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Editorial

It is with pleasure that we present the full papers of the 2015 Game Sense for Teaching and Coaching Conference. This is the third conference to publish proceedings and hereby add to the body of work that already exists.

The papers presented here make an important contribution to the fields of physical education, coaching and our understanding of learning through Game Sense. Authors come from a range of nationalities beyond New Zealand including Australia, USA, Singapore, Portugal, Japan and the U.K. The diversity of nationalities represented reflects the international interest in this area and also provides a range of different perspectives.

The papers are organised with Stephen Harvey's keynote at the beginning, followed by the authors in alphabetical order. The diversity of papers did not allow for clear sections, and as such, reflects a growing breadth and depth of research in this and related fields.

Coaches, Physical Education teachers and educational theorists will all find insights from this collection. We recommend this collection to you and trust that the papers included will help you in your understanding, research and future practice.

Dr Judy Bruce and Dr Chris North
Editors of the 2015 Game Sense for Teaching and Coaching Proceedings

A message from Dr Jenny Clarke, Conference Chair

On behalf of the Conference Organising Committee of the 2015 Game Sense for Teaching and Coaching Conference, I am very pleased to recommend the proceedings of this conference to you.

The conference brought together delegates from the fields of teaching and sport coaching to explore aspects of Game Sense and other Games Based Approaches (GBA) through plenary presentations, parallel sessions and a day of lively practical sessions which demonstrated theory in action. The popularity of GBA was demonstrated through a large international attendance and application to a very wide range of contexts. The papers in these Conference Proceedings speak to fostering creativity and curiosity in individual sports, teaching values and teamwork in school sport and achieving on the biggest international stages in professional sport.

I would like to thank many colleagues who have supported us in running such a successful and inspiring conference. First, and most importantly, Professor Richard Light. The conference was his idea, he was ever present during preparation and by his name and reputation attracted a large international field of participants. Richard also chaired the plenary sessions of the event and provided constant support to keep us moving forward. I would also like to thank the other members of the Conference Organising Committee: Mohammad Shah Razak, Ricardo Pimenta, Dr Chris North and Dr Judy Bruce, and our Scientific Committee: Dr Carl Petersen, Professor John Evans, Dr Shane Pill and Dr Christina Curry. My thanks also go to Sibi Boycott Walter who was conference photographer and provided first aid support when needed for participants in the very active practical sessions. My thanks also go to those who assisted by reviewing abstracts and papers, as well as the students of the School

of Sport and Physical Education who worked tirelessly to support the very positive atmosphere of the conference.

We were delighted to attract leading academics, along with international coaches and teachers. The generosity of the Game Sense community was evident through academic discussion, collaborative projects initiated and sharing of resources from the conference presentations. The conference was, in all ways, a huge success. The place of Game Sense in coaching from children to adults for enjoyment and participation to the very highest levels of sporting achievement has been underlined through a very positive academic programme of theory and practice.

On behalf of the Conference Organising Committee, I trust your time with us in Christchurch was enjoyable and that you made new friends and contacts and strengthened existing ties within the Game Sense and GBA community. We look forward to the 2017 Game Sense event in Adelaide where we can all meet again and reflect on the progress of Game Sense and other GBA over the two years since the 2015 Christchurch conference.

Welcome from Professor Richard Light

Interest in Game-Based Approaches (GBA) to teaching games and coaching team sports has continued to grow from the first Teaching Games for Understanding hosted by Joy Butler in Plymouth, New Hampshire in 2001. The 2001 conference had a wonderful positive 'vibe' and you could sense the excitement among all present. At the last session of the Plymouth conference, a suggestion was made that we needed another conference to build on the great start made in Plymouth. I was working at Melbourne University and after making inquiries about the possibility of hosting a conference at my university decided to commit to it. In 2003 we held a great conference with Rod Thorpe giving the main keynote address and which started the ball rolling with a series of international TGfU conferences held in Hong Kong, Canada, the UK and this year (2016) in Germany.

Looking for a more regional focus I convened the 2006 *Asia Pacific Conference on Teaching Sport and Physical for Understanding.* This conference had more work presented on Game Sense as an Australian variation of TGfU. Although we had delegates from North America and Europe it very much had the feel of a local conference and confirmed regional interest in GBA and in Game Sense in particular. When I returned from working in the UK in 2011 a conversation with John Evans (from Sydney) about the development of Game Sense saw him taking the lead in setting up another regionally focused gathering of people interested in Game Sense and other GBA. Convening an international conference demands a massive amount for work so John decided to run a low key one-day event aimed at getting people together to share ideas and learn. The 2013 *Game Sense for Teaching and Coaching* conference attracted 50 committed academics, teachers, students and coaches for a thoroughly enjoyable gathering after which, we again considered doing something to make it a regular event.

Before I moved to Christchurch to take up a position as Head of the School of Sport and Physical Education I was engaged in conversations with Dr Jenny Clarke about convening a

Game Sense conference at the University of Canterbury. Despite her busy role as program Coordinator for the Bachelor of Sport Coaching Jenny agreed to take on the role of conference chair, making a sensational success of it. The School has hosted some significant events but not a great number of international conferences and I suspect that Jenny is still recovering from it. On the opening of the *2015 Game Sense for Coaching and Teaching* conference (November 17) we had 100 people sitting in the room which is well in excess of what we envisaged and is indicative of the interest in Game Sense and similar approaches. Indeed, the interest was strong enough for the Australia Council for Health Physical Education and Recreation (ACHPER) to volunteer to host the 2017 Game Sense for Coaching and Teaching conference in Adelaide so keep that in mind when planning conference attendance for 2017.

Similar to the 2006 and 2013 conferences in Sydney, the *2015 Game Sense for Coaching and Teaching* conference once again offers published peer-reviewed proceedings in an on-line format which offers valuable and easily accessed articles on Game Sense and other GBA. Beginning with the engaging keynote address on questioning delivered by Associate Professor Stephen Harvey from West Virginia University, this excellent collection of papers offers an academically rigorous and engaging resource for academics, students, teachers and coaches. With authors from New Zealand, Australia, Japan, the USA, the UK and other countries, these articles make interesting reading and contribute to the ongoing conversation on Game Sense from which learning emerges.

I would also like to thank all those who helped in publishing the proceedings by kindly reviewing submissions with special thanks to the two hard working editors, Dr Judy Bruce and Dr Chris North.

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Constructivist dilemmas associated with using questioning in game-based approaches to teaching and coaching

Stephen Harvey

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This paper outlines the constructivist dilemmas associated with teachers and coaches using game-based approaches (GBAs) to teaching and coaching. After a brief introduction to GBAs, research on the use of questioning is presented. This is followed by an overview of social constructivist theories that underpin teachers/coaches use of questioning before moving on to the exploration of the dilemmas facing teachers and coaches in using questions to enhance learning in GBAs. In this section, Windschitl's (2002) constructivist dilemmas framework outlines four types of dilemmas: conceptual, pedagogical, cultural and political. With this background in place, the paper then moves on to provide a number of practical suggestions for teachers and coaches who want to develop their utilization of questioning as they transition to using a GBA.

Introduction

Empowering learners is important in games and games teaching because they are responsible for making independent decisions on the field of play without adult influence (Light, Harvey, & Mouchet, 2014). This notion has led many to question traditional pedagogies employed to teach games, which reflect a mechanistic (complicated) view of learning where technical skills are broken down to their component parts and taught in a linear format. This way of learning to play games does not take account of the complexity of playing games, where there is a relational and interactional component between both technical, tactical and strategic aspects of play, as well as between the learners themselves (Light, et al., 2014).

Game-based approaches (GBAs) to teaching and coaching games, with their focus on learning instead of teaching, require a profound shift in the role of the teacher/coach from directing and controlling learning to facilitating and guiding it (Light, 2013). This creates pedagogical challenges for practitioners who begin to utilize GBAs. One area of particular concern is developing productive and generative questioning.

After a brief introduction to GBAs and the theories underpinning it, the paper will consider a number of constructivist dilemmas associated with the utilization of questioning within a GBA. This is followed by a short discussion which will provide some practical suggestions for teachers and coaches who want to develop their utilization of questioning as they transition to using a GBA.

Dialogical pedagogy in GBAs

There are many paths of the same mountain in terms of GBAs and many different cultural versions/variations of GBAs have developed (Oslin & Mitchell, 2006). However, Light (2013) has suggested that despite these cultural versions/variations, all GBAs share four immutable features:

1. The design and manipulation of practice games and activities,
2. The use of questioning,
3. The provision of opportunities for dialogue, collective development and testing of solutions for tactical problems and,
4. Building a supportive socio-moral environment

Given this description of the key features of a GBA, the notion of teachers/coaches creating an environment for dialogical pedagogy (Fernandez-Balboa & Marshall, 1994) by situating themselves as a partner in learning (Davis & Sumara, 2003; Light, 2013) is one of the most important features of an authentic GBA. Dialogue has been defined as an “active

process of serious continuous discussion which allows people's voices to develop and be heard" (Kohl, 1984, p. 111, cited in Fernandez-Balboa & Marshall, 1994, p. 173).

The dialogical pedagogy required for the effective implementation of an authentic GBA draws on social constructivism, which emphasizes the importance of language and verbal interaction in learning (Davis & Sumara, 2003; Vygotsky, 1978) as well the role of *both* the mind and body in learning (Light & Fawns, 2003). Learning underpinned by social constructivist theories reject notions of a 'banking concept' of education (Freire, 2000), which center around teaching techniques and using questioning as a means of simply checking understanding for a pre-defined answer (Fernandez-Balboa & Marshall, 1994). Looking for this 'right' answer stifles the learner's ability to create their own knowledge and answers through testing, problem-solving and reflection and is paradoxical to the reasons why a teacher/coach may ask questions in the first place (Wright & Forrest, 2007).

Vygotsky (1978), noted that the most effective instruction is aimed at the learner's Zone of Proximal Development (ZPD) as this produces the greatest gains in their development. To mobilize this concept in GBAs, teachers/coaches can utilize a form of scaffolding (Wood, Bruner & Ross, 1976), specifically group scaffolds in a GBA (Cazden, 2001). Core teacher/coach questions aimed at the learner's ZPD enable learners to share experiences so that these thoughts can be discussed, summarized, and potential solutions to the games tactical problems tested (Cazden, 2001). As learning develops, the teacher/coach gradually withdraws support and assistance after which the learner's will be able to hold the discussion independently and with limited prompting and probing of the teacher/coach (Wood et al., 1976).

Research on the utilization of questioning

In education more broadly, research has found that teachers ask between two and three questions per minute (Walsh & Sattes, 2005). However, teacher questions can often follow an

Initiation, Response, Evaluation/Feedback (IRE/F) format (Cazden, 2001) involving simple recitation from students, converging to what is already known (Walsh & Sattes, 2005). For example, a teacher may ask their learners, 'which forward player has scored most tries for New Zealand All Blacks?'. The learner 'responds' by providing an answer, such as, 'Richie McCaw', to which the teacher 'evaluates and/or gives feedback, such as 'yes'.

Instead, research has shown that most effective questions are high order questions that really make students think such as: 'why?' 'how?' and 'which is best?' (Hattie, 2009). An alternative question to the one cited previously that yields a multiplicity of possibilities and/or reasons could be: 'Why has Richie McCaw scored the most tries as a forward for the All Blacks?'. One response might be that he has played the most games and/or minutes for the All Blacks, but an alternative one might be that he is always in good supporting positions for the backs, etc. This question therefore helps move learners beyond simple 'technical' answers and helps develop a more holistic outlook (Harvey, Cushion, Cope, & Muir, 2013).

A number of additional issues are also evident from research into questioning. In terms of grouping learners, Hattie (2009) notes that learners do better if they work in pairs/small groups rather than large group recitations. He suggests using a 'think, pair/small group, share' strategy. In addition, research has indicated 'wait time' can be an issue for teachers/coaches (Cazden, 2001; Walsh & Sattes, 2005). For example, if the teacher/coach waits for longer than five seconds, they are more likely to get an answer (Cazden, 2001) because this gives learners time to think (Hattie, 2009).

However, even if teachers/coaches wait, research indicates that they can often receive superficial answers from their learners, and therefore need to probe their learners for more information rather than begin their own recitation of the correct answer (Walsh & Sattes, 2005). For example, if a GBA teacher/coach asked: 'What were some of the reasons you moved the ball quickly in that last activity?', and received a one-word answer from a learner such as 'Pressure', this could be probed for more detail with a question such as, 'Can you tell

me more about that?'. The GBA teacher/coach could also re-voice the answer to prompt other learners to speak. For example, the teacher/coach may say: 'So, Nathan has suggested that pressure on the ball carrier may be an issue, can someone else expand on that notion/concept?'.

