that learning to play involves a process of adaption to the game and its dynamics with tactical knowledge, skill execution and decision making all tied up together (Light, 2013). This places an emphasis on indirect teaching through the construction of an appropriate learning environment and contrasts sharply with the idea that games and sport can be learnt through mastering a predetermined number of ‘fundamental’ motor skills removed from the game. Game Sense, learning occurs within an authentic context that gives skills relevance and meaning, much like the ways in which context gives meaning to, or modifies, words that may be different to that ascribed to them in the dictionary. It also requires building a socio-cultural environment that supports and encourages students to interact, collaborate and experiment without fear of failure and which generates learning through social interaction. This is evident in Sport Education where the teacher constructs an environment that provides opportunities for learning and in which there is very little direct teacher instruction. It is also evident in outdoor education where the physical environment that the teacher chooses forms the central learning tool and within which a student-centred approach can enhance learning.

***2. Generate dialogue and reflection upon experience through questioning.***

Questioning is central to stimulating dialogue, reflection and the conscious processing of ideas about playing the game in Game Sense. Questions thus need to be open to generate dialogue that leads to the construction of new knowledge and understanding. From a constructivist perspective on learning, questions need to generate possibilities and a range of answers rather than lead to predetermined answers (Wright & Forrest, 2007). Questions should stimulate thinking and discussion instead of closed yes or no answers (McNeill,Fry, Wright, Tan, & Rossi, 2008). They should also stimulate further questions by the students/players to each other and to the teacher/coach. This involves shifting from directing learning to facilitating, guiding and sharing in it and presents the major problem for teachers and coaches taking up Game Sense and other GBA (see for example, McNeil, Fry, Wright, Tan & Rossi 2008; Harvey, Cushion and Massa-Gonzalez 2010; Roberts, 2011). Generating dialogue through questioning and the strategic formation of small groups can form a feature of Sport Education and be used in the range of activities covered in outdoor or adventure education and in leaner centred approaches to coaching swimming (Light & Wallian, 2008).

***3. Provide opportunities for formulating, testing and evaluating solutions.***

In Game Sense, the students play the modified game and are prompted to identify the problems that face them and given time to arrive at appropriate solutions as a group. This is facilitated by the teacher encouraging and providing opportunities for them to formulate a strategy or action plan through group dialogue that they test in the game. The teacher also provides opportunities for, and encourages them to critically evaluate their ideas and suggest modifications or identify why it didn’t work. This approach can be applied to activities other than team sport or games such as learning technique in athletics (Light, 2008) or swimming (Light & Wallian, 2008) or used in other activities such as outdoor education. It can also be seen to contribute to providing the quality (social) learning environment that the NSW QTF suggests is necessary for providing quality teaching.

 These three core features of Game Sense pedagogy align with teaching approaches informed by constructivist learning theory (see for example, Fosnot, 1996). They can be applied to teaching areas other than games in physical education such as in dance (Chen, 2001), athletics (Martin & Gaskin, 2004) and swimming (Light & Wallian, 2008) to help meet the expectations of the QTF as an indicator of teaching quality in physical education.

**Conclusion**

Our examination of the extent to which Game Sense meets expectations of quality in all three dimensions of quality teaching practices as defined by the NSW QTS suggests that it, and other GBA, could be adopted to provide quality teaching and learning in games. It also suggests to us that it could offer guidelines for providing quality pedagogy in other areas of the practical curriculum by informing a pedagogical model for providing high quality learning and teaching across the entire practical curriculum from year seven to ten. This could assist in realizing the relatively untapped potential that the practical content of physical education curricula holds for providing high quality learning of relevance well beyond merely learning to play games, throw a javelin or pass a netball with speed and accuracy to provide the significance of learning asked for in the NSW QTF. Given the difficulties involved in changing practice from directive, skill based approaches to Game Sense and other student-centred, inquiry-based pedagogy we are not making a simplistic claim that Game Sense can be the saviour of physical education. We are, however, arguing that it provides a positive direction to work toward and suggesting that the challenge might well be worth the effort.

 Game Sense pedagogy provides relevant and significant knowledge for students outside games and sport, beyond the physical education curriculum and outside schools. It provides a way of learning how to learn and a way of negotiating the challenges of social life that confront young people moving into a rapidly changing and challenging adult world. Game Sense generates an increase in expectations as to what it means to be physically educated to include learning how to learn and how to live in society, students learning about themselves and forming personal identity. Physical education teachers using the Game Sense approach will be able to meet the requirements of the NSW Quality Teaching Framework of high quality teaching. In doing so they will also be able to provide high quality learning experiences for students and make a start toward making physical education a truly valuable educational experience in schools in Australia, Asia and elsewhere.

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