Constructivist dilemmas

Despite the benefits of teacher/coach questioning and a dialogical pedagogy, a number of constructivist dilemmas may prevent teachers and coaches adopting this approach in a GBA. These constructivist dilemmas are articulated in this next section under the four-level framework proposed by Windschitl (2002).

Conceptual dilemmas

Conceptual dilemmas are rooted in teachers'/coaches' understanding of learning, their assumptions and beliefs and their ontological and epistemological underpinnings (Cushion, 2013a). This can therefore result in two things. First, well-meaning coaches and teachers will teach/coach as they were taught, resulting in the utilization of a 'folk pedagogy' (Bruner, 1999) informed by 'uncritical inertia' (Cushion, Ford, & Williams., 2012). Research in both teaching (Walsh & Sattes, 2005) and coaching (Harvey et al., 2013; Partington, Cushion, & Harvey, 2014; Partington & Cushion, 2011) has shown the enduring influence of prior socialization experience, particularly acculturation (the phase of socialization prior to teaching and coaching themselves), on behavior and pedagogy. This leads to teachers and coaches reporting such things as: "I don't use questions because they don't know the fucking answer" (Cushion, 2013b).

A different, although related aspect, is teacher/coach self-awareness. For example, Walsh and Sattes (2005) report on a study where teachers (in general education) were asked to estimate how many questions they would ask in a 30-minute period (they said 15) and how

many questions their students would ask (they said 10). Observations of these same teachers revealed that these teachers asked 50.6 questions and their students asked just 1.8 questions. Thus, a teacher or coach may want to develop independent thinking and decision making in their classroom/coaching context but their actual behavior and practice (i.e., using IRE/F questions) does not support this (Harvey et al., 2013; Partington & Cushion, 2011; Partington et al., 2014).

Pedagogical dilemmas

"Pedagogical dilemmas refer to coaches' [teachers'] behavior and all related activity contributing to the design of a learning environment" (Cushion, 2013a, p.66). While an authentic GBA necessitates this latter type of open questioning, research has documented the challenges physical education teachers and coaches have faced when implementing a GBA. For example, a study conducted by McNeill, Fry, Wright, Tan, and Rossi (2008) with groups of Singaporean elementary and secondary school pre-service physical education teachers using a GBA found that the two thirds of questions were low-order involving knowledge or recall with only 6.7 percent being open-ended or divergent and capable of developing tactical awareness and critical thinking. In sports coaching, while a study on the influence of Game Sense on elite-level rugby coaching in New Zealand found that coaches believed the use of questioning promoted strong interpersonal relations and empowered players (Evans, 2012). Other studies with cricket (Roberts, 2011) and rugby (Reid & Harvey, 2014) have reported the difficulties of coaches in employing questioning with teachers also reporting dilemmas in respect to questioning in GBAs (e.g., Harvey, Cushion, & Salmon, 2015; McNeill et al., 2008).

Difficulties include developing both the knowledge of the game alongside a conceptual/pedagogical understanding of a GBA pedagogy to effectively manage the learning environment (e.g., Cushion, 2013a; Harvey et al., 2015; Light & Evans, 2010; Reid &

Harvey, 2014). This results in teachers/coaches citing challenges such as being to be able to plan, use and apply effective questioning techniques (e.g., Harvey et al., 2015; Roberts, 2011), making sure questions are age appropriate (e.g., Harvey et al., 2015), knowing when to stop the game and ask questions (Cushion, 2013a).

Cultural dilemmas

Cultural dilemmas refer to the "tacitly understood framework of norms, expectations, and values that give meaning to all activities occurring in schools" (Windschitl, 2002, p.150). Consequently, the cultural dilemmas inherent in teaching and coaching may mean that using a questioning, dialogical approach in a GBA may be problematic. For example, in physical education, teachers need to maintain a specific level of physical activity (i.e. over 50 percent Moderate to Vigorous Physical Activity; Institute of Medicine, 2013), providing somewhat of a juxtaposition with the four criteria of Light (2013) introduced at the beginning of this paper. Moreover, teachers may report that their learners do not like it when games are stopped for questioning. This may also be the same for coaches who want to preface fitness and skill outcomes for games as opposed to cognitive outcomes (Light & Evans, 2010).

Partington et al. (2014) have shown that coaches limit the use of questioning due to contextual factors. These range from physical environment conditions such as the weather (i.e., when its cold coaches reported wanting to keep players moving) to dilemmas over time pressures, which may result in situations where coaches "usually ask an easier question for a quicker answer" (Partington & Cushion, 2011, p. 7). An additional cultural dilemma for teachers and coaches may simply be resistance of players to take ownership for their own learning. Partington et al. (2014) noted that one of the soccer coaches in their study stated that, "I don't use as much questioning because the players at this age might have not done this before" (p. 410). This may also be exacerbated in coaching contexts in particular by

parents who think that to learn the players always need direct instruction and feedback from the coach (Partington et al., 2014).

Political dilemmas

Political dilemmas refer to "those aspects of education that are linked with the exercise, distribution, preservation, or redistribution of power among...participants in an educational enterprise" (Windschitl, 2002, p.154). Any innovative pedagogy such as GBAs can generate controversy and possibly conflict from the wider practice community. For example, coaches have reported only using questioning because it was important to pass their final coaching license assessment (Partington et al., 2014). Similarly, the use of inquiry-based approaches in teaching is somewhat paradoxical with the need to get students through state or national assessments.

Discussion

A recent meta-analysis study of indicators has shown which factors have 'the greatest influence on learning' (Hattie, 2009). Hattie reports that anything above an effect size of 0.40 is a worthwhile addition to the classroom. Teacher questioning (if done well) has a 0.46 effect size, thus, it is a worthwhile pedagogical technique for teachers/coaches to employ.

One caveat that Hattie states is that to make learning visible, there must be explicit clarity from the teacher (0.75 effect size). This can be achieved by teachers/coaches using the '6 P's' format for questioning suggested by Harvey & Light (2015), which has been developed from frameworks like the debate of ideas (Grehaigne, Richard, & Griffin, 2005), the GROW model (Gallwey, 1974) and reflective toss (van zee & Minstrell, 1997) (see Harvey & Light for a review). The first 'P' in this format is the one that adds explicitness to the activity, as the teacher/coach offers a 'Purpose' question at the beginning of the session (i.e., to what extent might maintaining possession help you be successful in the game).

Participants then ‘Play’ before ‘Pausing’ where the teacher/coach reviews the ‘Purpose’ questions, but has also ‘Planned’ additional questions at a level below this initial ‘Purpose’ question to help ‘Probe’ learner thinking and promote dialogue, debate and critical reflection. These questions can be framed using ‘question starters’ (Kagan, 2005) developed from the higher levels of Bloom’s taxonomy, such as application, evaluation, synthesis (see Harvey & Light, 2015).

To overcome many of the constructivist dilemmas associated with questioning, one of the most important considerations for a teacher/coach is establish a climate for questioning. McTighe & Wiggins (2014) highlight a number of factors that need consideration, which include:

1. Curriculum-Instruction-Assessment (CIA) alignment
2. The Role of Questions, Teachers, and Students
3. Explicit Protocols and Codes of Conduct
4. Safe and supportive environment
5. Use of space and physical resources
6. Use of time in and out of class
7. Use of texts and other learning resources
8. Assessment Practices

Another major factor that teachers/coaches must consider is that beginning to use questioning is a journey. Thus, changes are not going to be seen immediately and there are going to be many bumps in the road. Learning needs time, and although initial gains may be slow, then they will later come to fruition. Teachers/coaches therefore need to be prepared to be self-reflective and stick to their beliefs. For example, if they truly believe in developing independent and creative learners, then their behaviors must align with these beliefs (McTighe & Wiggins, 2014). Moreover, if it is possible, teachers/coaches can get company, work collaboratively within a learning community, either within their own department,

school or club, or online via social media. In addition, communicating their teaching/coaching approach with parents and administrators would also be wise in order that they can gain support from that level (McTighe & Wiggins, 2014).

Finally, context is an important consideration. For some teachers and coaches, they may need to begin by using a structured approach which may be helpful to begin with to get players and themselves used to the development of dialogue within GBA sessions. For example, the teacher/coach could begin by stopping play at regular intervals governed by time rather than identifying teachable moments within the learning environment. As teachers/coaches and their learners develop a relationship as co-learners in this enterprise (Davis & Sumara, 2003; Light, 2013), they can transition to stopping the game(s) only when needed. In instances where there are multiple small-sided and/or modified games going on at one time, the teacher/coach may only need to stop one group at a time, helping to maintain balance between the physical and cognitive domains. In addition, there may be lessons/sessions where there needs to be more emphasis on physical activity or fitness. Consequently, stoppages within the sessions may be minimal. Moreover, for those in teaching and coaching contexts where video is available, questioning may be handled in those sessions enabling longer periods of game-based engagement in the actual coaching sessions.

Conclusion

Transitioning to GBA pedagogy is challenging, especially given its focus on questioning. This current paper cites a range of constructivist dilemmas associated with teachers/coaches use of questioning. Notwithstanding these dilemmas, teachers/coaches need to align their questioning to the tenets of the social constructivist theory that underpins it, where they scaffold their utilization of dialogue, debate and critical reflection, which is further aligned to a planned curriculum, and where the roles for themselves and their learners are explicitly communicated.

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A challenge to the idea of an authentic version of a Game Based Approach

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Over the past several years, multiple approaches based on games teaching have been developed in response to problems with traditional teaching. This has led to the use of wider term of game-based approaches (GBAs). Despite the many small differences, they all share some common core ideas; they all focus on the game as a whole, locating learning in modified games and they give emphasis on questioning to stimulate thinking and interaction. Although, the interest in GBAs has been growing among researchers and practitioners, the increase on the uptake by teachers and coaches is relatively limited (Light & Curry, 2014). One response to this has been to question the fidelity of the approach taken (Jarret, 2011) and for that requires a clear definition of what is and what it is not a GBA. The purpose of this article is to question whether or not we can effectively say that an authentic version of a Game Based Approach exists and it also questions the need for fidelity to an approach.

Introduction

Despite the significant body of research that consistently supports the effectiveness of game-based approaches (GBA) such as Teaching Games for Understanding (TGfU) and Game Sense, their uptake by physical education teachers across the globe seems to remain limited (Light & Curry, 2014). Since the first publication on TGfU (Bunker & Thorpe, 1982) a number of similar approaches have emerged leading to the use of broader more inclusive term of GBAs that is used through this study. Within the growing literature on GBAs, questions have been asked about fidelity and what is, and what isn't a GBA (see, Jarrett, 2011). We suggest that this has been encouraged by the push for a models' based to physical

education teaching (Kirk, 2013), and contrasts with Bunker and Thorpe's (1982) original ideas on TGfU and the idea of a framework for the Game Sense approach (Light, 2013). This article questions the need for fidelity as to whether or not an approach is authentic.

Game-Based Approaches

Many approaches that base learning in modified games have been developed over the past thirty years in response to problems that were identified by Bunker and Thorpe within traditional teaching methods. Here, we briefly present some of the better known approaches that follow Teaching Games for Understanding, and explain how they are structured to highlight some of the common features they share.

Teaching Games for Understanding (TGfU)

Bunker and Thorpe (1982) proposed TGfU as an alternative to traditional, technique-focused approaches to games teaching in response to problems they identified with the ways in which traditional teaching methods focused on the development of technique at the expense of tactical understanding and decision-making (Light & Tan, 2006). TGfU model (Figure 1.) focuses on the whole game and places learning in modified games where tactics, decision-making and problem solving are critical (Webb & Pearson, 2004). These practice games provide opportunities for the students to develop greater understanding of all aspects of the game by actually playing to help integrate knowing and doing within relevant contexts. TGfU involves the teacher adopting the role of a partner in learning rather than the traditional role of passing down predetermined knowledge through direct instruction.

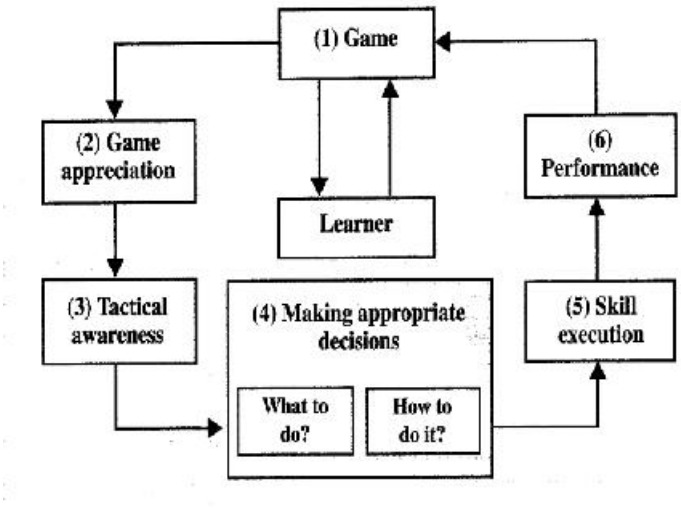

Figure 1. Teaching Games for Understanding Model (from Bunker & Thorpe, 1982).

Tactical Games Approach (TGA)

As a variation of TGfU, TGA emphasizes the learning of movement forms (skills) within the game context, as opposed to the technique approach in which skills are practised in isolation (Gubacs-Collins & Olsen, 2010). As Light (2005) suggests, 'what works in neat lines at training typically breaks down under game conditions' (p.177). Using TGA, students are able to immediately see the relevance of a skill within the context of game or practice situations (Mitchel, Oslin & Griffin, 2006) because at the beginning of a unit students gain insight into specific movement patterns in the sport through modified activities. Skill progressions are taught only after there is a basic familiarization with the flow of the game. From this point, skills are practised and developed in relation to the context of a game. Games are designed to ask students to consider what they should do before being taught how to execute the skills. Initially, tactical awareness is emphasized in off-the-ball movements setting up students to successfully execute the skills needed in a game (Mitchel, Oslin & Griffin, 2006). TGA pre-plans the learning of skills with its pattern of playing game for students to identify the skill(s) in game context and then develop these skills out of the game before returning to the game.

Game Sense

Game Sense is a variation of TGfU developed in Australia in the mid 90's through collaboration between Rod Thorpe and the Australian Sports Commission (Light, 2004). Thorpe worked with Australian coaches and the ASC to develop a systematic coaching approach based on TGfU known as Game Sense. Unlike TGfU, GS has no model and it is more open to flexible interpretation (Light, 2004, 2013). GS focuses on the game and not on the discrete skills or techniques of traditional approaches before playing the game.

Game Sense locates learning within modified games to provide meaning and relevance to the full game or sport and to develop both skills and understanding (Light, 2013). Games Sense teaching is a student-centred, inquiry-based approach where the teacher acts as a facilitator of learning rather than a director of it. Games taught using a Game Sense approach give students opportunities to develop social skills and problem solving abilities that they can use in real life situations. Game Sense involves relations with people, things and places in which, 'students are not just speakers, writers and thinkers but also doers' (Light & Fawns, 2003). The first publication on Game Sense (den Duyn, 1997) provided a loose outline of the approach that emphasised how it locates learning in modified games and emphasises questioning over instruction. More recently Light (2013) has suggested a framework for Game Sense coaching and teaching.

Games Concept Approach (GCA)

The Games Concept Approach (GCA) is a variation of TGfU developed in Singapore. As part of a major national curricular reform project, the GCA was mandated by the Ministry of Education for physical education teaching (Rossi, Fry, McNeill & Tan, 2007). GCA seeks to promote greater interest and enjoyment, better problem solving and decision-making skills, and improved competence of students in both learning and playing games. This is achieved by linking tactics and skills through the appropriate use of skill development and application

within the actual game context showing the influence of TGA (Griffin, Mitchell & Oslin, 1997). GCA is highly structured and teachers must follow a four stage model including:

1. *Play*, where the teacher introduces a game and lets the students play it with the main goal of observing what needs work and where to intervene.
2. *Practice,* where the teacher introduces questioning and skill drills based on his/her previous observations.
3. *Re-play* is when the teacher goes back to the first stage but with the objective of seeing what has changed after the questioning and drills.
4. *The game* is where teachers introduce other games or an extension of the previous game.

Similar approaches have also been developed that are not direct derivatives of TGfU but share similar pedagogy such as the Tactical-Decision Learning Model (T-DLM) (Gréhaigne, Wallian & Godbout, 2005) in France and Play Practice (Launder, 2001) in Australia.

Tactical-Decision Learning Model

The tactical-decision learning model (Figure 2.) focuses on the exploration, by students, of the possibilities of game play and on the construction of adequate responses in small sided games. In this approach playing team sports means analysing momentary configurations of play while managing players' locations and varying paths as well as ball trajectories. All this is achieved in conditions of decisional urgency in view of bringing the ball in the scoring zone and effectively scoring (Gréhaigne *et al.*, 2005).

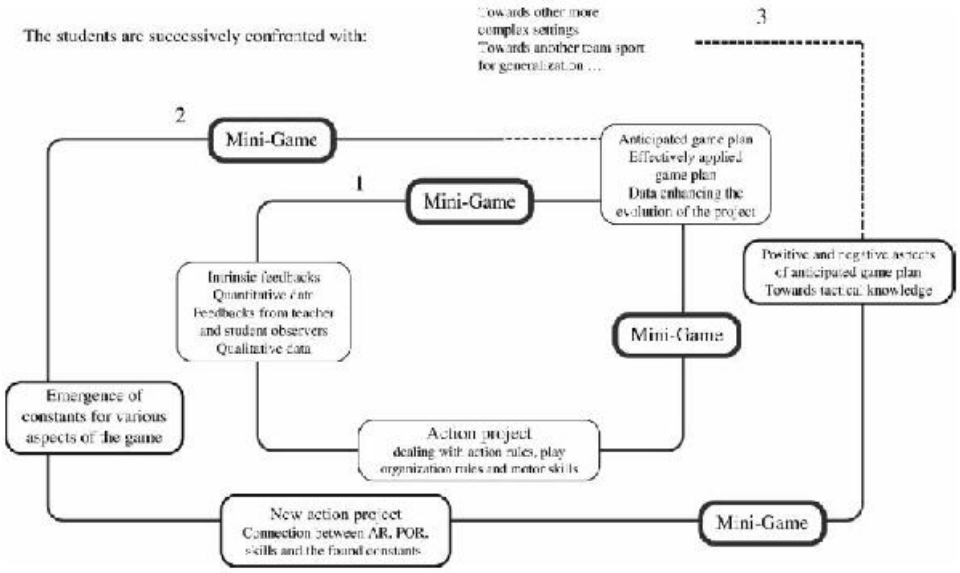

Figure 2. Tactical- Decision Learning Model (Gréhaigne et al., 2005, p.260)

Play Practice

First conceptualized by Alan Launder (2001), the main aim of Pay Practice is to give beginning players the opportunity to enjoy sport and games by playing modified games, while helping them develop sufficient skills to continue playing the game or sport in the future. It aims to bring the joy back to playing games and sports and to improve instruction in both school physical education and sport programs. In contrast to TGFU, this approach is based on the concept of pickup games and games that children and adults 'make up' when they have limited space and equipment, few players, and no officials. Launder (2001) proposed three fundamental processes: (1) shaping play, (2) focusing play, and (3) enhancing play. These three processes are analogous to Bunker and Thorpe's (1982) notions of 'representation' and 'exaggeration'. Like Game Sense, it is less structured and prescriptive than contemporary TGfU, TGA and was originally developed in Australia for sport coaching.

Concerns surrounding GBA's implementation

The limited uptake of GBA by teachers (Curry & Light, 2014) seems to due to the epistemological assumptions GBA sit upon (Light, 2008), how they challenge teachers'

beliefs about teaching (Butler, 1996) and the challenges involved with taking up a student-centred, inquiry-based approach that moves the teacher off centre stage. Among these challenges are the design and management of learning games (Light, 2015) and questioning (Harvey & Light, 2015; Roberts, 2011). As Jarrett and Harvey (2014: 89) suggest, the challenges involved in taking up GBA can generate, 'feelings of insecurity and apprehension when undertaking a pedagogical change'. TGfU and other GBAs hold much appeal for pre-service teachers but they typically struggle to meet the challenges involved in its use (Wang & Ha, 2009). GBA require considerable pedagogical skill, a good understanding of games, an ability to develop and ask appropriate questions at the appropriate time and the ability to select appropriate game forms (Chandler, 1996; Light & Georgakis 2005; McNeill et al., 2008). These are all significant challenges for teachers who are accustomed to a highly structured, teacher-centred approach to games teaching that reduces complexity to the mastery of technique.

The importance of questioning and of designing and managing games are central to learning but are aspects that beginner teachers struggle with as they try to manage the many variables of the learning environment (Piltz, 2004). The literature also identifies the difficulties teachers face when trying to develop GBAs on practicum due to mentoring teachers' lack of knowledge of, and support for, it (Aguiar & Light, 2015; Wang & Ha, 2009). Unsupportive and sometimes hostile environments typically lead to the abandonment of innovative practice and adopting the 'path of least resistance' (McMahon & MacPhail, 2007; Wang & Ha, 2009). Learning to teach using GBA in such reproductive environments can make it very difficult to maintain enthusiasm for innovation (Light & Butler, 2005).

Context, variation and interpretation

To meet these challenges, two broad approaches seem to have emerged. One is to clearly set out the processes and sequences of the approach in detail through a models based approach

(Metzler, 2005). The other is to emphasise understanding by teachers by focusing more on what the core pedagogical features of GBA are (see, Light, 2013). This approach is more accommodating to different interpretations but relies upon teachers having a sound understanding of learning and the core ideas of the approach.

We suggest that the attention paid to fidelity of GBA arises from thinking around the more prescriptive models based approach. We argue that though helpful, it is too prescriptive and fails to take account of the diversity of settings it is practised in. This is reflected in some of the literature that focuses on verification benchmarks such as Metzler's 2000 and 2005 benchmarks and context-specific validation protocols to verify the application of each GBA. Conversely, other literature suggests that selecting and implementing the appropriate pedagogical model/approach is strongly influenced by socio-cultural, institutional, political and other contexts (Jarrett & Harvey, 2014). In a study conducted by Jarret and Harvey (2014) they suggest that, 'the use of Game Sense in England was reported by participants as being "different", "more like club sport" and "more engaging" in contrast to their British-based secondary school experiences of other game-centred approaches to learning'. This suggests the influence of cultural and other contextual factors that have shaped the development of each approach in the country of origin (Light, 2013). Research conducted in diverse setting such as Hong Kong (Wang & Wa, 2009), Portugal (Aguiar & Light, 2015) and Singapore (McNeill et al. 2004) strongly suggests the influence of socio-cultural environment on the use of GBA and the learning emerging from it.

The development and teaching of GBA's (and any other teaching) is deeply related to the surroundings and the fact that each context is different. Teachers should be able to interpret a GBA and adapt it to fit the context they are in, and their own dispositions toward teaching and learning, but this requires a reasonably deep understanding of the principles of the approach and the assumptions about learning it sits upon. Game-based approaches vary in detail but share similarities that can provide consistently positive learning experiences that

enhance learning and promote both the ability and the inclination to learn. This is largely due to them being student-centred, inquiry-based approaches that emphasize learner reflection upon experience and social interaction (Light, 2014) and perhaps this is something that should be emphasised more than what sequence of steps to follow. The similarities they present in their structure and the fact that the main goal is the same makes it possible to find common pedagogical features and the views on learning they sit on.

Working to identify what is an authentic approach that involves clearly setting out how the teacher instructs in this approach is a tempting approach for expanding the use of GBA. On the other hand, there is a degree of disempowering teachers here by asking them to follow set steps and procedures to 'implement' an authentic model. It doesn't give teachers the freedom and the flexibility to adapt an approach to their pupils' needs and context that we feel they should. If they had deep understanding of the epistemological assumptions GBA sit on and their core pedagogical features, then they should be able to develop interpretations of GBA that realise the benefits of GBA suggested in the literature.

Conclusion

The student-centred, inquiry-based pedagogy adopted in GBA offers possibilities for providing high quality teaching and learning. It emphasizes learner reflection upon experience, social interaction, collaborative inquiry to make learning effective and enjoyable as students realise the possibilities for learning this approach provides (Light, 2014). It allows students to become thinkers, curious inquirers and empowered learners instead of mindless machines. We argue that this same approach should be adopted for educating teachers and pre-service teachers. We think that teachers should also be empowered to explore, discover and interpret the possibilities for learning that GBA offer instead of being asked to implement an authentic model. They should have the opportunity and the right to think on their own and find the best solution to different situations and be able to adapt their teaching to different

contexts and different needs, and for their need for freedom to interpret and implement GBAs.

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Teaching older athletes new tricks coaching croquet through Game Sense

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Traditional croquet coaching involves demonstrations from coaches-as-experts, lectures and drills with correctional feedback. This article reports on my experience of using Game Sense approaches for coaching a cohort of 20 croquet players in their late 60s to early 80s. The majority of these players had attended, and reported very positively upon, coach-centred sessions in previous years but responded more positively to the empowerment of the Game Sense approach.

Introduction

Game Sense is having an increasing influence on coaching across a range of team sports such as basketball, football (soccer), netball, Australian football and rugby countries (see, Pill, 2013; Zuccolo, Spittle & Pill, 2015) but is yet to have a significant influence on target games and on croquet coaching in particular. There is also a paucity of literature exploring the application of these approaches to coaching older athletes. This article redresses both these oversights in the game-based approaches (GBA) literature by reporting on my experience of implementing a Game Sense approach to coaching older participants and on their responses to it. It reports on my experiences of coaching twenty, sixty to eighty year old participants with experience of playing croquet ranging from one to thirty years in an all-day workshop in New Zealand in late 2014.

Croquet requires a high level of precision but often requires players to make powerful clearing strokes. Despite the importance of tactics in croquet, coaching remains dominated by a technical approach. As a croquet coach and a player who has competed at the highest levels

of competition I have only recently been exposed to the Game Sense approach but could not help but see the potential it holds for the development of tactical knowledge and tactically informed decision making in croquet. The traditional coaching approaches described below are those that I experienced over 15 years of competitive play from beginner to international player in England and New Zealand and interactions with club, regional and national coaches from beginner to high performance level in England, New Zealand and Australia. My interest in athlete-centred and inquiry-based approaches to coaching was inspired by Light's Game Sense research and work on Positive Pedagogy for coaching individual sports (Light, 2013, 2014). Upon reading the literature on Game Sense, I found that the social constructivist learning theory that Light (2013) and others suggest underpins it resonated with my existing beliefs about how people learn, and how this could inform teaching and coaching. Social constructivism sees learning as a process of the learner's interpretation of learning experiences shaped by existing knowledge and dispositions leading to the construction of new knowledge and change in the learner rather than just a process of knowledge transmission (Merriam & Caffarella, 1999).

Traditional croquet coaching: Watch me, copy me

Traditional croquet coaching in Australia, New Zealand and England is dominated by a coach-centred approach, where the coach instructs and demonstrates the 'correct' technique. Athletes are then given opportunities to attempt to replicate the correct technique with coaching focused on reducing errors in technique. Individual differences are acknowledged inasmuch as there are three accepted ways to hold a croquet mallet (McCullough & Mulliner, 1987). The command style (Mosston & Ashworth, 2002) approach has no element of discovery or inquiry, or of active learning. Instead, it promotes passive learning, with very little questioning used by coaches, and little to no dialogue between athletes or between coach and athletes. Creativity is not encouraged as patterns are taught and copied, and

techniques are demonstrated and replicated. This assumes a theory that knowledge is a construct that can be passed from one learner to another.

The see-and-replicate approach to coaching has additional problems in a sport like croquet where many participants are elderly and may have developed mobility restrictions through age or injury in earlier sporting involvement. The physical restrictions experienced by many croquet players strongly encourage the use of an athlete-centred approach, where the coach scaffolds learning, appreciating and developing the player's own style and way of optimizing performance.

Croquet is a tactical game (Plummer, 2006) which combines the elements of target games such as putting in golf with tactical decision-making more commonly seen in chess, snooker and billiards. Beyond physical demonstrations, therefore, coaches have the opportunity to develop thinking players, capable of planning several strokes ahead and adapting to situations which vary from their previous direct experience. Modern croquet texts, including the seminal work of Keith Wylie (1994), provide scenarios which a player might experience, and provide a 'correct' answer which encourages deductive reasoning. While this approach is useful, it encourages rote learning of 'rules', and does not encourage players to develop flexibility in thinking. Furthermore, little attention is played in traditional croquet coaching to developing the relationships and interactions which typically take place during doubles competitions, where two players compete together as a team.

Athlete centred and game-based approaches to coaching croquet to senior players

I conducted an annual one-day coaching workshop in Association Croquet and one in Golf Croquet early in the 2014-2015 New Zealand croquet season (November 2014) in which I adopted a Game Sense approach. Approximately 20 people attended the Golf Croquet session, many of whom had attended previous workshops. All the participants were over 60 years old with many in their late 70s and early 80s. Most had previously experienced only

direct coach-led coaching in croquet and other sports. Despite the positive comments on these sessions, it was unclear to me how much knowledge they had retained, with some participants talking about a "new" activity, which had actually been previously used. Additionally, the coaches leading the sessions had observed few improvements in tactical choices in the majority of regular attendees of the annual workshops.

The activities I used in the workshop and my pedagogical approach drew on the work of Light in Game Sense and positive pedagogy (Light, 2013, 2014). Croquet games are played as singles and doubles, however it is very much an individual sport, with players taking alternating turns, as with the game of snooker. This is why I was interested in Light's recent work on applying the principles of Game Sense to skill intensive, individual sports such as swimming and running, with an emphasis on feel (Light, 2014; Light & Kentel, 2013). My Game Sense session began with an explanation of athlete-centred coaching and Game Sense, aimed at making the participants aware of the deliberate pedagogical approach they would experience and how different it would be from what they were probably used to.

Activity 1: A simple technique-based shooting activity conducted in pairs

The first activity was designed to engage participants in thinking about their own technique, engaging with fellow participants, and communicating effectively. The activity was a simple partner activity that was similar to Mosston and Ashworth's (2002) reciprocal teaching style. In it one player would strike five balls towards a target ball with their partner watching for technical points and with a set of 3 questions they were to consider regarding the shooting technique and which included questions such as, 'Did your partner have their *eyes* on their ball when their mallet hit it?' After five shots, the observer gave feedback to their partner on their technique, focusing on the three questions. The partner then continued to take individual shots receiving feedback after each. They would then switch roles with the first player now

taking a new task card with a different set of questions (which their partner was not allowed to see until the first five shots were complete).

This activity was designed to encourage the participants to communicate with each other, and to focus their attention on just a few key aspects of shooting technique. All players we actively engaged in their learning and the challenge involved in having one coach to 20 players was circumvented. As Mosston and Ashworth (2002) suggest, this approach moves from the coach centred command style toward the more learner centred problem solving style. As such it provided a gentle move toward the athlete-centred, inquiry-based nature of Game Sense. The player responses to this activity were very positive, with players commenting that, "I had been using a follow-through previously because you told me to, but now I understand *why* I am doing it", and "I was watching what …[my partner]… was doing, and I began to wonder what I did in that part of the swing". The players returned to the clubhouse for a break talking enthusiastically in their pairs, and then engaging with others. This activity was the catalyst for a full day's programme of discussion, questions and comments from the participants and the most active engagement from participants that I had experienced in conducting coaching workshops.

Activity 2:Game Sense croquet

A second example from the athlete-centred croquet workshop is a game designed to teach fundamental tactics in the game of golf croquet (World Croquet Federation, 2013). The basic tactical options include hitting the player's ball through their hoop in order to win the hoop and score a point, hitting the ball into position in front of the hoop to enable it to be hit through in the next turn, and clearing an opponent's ball from hoop-running position. A normal game involves 4 balls, with blue and black playing against red and yellow, with players taking alternate shots in the sequence blue, red, black, yellow.

The game used in the Game Sense session consisted of two balls, red vs blue. Red was placed one yard directly in front of a hoop. Blue was placed two yards to the left of this. Blue started each game, with the players taking alternate shots, and the game winner was the first to score the hoop. Five games were played with one player as blue, then the players switched over and played another five games.

This simple game challenged players to solve the problem of competing to win a hoop by exploring options available to them, including the power with which they played clearing strokes – as an off-centre clearance not only removes the opponent ball, but also leads to the striker's ball finishing far from the hoop. As balls were played back in front of the hoop, other options arose, such as attempting to hit one's ball through the hoop to score the winning point, taking closer position, and making decisions about when the opponent's ball needed to be cleared. Stronger players also discovered options around whether to take position directly in front of the hoop, or to position on one side or other of the centre line to ensure that a clearing shot from the opponent would not leave the opponent ball in hoop-running position. During this stage of the session I asked questions directed at the whole group that were designed to promote thinking rather than to get answers.

The use of five games of generally very short duration enabled players to consider options, try them out and discuss the results. The coach, and an assistant coach, moved among the players asking questions about the tactical options chosen, and their outcomes from earlier attempts. For example, they asked questions such as, 'what were you aiming to achieve here?' and 'can you think of other options which might be more defensive?'. Players were encouraged by the coaches to discuss ideas they were considering and to explore further options. They were also given opportunities for sharing ideas and discussing them with their opponents. The scenario presented is a very common part of the game of Golf Croquet, albeit simplified by the use of only two balls, enabling players to propose, implement and evaluate tactical options, and to test their skills with the lines of play they were considering, and to

immediately see the consequences of their choices. The use of short games, and the opportunity for players to take on both starting positions, meant taking a sub-optimal line of play led to only a small penalty (loss of one short game) encouraged taking risks, being creative and being able to learn from errors with support from the coaches.

At the end of the session I called all players together for a debrief in which I encouraged them to contribute ideas to the tactical discussion. The result was the most open and confident discussion session I have experienced as a coach with adult players, which gave me great satisfaction. All pairs of players contributed ideas to the final discussion that generated a 'top finding' of "*be patient"* which, for me, was an unanticipated, but very appropriate response and one that I learned from.

The challenges and concerns

Research on the use of GBA has focused on children and young people in physical education, youth sport, high performance sport and elite level sport but has ignored older people and athletes (Chen & Light, 2006; Evans, Light, Quay, Harvey, & Mooney, 2013; Roberts, 2011; Wang & Ha, 2009). This paper redresses this gap in the GBA literature by reporting on my experiences as a coach of applying this approach to coaching older athletes. For me it was a daunting task to abandon a lifetime of being coached and coaching by using the traditional approach of direct instruction and a focus on the mastery of technique. I was also very concerned with how the sometimes chaotic appearance of a Game Sense session (Light, 2004) might compare with player expectations of a fully structured, carefully-timed workshop as they had experienced in previous years. Additionally, the athletes present were well conditioned to sitting quietly listening to experts dole out wisdom and demonstrations of perfect technique through their past croquet and other sporting and educational experiences. These are all concerns that the literature suggests are common among coaches and teachers setting out to change their practice from a traditional approach to a GBA (eg. Light, 2004).

Game Sense croquet coaching: Did it work?

Dewey (1938) suggests we learn through engagement with a learning environment and reminds us that we must ensure that experiences are educative and foster an enthusiasm for learning, rather than simply providing unguided experiences. Light (2013) proposes four requirements for an effective game sense session that guided the session I report on. He suggests that a Game Sense session is characterized by (1) locating learning in modified games or activities that are managed for learning by the coach or teacher, (2) an emphasis on effective and open questions to encourage cognitive engagement, (3) providing opportunities for designing strategies and trialing them, and (4) providing a supportive learning environment. From my perspective as the coach and from the players' feedback and comments, the activities described above provided these elements, and offered progressions and alternatives to suit the needs of the athletes. Questioning encouraged creativity and demonstrated confidence from the coaches in the ability of the athletes to discover their own solutions to tactical situations, which occur in games. However, I did struggle at times to provide the open, generative questions that Harvey and Light (2015) suggest are needed in GBA such as Game Sense. To me, the level of the activities appeared well matched to the players as they exhibited many of the elements of Flow described by Csikszentmihalyi (1991).

The workshop outcomes are best viewed through Brookfield's four lenses of literature, student, peer and self for reflective practice (Brookfield, 1995). The literature is discussed extensively throughout this reflective article, and we shall focus in this section on those present for the workshop; the participants (student), an assistant coach and observer (peer), and the practitioner (self).

Reflection on the participants' responses

The response from the participants could not have been more positive! The pair activity which began the workshop created an atmosphere of positive interaction and discussion. As the day proceeded people delighted in discovering, testing and refining tactics and skills, and the feedback following the session was very enthusiastic. One of the participants observed "I really enjoyed myself…while I had come along today, I had been thinking of not playing any more… the two sessions I had with a friend had been very confusing. …I now understand what I am doing." The other who commented on the follow-through of her swing stated, "I really got the *feel* for using a follow-through in my swing" (her emphasis). She observed that the previous year she had used a followthrough with her swing because she was told to, but this year she really understood it, and was thrilled at how it worked. Another participant appreciated the flexibility of the technique-based exercises to accommodate her own physical limitations (a chronic back injury which severely restricts her mobility).

Reflections from a peer

A colleague was present for most of the workshop, observed the sessions, and spoke to the participants following the day's activities. The observer was the regional croquet association president, and is a highly experienced international croquet coach with experience in coaching junior athletes as well as mature participants from beginner to elite levels. His observations were that the session flowed very well, and the comments by participants following the session were more 'positive and heartfelt than usual'.

Reflections from the practitioner

The final lens is the author and coach. From my objective observations I felt that the participants all appeared to be fully on task and enjoying the opportunity to play games, while exhibiting improved skills as the day progressed, and gaining confidence in their decision-

making and cooperative activities. They responded enthusiastically to questions, and worked together to design and test responses to tactical situations without hesitation. From a more subjective perspective, I felt relieved and was very happy with the positive response to the session and particularly the very positive affective responses of the participants that came from interaction with their peers, being empowered to learn, intellectually stimulated and being physically and cognitively engaged. The enthusiasm and understanding shown by participants strongly supported the hypothesis that games-based approaches to coaching a target sport such as croquet could be effective, even with an older group of participants.

Conclusion

Despite a long history of being coached through coach-centred instruction and their advanced age the participants enthusiastically embraced the athlete-centred and games-based coaching approach. Engaging athletes both cognitively and physically supports deeper learning and enables coaching to be effective with a high athletes-to-coaches ratio. This offers promising ground for further advances in coaching target sports through games based approaches, teaching athletes across a range of ages and past experiences. Further work is needed to provide broader evidence of the efficacy of this pedagogical approach in the sporting context of croquet, and to determine the longer-term benefits and tactical knowledge gains from athlete-centred and games-based coaching.

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Teaching styles of Australian junior tennis coaches

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Game Sense was introduced to Australian tennis during Australian Sports Commission (ASC) national workshops in 1996, prompting tennis coach education providers to emphasise the approach, and its embrace of increased player involvement in the coaching process, in formal coach accreditation literature. This research involving 208 junior development and club professional coaches in self-assessment of their teaching styles, provides insight into the penetration into the everyday coaching practice of one of the central pedagogical tenets of the Game Sense approach – the use of well-considered coach questions to guide the development of players' technical and tactical game development. Since the ASC workshops in 1996, until this research there has been no assessment of the uptake of the Game Sense approach in Australian tennis. The pedagogical practice of coach-led questions in the Game Sense approach has been referred to as a form of guided discovery. This research used Mosston and Ashworth's Spectrum of Teaching Styles (2008) (The Spectrum) as a tool through which to investigate the coaching styles of Australian junior tennis coaches, revealing coaches self-identified alignment with the guided discovery practice of coach-led questions (Mosston's Guided Discovery-Style F). The research found that a practice style (Mosston's Practice Style-B) was the pedagogical style used most often by the respondents, followed by a more directive or command style (Mosston's Command Style-A). Guided discovery (Mosston's Guided Discovery-Style F) was the third most commonly adopted pedagogical practice.

Introduction

The Australian sport Playing for Life philosophy is underpinned by the Australian coaching pedagogy known as the Game Sense approach (GSA) (Australian Sports Commission (ASC), 2015). This approach is described as one that employs games rather than drills to introduce tactical and technical dimensions of play. The GSA is described as being defined by the following concepts:

1. The game is the focus of practice, whereby players are challenged to think about what they are doing and why they are doing it via primarily games selected to purposefully achieve this objective;
2. The coach/teacher role is to act more as a facilitator setting challenges and guiding player problem solving for player learning by self-discovery;
3. A pedagogical emphasis on questioning in preference to directing and 'telling' players what to do; and
4. The pedagogical use of the manipulation of environment, player and task constraints to modify games to purposefully achieve the objective of learning what to do and why to do it as complimentary game dimensions interwoven into the development of skillful 'thinking' players (ASC, 1996; 1999; 2015; den Duyn, 1997; Schembri, 2005).

The GSA was introduced as the preferred coaching practice in Australian sport during the early-to-mid 1990s by the ASC (ASC, 1996), prompting tennis coach education providers to emphasise the approach and its embrace of increased player involvement in the coaching process in formal coach accreditation literature. The Australian Tennis Coaches Conference in 1996 featured discussion on the GSA (Hewitt, 2015). The content of coach education guides and manuals now emphasise a game-based approach (Tennis Australia, 2010a, 2010b). This move in coach education in Australia via the GSA is mirrored in the global direction in tennis away from a coaching focus on directive instruction of a 'technical stroke

model' encouraging players to copy idealised stroke mechanics towards a game-orientated approach in coach education provided by coaching associations (Crespo, 1999; Holt, Strean & Bengoecha, 2002). This pedagogical direction has been described as a 'discovery' approach where technique teaching is placed within the context of a game (Crespo & Reid, 2009), and the preferred way of teaching novice and beginner players is with an emphasis on match play and the incorporation of isolated technique work is kept to a minimum (Tennis Australia, 2010a).

Tennis Australia coach education materials emphasise a discovery approach (Tennis Australia, 2010a, 2010b). The GSA pedagogical emphasis on the use of well-considered questioning to guide and direct learning has been described as guided discovery or a discovery style (Breed & Spittle, 2011; Light, 2014; Pill, 2007; 2012). Guided discovery is described by Mosston and Ashworth (2008) as a 'landmark teaching style' characterised by the pre-determination of the sequence of steps (in the context of the GSA, the sequence of questions) that will "gradually and securely lead the student to discover the end result" (Mosston & Ashworth, 2008, p. 214); in other words, the GSA has been likened to a process of coherent and logical progressions leading to the 'discovery' of the target concept, principle or idea. "The role of the learner is to discover the answers" (Mosston & Ashworth, 2008, p. 212) via "logical and sequential design of a series of questions that lead a person to discover a predetermined concept, principle relationship or rule that was not previously known" (Mosston & Ashworth, 2008, p. 212). This discovery process is unlike what is described as a 'traditional' sport-as-sport techniques (Kirk, 2010) coaching approach where largely directive instruction of a 'technical stroke model' encourages players to copy idealised stroke mechanics.

Guided discovery is a misunderstood term and its conception within the Spectrum is significantly different to how guided discovery is viewed in other teaching approaches.

This research used The Spectrum as a tool through which to investigate the self-reported coaching styles of Australian junior tennis coaches to determine the alignment of pedagogical practice with the key pedagogical tenets of the GSA of a 'discovery' oriented practice environment. This research involved 208 junior development and club professional coaches in self-assessment of their teaching styles. The research has filled a gap in the GSA literature as since the ASC workshops in 1996, until this research, there had been no assessment of the uptake of one of the key pedagogical devices of the GSA in Australian tennis and thus whether the coaching direction preferred in the Australian sport Playing for Life Philosophy and tennis coach education specifically was evident in the field. This research is significant as it is acknowledged that to impact the practice and behaviour of coaches requires that they acknowledge what they do, in addition to the assumptions that support and inform their coaching (Harvey, Cushion & Massa-Gonzalez, 2010).

Method

This paper reports stage 1 of three stages of a larger study which investigated the instructional practices of tennis coaches. Stage 1 was a survey questionnaire of the perceived teaching styles of tennis coaches, Stage 2 was a series of systematic observations of the tennis coaches in action teaching students in sessions, and Stage 3 was a series of follow-up interviews with selected participants from Stages 1 and 2.

Stage 1 consisted of a survey questionnaire which reported the teaching styles that tennis coaches' believe they used during coaching sessions throughout the year. The survey questionnaire used an adapted description inventory of landmark teaching styles developed from Ashworth's (2010) *Description inventory of landmark teaching styles: A Spectrum approach* and SueSee, Ashworth, and Edwards (2007) *Instrument for collecting teachers' beliefs about their teaching styles used in Physical Education.* The adapted description inventory of landmark teaching styles provided a scenario description of each of the eleven

teaching styles on The Spectrum to more directly connect to the field of coaching. Written or verbal permission to employ the necessary changes to the descriptions was granted by Prof. Sara Ashworth, Associate Prof. Ken Edwards and Dr. Brendan SueSee.

Creswell (2012) indicates that survey questionnaires are a valuable method of data collection when attempting to encapsulate a large number of responses as a sample of a population, which this research attempted to do. The survey questionnaire consisted of two parts. Part A posed questions relating to socio-demographic information in addition to coaching habits. These questions included: gender, age, and state or territory where you currently coach, highest educational qualification, coaching qualification that you are currently completing, how many years you have been coaching, how many hours a week you coach, the age group that you spend most time coaching, and the level/standard of the students you coach. Part B of the survey questionnaire then presented one question relating to the description inventory of landmark teaching styles. The question (for each of the 11 landmark teaching styles for which a description was provided) was: *'How frequently do I use this landmark teaching style in my coaching sessions throughout the year?*' A five-point rating scale was used for participant ratings. The items used for the question consisted of: *not at all, minimally, here and there, often, and most of the time.* An example is shown in Figure 1.

Landmark Teaching Style	Scenario Description of Landmark Teaching Style				
A	The students perform the task, selected by the coach, in a unison, choreographed, or precision performance image following the exact pacing (cues) set by the coach.				
How frequently do I use this landmark teaching style in my coaching sessions throughout the year?	Not at all	Minimally	Here and there	Often	Most of the time
	1	2	3	(4)	5

Figure 1. Frequency of Landmark Teaching Style.

An example of one scenario description from the description inventory of landmark teaching styles which shows a five-point rating scale used to measure how frequently a landmark teaching style was used.

To assess the effectiveness and comprehensibility of the survey questionnaire a pilot study was conducted with 50 tennis coaches. Following feedback from the pilot survey minor modifications were made to some of the inventory descriptions that more closely related them to tennis coach. Following ethics approval, the survey was then deployed with all coaches enrolled in the Junior Development and Club Professional coaching courses between 2009 and 2011 were invited to participate in the survey questionnaire. A total of 208 tennis coaches enrolled in the JD formal accreditation tennis coaching program (n=130) and the CP formal accreditation tennis coaching program (n=78) between the later part of 2009 through to the end of 2011 completed the survey questionnaire. The survey questionnaires were distributed to the participants via their local Coach Development Coordinator (CDC). All coaches who agreed to participate in the study were provided with: (a) formal letter of invitation and plain language statement, and (b) the survey questionnaire.

The IBM Statistical Package for the Social Sciences (SPSS) Version 20.0 was used to perform analyses on the survey questionnaire variables. In addition to these descriptive

statistics, one-way analysis of variance (ANOVA) was used to explore differences in mean responses by CP and JD coaches about their self-reported usage of teaching styles during coaching sessions throughout the year. Non-parametric Mann Whitney tests were conducted to test for differences between medians. One-way analysis of variance (ANOVA) and post-hoc LSD tests were additionally employed to explore the differences in mean responses from all the coaches as a single group (n=208) with regard to their self-reported usage of teaching styles and:

- Level of players the coaches spent most time coaching per week.
- Age group most time spent coaching per week.
- Hours of coaching spent per week.
- Years of coaching experience.

In order to determine whether there was a significant association between coaching qualification and hours of coaching, level of students the coaches spent most time coaching, years of coaching and the age group the coaches spent most time coaching, Chi-square tests were performed.

Results and discussion

The majority of participants reported that they coach beginner players (51%). With respect to the age group that the participants spent most time coaching, 38% reported to coaching students in the age bracket of 6-8 years, 26% stated that they coached players between 4-5 years of age and 22% indicated that they spent most time coaching students aged between 9-11 years of age. Over 80% (n=171) of the coaches were male, while females constituted 17.79% (n=37) of the participants. The largest percentage of coaches (40.87%) (n=85) was aged between 20 and 29 years old, with almost 34% (n=69) of coaches aged in the 15 to 19 years age bracket. The age bracket of 30 to 39 represented just fewer than 15% of coaches, while 7.21% (n=15) of coaches reported to being aged between 40 and 49 years at the time of

the study. The smallest percentage of coaches was in the 50 plus age category (3.85%). Table 1 shows the breakdown of responses for data collected with the survey questionnaire. The teaching styles are listed in the first column.

Table 1. The total breakdown and percentages of all tennis coaches' self-identified usage of teaching styles after reading the scenario descriptions (n=208).

Self-Identified usage of teaching styles by all tennis coaches' after reading the scenario descriptions (n=208)											
Teaching Style	*Not at All*	%	*Minimally*	%	*Here and There*	%	*Often*	%	*Most of the Time*	%	Total coaches
Command Style-A	4	1.9	36	17.3	62	29.8	93	44.7	13	6.3	208
Practice Style-B	3	1.4	25	12	58	27.9	100	48.1	22	10.6	208
Reciprocal Style-C	43	20.7	73	35.1	55	26.4	33	15.9	4	1.9	208
Self-Check Style-D	40	19.2	62	29.8	62	29.8	42	20.2	2	1.0	208
Inclusion Style-E	49	23.6	56	26.9	48	23.1	51	24.5	4	1.9	208
Guided Discovery-F	15	7.2	40	19.2	57	27.4	78	37.5	18	8.7	208
Convergent Discovery Style-G	26	12.5	52	25.0	81	38.9	42	20.2	7	3.4	208
Divergent Discovery Style-H	9	4.3	39	18.8	84	40.4	67	32.2	9	4.3	208
Learner Designed Individual Program Style-I	57	27.4	76	36.5	54	26.0	20	9.6	1	0.5	208
Learner Initiated Program Style-J	63	30.3	85	40.9	50	24.0	9	4.3	1	0.5	208
Self-Teaching Style-K	73	35.1	69	33.2	51	24.5	14	6.7	1	0.5	208

The survey questionnaire indicated that coaches reported using two 'reproduction' teaching styles (Mosston & Ashworth, 2008) most frequently (*often* to *most of the time*) during coaching sessions throughout the year – Command Style-A (51%) and Practice Style-

B(58%). The coaches also reported to using Guided Discovery-F (46%) as the third most commonly used teaching style. Two classifications of thinking capacities are captured in the 11 styles of The Spectrum. One of those thinking capacities is reproduction. All individuals have, in varying degrees, the capacity to reproduce known knowledge, replicate models, recall information, and practice skills. Additionally, all individuals have the capacity to produce a range of new ideas. The first five landmark teaching styles (Command Style-A, Practice Style-B, Reciprocal Style-C, Self-Check Style-D, and Inclusion Style- E) form a *cluster* that represents teaching options that foster *reproduction* of existing (known, past) information and knowledge. The information to be learned can also be new to the learner but the content is fixed, specific, a model or procedure. The remaining teaching styles (Guided Discovery Style-F, Convergent Discovery Style-G, Divergent Discovery Style-H, Learner-Designed Individual Program Style-I, Learner-Initiated Style-J, and Self-Teaching Style-K) form a *cluster* that represents options that invite *production* (discovery) of new knowledge. This knowledge is new to the learner, and it may be new to the teacher, or at times, new to society (Mosston & Ashworth, 2008). The GSA is emphasised as developing 'thinking players', and The Spectrum teaching styles provide a guide as to the type of thinking (reproduction or production) fostered by the use of the teaching style.

Over 51% (n=106) of the participants reported to using Command Style-A from *often* to *most of the time* during their coaching sessions throughout the year. While only four coaches (1.9%) from the total sample (n=208) reported to not employing this style at any stage during coaching sessions. Practice Style-B was the most frequently reported teaching style by coaches in this study. Approximately 60% of the participants stated that they employed this style from *often* to *most of the time.* Twenty-five coaches (12.0%) reported to using this style *minimally*, while only three coaches (1.4%) from the overall sample of 208 said that they did not use this style at all during coaching sessions throughout the year. The third most used teaching style as reported by coaches was Guided Discovery-F. Almost 50%

of the participants employed this style *often* to *most of the time* during lessons. While 57 coaches (27.4%) revealed that they used this style *here and there*, 15 participants (7.2%) indicated that they did not employ this style at all when coaching. The data shows that JD and CP tennis coaches in Australia largely self-identified similar teaching styles from *often* to *most of the time* in their coaching sessions throughout the year. Results also revealed that JD and CP coaches reported spending most of their time using teaching styles located in the *reproduction cluster* of The Spectrum (Mosston & Ashworth, 2008). We would argue that the finding of mostly Command Style-A and Practice Style-B teaching styles indicates a common coaching practice purposing instruction of a 'technical stroke model' and encouraging players to reproduce (copy) idealised stroke mechanics, or what one might colloquially call 'textbook techniques'.

Overall, the coaches in this study reported to using all the teaching styles during coaching sessions. On closer inspection, however, a more accurate interpretation concerning the frequency with which they believed that they used all the teaching styles emerged. Only three teaching styles were reported from *often* to *most of the time* by over 45 percent of Junior Development (JD) and Club Professional (CP) tennis coaches. These included: Practice Style-B (58.7%), Command Style-A (51.2%), and, Guided Discovery Style- F (46.2%). Practice Style-B and Command Style-A are located in the *reproduction cluster* of The Spectrum (Mosston & Ashworth, 2008) and share similarities with direct instruction guidelines, or what Metzler (2011) describes as a Direct Instruction pedagogical model. Coaches who employ direct instruction enforce the majority of the instructional decisions during the session and players are directed to acquire and use this knowledge in ways stipulated by the coach**.** The different perspectives of Guided Discovery as outlined by The Spectrum and guided discovery as applied to GSA and other approaches is not clearly determined and doing so would be beneficial to sports coaches. Guided Discovery Style-F is located in the *production cluster* of The Spectrum (Mosston & Ashworth, 2008). This

teaching style shares some pedagogical principles associated with indirect and discovery instruction guidelines typical of the GSA, whereby or coach includes the players in decision making to promote discovery and creativity of knowledge and skills.

Conclusion

The identification of different features within pedagogical behaviour among tennis coaches in Australia will be particularly crucial to enhancing coach education programs – namely on a content and learning strategies basis. Owing to these reasons it would appear necessary for coach education providers to understand what teaching styles tennis coaches are presently employing and if they are using a range of teaching styles aligned to the emphasis recommended by coach education providers. The study results, based on beliefs about teaching styles employed, show that JD and CP tennis coaches in Australia do not use a range of teaching styles consistent with the pedagogical emphasis of the GSA during their coaching sessions throughout the year.

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Re-presenting teachers' experiences of using game-based approaches through poetic transcription

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This paper provides an overview of poetic transcription and how I used it to re-present physical education teachers' experiences of teaching games using a game-based approach (GBA). Composite narratives derived from a study exploring teachers' experiences of GBA teaching provided the initial storying of experience with three separate teacher capacities for experience identified; that of a *Learner*, a *Collaborator*, and a *Catalyst*. These narratives were then re-storied as found poems. Discussion within this paper comments on the reflexive action I engaged with to transform interview transcripts into poetic form with specific comment offered as to my rationale for use of poetic transcription as well as the process I undertook to re-see teachers' experiences of GBA experience. Comment stemming from a comparison of poems is also offered along with what experimentation with poetic transcription enabled me to "do" with my understanding of the experience of GBA teaching.

Introduction

Similar to Legge (2015), I am interested in experimental forms of research writing that challenge traditional research conventions in physical education. As part of a study exploring teachers' experiences of teaching games using a game-based approach (GBA) the development of composite narratives from interview transcript data offered an initial insight into teachers' capacities for GBA experience. Yet, as an extension of this insight I was

interested in developing another equally powerful and engaging means for readers to access and develop their understanding of what it means to experience GBA teaching. I had recently read Maureen Legge's (2015) paper on her use of poetic transcription to examine physical education pre-service teachers' learning when teaching Māori content in secondary physical education in New Zealand and I was immediately struck by what poetic representations of interview transcripts offered to readers; that being a powerful and engaging opportunity to recreate complex events through which depth of experience was not lost. Legge (2015) commented that the teaching experiences that she was reporting on had been "emotionally charged for the participants" (p. 147) and that she saw fit to "give voice to their emotions, vulnerabilities, and actions; and to reveal something of their perceptions and practices" (p. 143). Thus, Legge's use of poetic transcription to re-present aspects of subjectivity and meaning of experience for two individual pre-service teachers was profound enough for me to consider its use as a means to re-present collective meaning of in-service teaching experience as was the focus of my study.

Overview of study

My study focused on the analysis of collective meaning associated with secondary physical education teachers' experiences of teaching games using a GBA. Participants in the study taught in one of two different international contexts, southeast Australia or southeast England, and all had some experience of using a GBA to teach games. Elicitation interview technique, which uses questioning of sensorial context to engage the interviewee in the 'reliving' and verbalisation of past experience, was used to help understand experience "in context" within a phenomenographic research framework with the purpose being to uncover the qualitatively finite number of ways that GBA-related teaching was/can be experienced. The findings of the study relate to participants (N=12) having three separate capacities to experience GBA-related teaching. Each capacity for experience was categorised as being

either a *Learner*, a *Collaborator*, or a *Catalyst*. These three categories formed a hierarchy of qualitatively different ways that the phenomenon of GBA-related teaching was/can be experienced that was both inclusive in nature (e.g. those that experienced the phenomenon as a *Catalyst* with a more complex understanding also experienced the phenomenon in part as a *Learner* with a less complex understanding) as well as parsimonious in structure. A brief explanation of each of the three categories is offered in Table 1.

Table 1: A brief explanation of each category.

The *Learner*	The *Learner* category represented the view that teachers using GBAs were required, first and foremost, to be *Learners* with conceptions of experience reflecting a more operational understanding. This meant experiencing the phenomenon of GBA teaching at a less complex level with fewer elements of the phenomenon being discerned (e.g. the act of effective questioning) with a clear focus on the actions of self as teacher.
The *Collaborator*	The next category, the *Collaborator*, represented the view that a focus on using GBAs required engaging pupils in collaborative learning endeavours with participants delegating responsibility for learning. One of the key variations within this category (in difference to the *Learner* category) was the reliving of teaching experience that depicts a teacher and pupil focused endeavour.
The *Catalyst*	The third category, the *Catalyst*, represented the view that through purposeful and collaborative design and action teachers using GBAs can be catalysts for pupils' learning and development beyond the curriculum. Thus, teaching experience was relived as a purposeful endeavour that offered learning opportunities beyond the constructs of curriculum. For the Catalyst self, collaborative and contextual aspects of experience were prominent elements of focal awareness.

In order to provide further insight into the complexity of meaning attributed to GBA teaching experience over and above more familiar ways of sharing research findings,

composite narratives were then constructed and presented to form an integral part of each category description. A number of researchers (Webster & Mertova, 2007; Clandinin & Connolly, 1990) have used narratives to address issues of complexity and subtlety in human experience with their use in educational research supported by the view that "education is the construction and reconstruction of personal and social stories" (Connelly & Clandinin, 1990, p. 2). Thus, each composite narrative created for my study was made up entirely from utterances contained within transcript data in an attempt to remain as faithful as possible to the intended meaning of experience as shared by each participant. One of three composite narratives constructed as part of my study (that being the experience of GBA teaching as a *Learner*) can be viewed in Table 2. It was this desire to remain faithful to experience that led me to consider the use of poetic transcription as another means by which the experiences of GBA teaching by participants of my study could be accessed.

Table 2: One of three composite narratives constructed from participants' transcripts.

The first lesson is me instructing… it was that kind of games teaching session rather than a lacrosse session… **I'm a bit nervous about not really understanding what we're doing because this isn't how I've kind of learnt my own sport…** I explain some modified rules for them… emphasising the key things we have been working on in previous weeks and that I would like to see them utilise them well in this game… **that's why I think it's TGfU because… we didn't have to play lacrosse rules…** So I have given them a clear instruction about how close they are allowed to be to any other person on their own team at any time…. **there are kids that are still barrelling in on top of the ball just like before… to be honest there… they just want to play with the ball and aren't that bothered where they should be…** ultimately I do get the response I am hoping for which is we need to space out more… **I ask specific groups 'what are the issues? Are you working as a team?'**… Maybe that's it – maybe what I've associated as being TGfU is so far removed from what you're expecting…

Note: The bolding and non-bolding of text is used to separate and highlight the coming together of utterances from different participants' transcripts, but the narrative should be read as one continuous story.

Poetic transcription

Recognised as a form of qualitative research in the social sciences, poetic transcription offers a non-traditional way for researchers to portray their inquiry (Glesne, 1997). These narratives are poetically structured and intended to stimulate readers' reactions and invite a new understanding of research text (Richardson, 2013). The found poetry of poetic transcription is created through the analysis of interview transcript data by selecting and rearranging words to reflect original text meaning (Burdick, 2011). It requires text to be filtered through and by the researcher to reduce transcript data whilst simultaneously "illuminating the wholeness and interconnections of thoughts" held within transcripts (Glesne, 1997, p. 206). Providing readers with opportunities to access and engage with the wholeness of interviewee's thought was also the motivation for Collins' (2015) use of poetic transcription in her re-presenting of an asylum seeker's struggle for survival in a new environment. When discussing its virtues Collins (2015) suggested that use of poetic transcription gave back to the interviewee some of the power to represent themselves and their story even though the selection and configuration of words in poetic form was often done for aesthetic and interpretive reasons. Further comment by Collins (2015, p. 2) also related directly to my use of poetic transcription:

> As I coded the transcripts in preparation for a more conventional qualitative write up, there was something about Peter's words that touched me.

Indeed, my desire to re-story and re-present the words held within interview transcripts from my study was also due in part to there being *something in the words* of my participants. Furthermore, with the point of poetic transcription being less about the final destination and more about the exploration of "the many paths that may lead the way" (West & Bloomquist,

2015, p. 5), the reflexive action of transforming interview transcripts into poetic form offered a unique way for me to see and re-see teachers' experiences of GBA teaching so that I could better understand their intended meaning. Thus, with poetic transcription done to better understand the richness, subtlety and passion associated with teaching experience (Jones, 2010) the process I undertook to construct each poem requires explanation.

Composition process

Similar to Legge's (2015) initial experimentation with a single interviewee's transcript I experimented with the design and structure of utterances aligned to each category of experience. Taking utterances directly from composite narratives I trailed a five or six line design for each poem which reflected the number (more specifically the range) of participants' GBA teaching experiences aligned to each category. This was also done as a means to provide focus on key aspects of participants' lived experience whilst simultaneously highlighting meaningful details of feelings or epiphanies associated with GBA teaching experience specific to a certain category (West & Bloomquist, 2015). As poems took shape they were read and re-read with some lines (utterances) replaced or reordered according to the faithfulness of the prevailing meaning resonating from each read. Consideration was also given to more formal conventions of poetic writing as outlined by Richardson (2003) e.g. the repetition of an utterance to emphasize its role within a specific category of GBA teaching experience.

The reflexive nature of poetry writing also meant that I took considerable time to form and review each poem. Poems were constructed over a week long period with a consistent six line format eventually adopted for each poem as a means to; 1) help readers consider each poem in a comparative light; 2) to help readers compare and contrast the meanings they assigned to each poem, and 3) to provide readers with an opportunity to "experience" and "feel" what GBA teaching is/means according to others (Richardson, 2003, p. 197). The

composition process concluded with the formation of a six line poem associated with each category of GBA teaching experience.

Found poems

Each of the three poems below is suggestive of a range of experiences associated with a particular categorisation of GBA teaching experience; that being experience as a *Learner*, a *Collaborator*, or a *Catalyst*. It is intended that the reading of these poems offers access to a concentrated form of participants' GBA teaching experiences with each poem suggestive of nuanced experience central to experience categorisation.

Poem 1: Re-presenting experience of GBA teaching as a Learner

The first lesson is me instructing
I'm a bit nervous
I'm a bit nervous
I explain some modified rules
That's why I think it is TGfU
Maybe that's it

Poem 2: Re-presenting experience of GBA teaching as a Collaborator

Without too much instruction
I want them to work it out for themselves
I spoke to them
I questioned more than told
I wanted to understand how I could best help them
'Away you go'

Poem 3: Re-presenting experience of GBA teaching as a Catalyst

I'm looking closely
The allocated space is shaping play
They've discovered it
Tell me… identify… have that awareness
'How did that feel?'
No-one seems to notice the cold

Comparing poems

The reading and comparing of poems, for me, offered opportunity to uncover some of the many connections that exist between and that help define each category of experience. For example, Poem 1 describes a leap of pedagogic faith whereas Poems 2 and 3 unveil a growing assuredness of action which often accompanies purposeful and deliberate teaching practice. The two latter poems also highlight key principles of effective GBA teaching that are absent from Poem 1 e.g. the act of questioning and the provision of opportunity for pupil-led discussion. Other more subtle connections between poems also exist. For example, all poems are arguably connected by the underlying suggestion that GBA teaching experience relates to a change in the capacity to experience the act of teaching. This can be seen in the change in focus prevalent in each poem with Poem 1 focusing on the actions of teacher, Poem 2 focusing on the teacher and the pupil, and Poem 3 focusing on the pupil and the elements that shape pupils' learning experiences. This conscious, or non-conscious, movement of teachers away from being *the central figure* of learning was of obvious prominence within poems. By no means, though, is suggestive of a developing abdication from teaching responsibility, but instead representative of perhaps more truthful and desired GBA-related teaching practice.

A line-by-line comparison of poems also offers insight into GBA teaching experience but in more concentrated form. For example, when considering the first line of each poem

(Poem 1 “The first lesson is me instructing”; Poem 2 “Without too much instruction”; and Poem 3 “I’m looking closely”) a focus on teacher action is prevalent with this initial emphasis designed to highlight a key component of effective GBA-related teaching practice; that being the role of the teacher. When considering a comparison of the final line of each poem (e.g. Poem 1 “Maybe that’s it”; Poem 2 “‘Away you go’”; and Poem 3 “No-one seems to notice the cold”) connections here seem slightly more abstract although no less powerful. Here, each comment offers insight into the very nature of experience, from a confused and perhaps even perfunctory perspective in Poem 1 through to a more holistic interpretation of what GBA teaching might offer pupils in Poem 3.

Experimenting with poetic transcription

In relation to the composite narratives used to find each poem, the connections that appear (and fail to appear) between poems seem effective in re-presenting experiences of GBA teaching uncovered within the study. Experimentation with poetic transcription offered me a means to re-engage with collective experiences of GBA teaching from which key aspects of experience were then voiced in a dramatic and specific fashion. This process, that of finding poems from interview transcripts, not only helped to reinforce my overall understanding of GBA teaching experience, but will also help to inform my future practice as a physical education teacher educator. For example, through recognition of key aspects of experience it is important that I help pre-service physical education teachers to experience variation in the way they conceptualise GBA teaching as a means to try to alleviate initial nervousness and concern that is apparent in beginner trialling of GBA teaching.

Conclusion

Clandinin and Connolly (2000) suggest that the use of composite narratives to *retell* stories of meaning provides opportunities for continued growth and change in our understanding. By

taking this premise a step further and re-presenting stories as found poetry, my understanding of GBA teaching experience was heightened through what West and Bloomquist (2012, p. 19) suggest is typical of poetic transcription; that is the bringing to life of "meaningful, rich, lived experiences". Thus, it is hoped that this re-storying and re-presenting of GBA teaching experiences can help to develop the pedagogical practice of GBA teaching as well as the development of practice of physical education teacher educators.

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Game centred training and learning in Australian Rules football: Progressions and challenges

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There has been a long tradition of closed skill activities in Australian Rules football. In this paper, I explain how game centred training has become more prevalent in Australian Rules football. I apply a description of the benefits of game centred training in regards to coaching and teaching the game as well as improvements in training efficiency with an emphasis on implicit learning and game like conditioning. Barriers to implementation are discussed and future areas for research are suggested. I offer a practitioner perspective on the progressions and challenges of moving towards a game-centred coaching and teaching approach across the span of my teaching and coaching career. The movement from a directed learning approach towards utilising game based activities coupled with the use of questioning to develop the 'thinking player' is highlighted. I conclude by offering suggestions to assist in the uptake of the game sense approach in Australian Rules football.

Introduction

Game centred training has become more prevalent in Australian Rules football over previous years. The foundations of game centred training stem from the work of Thorpe et al. (1986), which showed that many physical education and sport teaching programs were focused on the teaching of skills through a drill based approach which focused on teaching "how" before "why". The problem was that it didn't provide a context for learning. They proposed that this approach be reversed and that game skills be taught through modified versions of the game where tactical awareness and decision making are developed. This form of training has

developed many different forms and philosophies such as; game sense, conditioned games, small sided games (SSGs), play practice and Teaching Games for Understanding (TGfU). These all have different core tenets but the main element is that key learning occurs from the game itself and game related activities, as opposed to drills completed in isolation then applied during a game. When these activities are guided by the coach's questioning, players develop into knowing not only how to perform skills, but also where, when and why, (Light, 2005). The benefits of a game centred approach to training and development are many.

Within Australian Rules football, there has been a long tradition of using closed skill activities within training sessions. Closed skills are: pre-determined and based on a perfect model of execution where players have their own time and space to execute the skill in a repeatable manner (Wheadon, 2008). These practice drills are often performed in isolation from the competitive performance context (Davids et al., 2013). Opposite to this are open skills. These require players to continually adapt to the situation confronting them. The environment that they perform in is constantly changing. Football is mainly an open skill sport (Wheadon, 2008). Within a game centred training approach, the majority of activities undertaken expose players to open skill situations. These would include differing numbers of opponents, sections of the ground, phases of play, decisions to make and scoreboard scenarios all performed under time and fatigue pressure.

Train as you play

In order to teach and develop players, training activities should replicate game events and phases of play. Transfer of what is learned during training to the game environment depends on how closely practice and training resembles the game (Magill, 1993). If coaches reduce the game to its simplest form and offer only one solution to one specific problem, the player's ability to think through multiple problems and solutions to variations of different scenarios is limited. This is reduced further in many situations by coaches providing direct explicit

feedback to players during this time, impacting on implicit learning and feedback even further. Implicit learning and feedback is achieved through the action itself and reflection thereon as opposed to extrinsic feedback provided by an external source such as a coach. Implicit learning is stronger and deeper and holds up under conditions of pressure and confusion which a player encounters during a game, (Williams and Hodges, 2005). A player who is encouraged to explore and recognise different play based scenarios through game based learning activities and well-structured questioning, will be able to better deal with the complexity of the game environment by having more experience in these situations. Game simulation also improves a player's ability to analyse the range of decision making probabilities and select the correct option, (Merrick & Farrow, 2003).

Game centred training also develops game-like fitness conditioning along with technical skills training and tactical understanding (Pill, 2012). Utilising game centred training especially SSGs, allows the player to develop the fitness requirements specific to the game provided these are delivered at high intensity. The intensity of skill based conditioning games has been shown to be significantly greater than both interval training and non-game related skill drills (Gabbett 2006). Skill based conditioning games are also acceptable substitutes for aerobic interval training to maintain fitness during the competitive season, (Gabbett, 2006). This has the added benefit of improving efficiency of training in that fitness can be developed at the same time as developing game based skill, tactical and strategic requirements. The main requirement is that the activity is performed in a relatively small area with few players per team (Davies et al. 2013). This helps to provide suitable game demands as well as the appropriate training load. The size of the playing area, player number and rule changes can also influence the demands on the players. One area of concern by some coaches is that some players can 'hide' during these activities. Utilising the CHANGE IT approach, (Coaching Style, How you score/win, Area, Numbers of players, Game Rules, Equipment, Inclusion, Time), (Australian Sports Commission, 2007), to manipulate different

variables within game centred activities can ensure this doesn't occur. The greatest benefit of game centred training is that players are required to compete, concentrate and communicate effectively under pressure and fatigue, as they would during a game.

There are times where these concepts are poorly understood and implemented. There can be an over reliance on closed training activities during training sessions for a number of reasons. These could include: the repositioning of the coach from director to facilitator, the sometimes chaotic appearance of game centred training, time restraints and the time required for long term development of the players, (Light, 2005). Coaches may feel the need to provide direct instruction to be "noticed" by their players. As a result, players can end up spending a great deal of time in activities that don't replicate the demands of the game, (Ford et al. 2010). Another concern would be the amount of time the players are listening to a coach who is having their say, when they could be learning and receiving feedback via their own actions. Some coaches may prefer the security of closed drills as opposed to the instability presented by game based training, (Williams and Hodges, 2005). Unfortunately they become frustrated when these closed drills are unable to be performed by players during the game. It is a common cliché used by coaches to their players that "you play the way you train". Coaches should focus on shaping activities that allow players to "train the way you play". This is not to say that there isn't a place for closed skill activities. These can be effectively utilised as a part of the warm up and warm down and should be seen as an opportunity to refine technical movement models, (Pill, 2015). They can also be utilised within game centred training when an aspect of game play has broken down. By utilising them within the structure of game centred training, the closed drill now has a context to why it is being used.

Game centred training should not be seen as a "minor game" nor should it be an activity to spice up training or used as a concluding game. It should be looked upon as the main learning activity that players undertake to develop their game performance and understanding. Australian Rules football, like many other field based invasion sports, requires teamwork

along with highly developed technical skill and decision making ability combined with speed, muscular strength, power, agility and aerobic power (Farrow et al., 2008). Game centred training is the most efficient manner in order to achieve these aims. Time is the most precious commodity within all programs. At the elite level, game centred training and learning promotes more efficient learning of game concepts and structures, whilst at community levels, including senior football, junior football and Auskick programs, game centred training allows the teaching of the "why" before the teaching of the "how". It is imperative that coaches ensure that time is maximised to enable learning and development to occur through all activities. Utilising game centred training and learning activities combines these elements into a training program, improving efficiency by utilising the training time more effectively.

As with any skill, developing and implementing a game centred approach requires practice to perfect. Coaches at all levels need help in designing learning situations that provide players with multiple scenarios and opportunities for decision making in game based contexts, (Turner, 2014). Whilst there has been specific study to quantify the skill and physiological demands of open and closed training drills in Australian Rules football (Farrow et al., 2008), there is a need to reinforce these findings, especially in regards to the skill demands within different settings and at different levels. More work needs to be undertaken to reinforce and further demonstrate the relationship between game centred training and skill development. Areas of research related to Australian Rules football could be the optimal number of players for small teams to have the greatest impact on learning. Another area could be the optimal area size for SSGs. These both have implications for learning and development of players. Research from other invasion sports, especially soccer, has shown that game centred learning has the most impact. As a sport, Australian Rules football needs to research, use examples from other sports and continue to develop players and coaches within this approach.

Progressions and challenges: A practitioner's reflection

These concepts have progressively evolved within my own career as a physical education teacher and coach over the past twenty years. As a university student in the early 1990s, the learning focus was very much on skill and drill with organisation and structures the focus. This passion for defined drills saw an approach that was based around breaking games, and therefore skills, down into component parts. These were repeated until some semblance of mastery was performed. Students were then assembled into teams and the concluding activity was a game. Like many university physical education students at the time, additional professional experience was gained coaching junior sports teams at the clubs we were playing members at. This involved implementing highly structured drills that ensured maximum activity, minimal time spent waiting in lines, looked organised and impressed parents, supporters and club administrators. There was minimal game play, a great deal of directed instruction and few opportunities for players to learn intrinsically about the "whys" of the game.

Throughout the mid 1990s, at the very start of my teaching career, my approach mirrored that which had been ingrained during my pre teacher training. A highly structured, rigorous approach to skills and drills and a concluding game as a reward for working diligently. During this period, SEPEP (Sport Education in Physical Education Program) had become increasingly popular. This was the beginning of allowing students to learn through the playing of a game as opposed to learning from a distance. Teams were organised, structures were set in place (teacher driven) and students were in essence left to their own devices to play a "season" of sport. If this didn't suit the teacher's model of how the sport should be played, meetings were called, structures put in place, drills acted out and then the "season" of sport education would continue. There was a concern in regards to the learning and development that was taking place, especially in relation to the playing of the game.

There was exposure to the etiquette and traditions of game play but was there learning occurring about how to play the game? Were the better students being challenged? Were less capable students being provided with enough opportunities to learn? Ironically the process of moving towards a player centred approach didn't appear in any of my coaching endeavours at this stage.

The late 1990s and early 2000s saw the game sense approach gaining more publicity through various publications. This point in time coincided with a period of teaching in the United Kingdom. Football (soccer) was an all pervading presence on the sporting landscape and resultantly in the school yard as well. The football culture was based on informal small games, similar to the games played by children. What was striking was it seemed that this approach was taken to the training ground at some local teams I observed. The engagement of the players was noticeable. This transferred into the school environment where I observed impressive examples of SSGs in action, conducted by skilful teachers and coaches.

Returning to Australia I began to introduce these principles into my own teaching. Whilst there were still elements of the skill and drill approach, teaching and coaching elements of game play through the use of grid games and SSGs became more prominent. The schools in which I was teaching also had decreasing amounts of students involved directly in community sport. As a result, SEPEP had decreasing relevance to many of the students. Within my own coaching, I was now seriously analysing my approach and reflecting on my own playing experiences. I was looking for, and experimenting with, ways to provide players with realistic training and learning experiences that could be transferred to games. I wanted players exposed to as many scenarios as possible at training so that when these occurred during games, the players would be ready.

Teaching and coaching through games and researching different pedagogical models such as TGfU, Play Practice and Game Sense, I focused on developing players' abilities to think for themselves and work out solutions to different game scenarios. I was starting to use

an open questioning approach as opposed to a direct instructional approach. My classes, whilst still planned and organised, were based around students solving tactical problems and answering questions from both myself and each other. This included providing peer feedback as a result of the game that had just been played. My own coaching in Australian Rules football saw me utilising SSGs, game simulation activities and scenario based learning as the key bases for player learning and development. Using open ended questioning had become paramount. Players were encouraged to think about the game and work together to provide solutions to common tactical problems. The players were able to provide feedback to each other or the group as a whole about what was working or what actions and behaviours needed to happen more often. This is a continual process to this day and involves personal research of teaching and learning, especially the learning preferences of players, communication, provision of feedback and the many different concepts that can be woven into my own professional practice from many other sports and endeavours.

Conclusion

In this paper I have highlighted a range of benefits of using a game centred approach towards training and learning in Australian Rules football. As a practitioner, the optimal number of players and the size of area within SSGs specific to Australian Rules football remain as issues. I suggest the uptake of the Game Sense approach in Australian Rules football would be assisted by further research into its benefits specific to the sport and these highlighted to coaches at all levels. There is a need for further research including autoenthnographic accounts of their practitioner journey to the Game Sense approach to enable an appreciative perspective on why some adopt readily the philosophy and pedagogical practice of the Game Sense approach yet the literature suggests it is yet to become common coaching practice.

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Fostering creativity: The games lesson as the laboratory of the possible

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Schooling has a long history of promoting conformity and social control by emphasizing deductive thinking over inductive thinking and has been accused of 'killing' the capacity for creativity that humans are born with (Robinson, 2006). While the traditional sport skill approach contributes to the promotion of conformity and the suppression of creativity we suggest that a Game Sense approach offers physical education teachers the opportunity to provide learning experiences that are liberating, transformative and which can foster creativity. Focused on maintaining the play element of games, we highlight the possibilities they inherently offer for developing creativity and how this can be enhanced by using Game Sense pedagogy. The emphasis Game Sense places on the learning environment and facilitating learning instead of determining it opens up possibilities for creativity, interaction and expression in the games lesson to make it a *laboratory of possibilities*.

Introduction

Although our concern in this article is with physical education we begin with the second author reflecting upon her experience of art in year two at primary school. This personal experience forms the origin of our interest in writing this article and supports concern with how schooling discourages creativity by focusing on a subject that we tend to associate with creativity. It also helps to remind us of how teaching and learning in physical education is part of larger discourses across education and society.

I loved drawing and painting and was trying to hide how excited I was about my first art class of the year. I couldn't wait to be let loose on a clean sheet of paper with all those bright paints. The teacher gave all of us a piece of paper with a standardized fish outline printed on it and detailed instructions on what colours to use and where. My heart sunk; and inside my head I was shouting "why?" but I complied with the teacher's instructions, as I always did.

My 'creation' was identical to all 30 of my classmates'- except for one. Stephanie had coloured the eye of her fish brown - not blue, as we has been instructed to do. I sat in silence as she was reprimanded for not following instructions and "ruining" the picture as the teacher accused her of doing. At that moment I had a new understanding of art and what it meant to draw or paint. I understood that I should listen carefully to the teacher's instructions and follow them precisely, because they know more about art than students do. With glances at other students' work to make sure mine was 'correct', I showed the teacher my work to seek approval and reward.

This experience lends support to Beghetto and Plucker's (2006) contention that years of experiences such as this eventually condition students to stop asking 'why?' and start asking 'what do you want me to do, and how?' and Robinson's (2006) claim that schools 'kill' creativity. It also provides an example of the reproductive 'banking' approach to education that sees students as empty vessels to be filled with knowledge and which Freire (1970) argues, dehumanizes teachers and students while limiting possibilities for learning.

The traditional sport skill approach to physical education teaching (Kirk, 2010) conforms to the banking approach but here we suggest how it can adopt a more of the problem-posing approach advocated for by Fiere (1970) to promote education as a liberating and transformative experience through a focus on creativity. It does so through emphasizing listening, dialogue and action as the core features of problem posing pedagogy (Wallerstein,

1987) and of Game Sense pedagogy (Light, 2013). Focused on the play element of games we explore the possibilities they inherently offer for developing fuller humanity (Freire), which includes positive affective experiences and the development of creativity. The emphasis Game Sense places on the learning environment and facilitating learning instead of determining it opens up possibilities for creativity, interaction and expression in the games lesson to make it a *laboratory of possibilities* (Hendricks, 2006).

Do schools kill creativity?

The experience recounted by the second author that we opened with provides an example of how reward and punishment are used in schools to promote homologous knowledge and behaviour and limit the room available for the development of creativity. Most physical education classes that focus on the repetition of skill drills would offer similar examples of promoting homologous knowledge and limiting possibilities for developing creativity. De Bono (2006) defines creativity as the ability to generate new things and new ideas that exist outside the "box" built by external expectations, concepts, perceptions and constraints. He argues that creativity is essential for progress in any society but points out how there have been no significant innovations, inventions or breakthroughs (processes that require creative thought) in the arts or the sciences for the past 40 years or more (De Bono, 1993). Indeed, he argues that "the last golden period of medical science was between 1930 and 1965" (De Bono, 1993, p. 29).

Psychological studies have shown a notable decrease in children's levels of creativity from early childhood to adulthood over the schooling period, with Kim's (2011) study widely cited. Kim conducted a meta-analysis of 6 normative samples of participants from kindergarten through to 12th grade students in the USA and Canada. They had been tested for creativity levels with Torrance Tests of Creative Thinking (TTCT) that "test" five aspects of creativity which are; fluency, originality, elaboration, abstractness of titles and resistance to

premature closure. The study identified a large decrease in creativity for all ages from 1990 onwards.

The play element in games

The games that young children play are typically engaging and form important learning experiences for them but as they progress through the schooling system the spontaneity and rich social interaction that makes them enjoyable and meaningful declines as teachers feel increasingly obliged to 'teach' them how to play correctly. This typically involves games being reduced from free, expressive and imaginative play to exercises in the pursuit of an ideal 'correct' form. There is, however, little attention paid to the play element of games in the GBA (game based approach) literature – even with teaching games in primary school. For children, playing games free off adult interference inherently requires, and promotes, creative action and deep engagement in the game. The emphasis on dialogue, problem solving and inquiry in Game Sense can players realise the opportunity for developing creativity that games offer because as Hendricks (2006) notes:

> Play is the laboratory of the possible. To play fully and imaginatively is to step sideways into another reality, between the cracks of ordinary life (p. 1). [Furthermore] when deeply engaged in a good game we can be transported to a place where customary logic no longer applies and where we are surprised at every turn. In such ways, the play world is a kind of puzzlement. Like Alice (in Wonderland) we are drawn in deeper and deeper, at each moment learning something curious about the universe and about ourselves (p. 2).

Playing good games takes us away from the profane world of routine, predictability and control into the sacred realm of excitement and possibilities, removed from the constraints of normal life (Light, 2000). This applies to both young children playing informal games made

up on the spur of the moment and elite level athletes who can be lost in the *flow* of an intensely and evenly matched contest (Csikszentmihalyi, 1990).

Positive affective experience and creativity

The positive emotional states stimulated by the use of games in Game Sense (Light, 2002, 2013) and the opportunities they provide for expression, creativity and human development arise from the play element in these games that is enhanced by the use of Game Sense pedagogy. Teachers and researchers often ignore the importance of the subjective aspects of physical education with Kretchmar (2005) suggesting that they tend to be more comfortable with an objective view of movement and learning. They seem to be more comfortable with the concrete and measureable aspects of teaching and learning, but the magic of movement cannot be found in the drilling of isolated techniques and we still know too little about subjective experience and meaning. The irony of this lies in how the practical aspects of physical education offer rare opportunities for whole-person engagement in learning that is so lacking and devalued in the academic curriculum.

The pedagogy used in TGfU and Game Sense can provide learning experiences that are social, exciting, joyful, and liberating (Light, 2002). Focused on TGfU, Kretchmar (2005) proposes ten ways in which changes in how we teach can promote delight and we suggest that they can enhance creativity. He suggests that this involves changing from:

1. mechanically correct to expressive movement
2. acting to being
3. repetitive movement to inventive movement
4. inventive movement to creative movement
5. seeing opposition as an enemy to seeing them as friends who enable the game
6. movement being obligatory to being your own story
7. the constraints of being unfit to the freedom of being fit

8. aesthetically distasteful movement to pleasing, beautiful movement
9. fearing and avoiding challenges to enjoying them
10. thinking about movement to the spontaneous enaction of knowledge

Developing creativity through Game Sense

Some research and writing on the development of sporting expertise suggests the importance of early experiences of unstructured games as children (Côté, Baker & Abernathy, 2007). Chappell and Light (2015) argue that the games of cricket children typically design, manage and play develop the sort of creativity and adaptability needed at the highest levels of international cricket. They suggest that the academies used across the cricket world are only finishing schools and that the important fundamentals of creativity, flexibility in skill execution and decision-making are learned in these creative learning environments as children. This is supported by a recent study on the origins of expertise by Indigenous Australian NRL (National Rugby League) and AFL (Australian Football League) players that identified the pivotal importance of informal games played and self-managed as children (Light & Evans, in press). Other research on the development of sporting expertise also highlights the importance of 'deliberate play' rather than 'deliberate practice' for children (Côté, Baker, & Abernathy, 2007) that typically occurs within small, supportive communities (eg. Balish & Côté, 2011).

The education and psychology literature on children's play suggests that creativity and curiosity are naturally occurring but need appropriate learning environments to be realised (eg. Lin & Riefel, 1999). While Hendricks (2006) suggests this might be an overly romantic view of play, some of the physical education literature on GBA suggests the inclination of children to create and develop games that are dynamic, engaging and which provide an environment that can encourage realisation of creativity as an attribute needed to be a good game player (Light & Evans, 2015).

The role of the learning environment in fostering creativity

The technical approach to teaching games that focuses on learning technique before the game reduces the inherent complexity of games and the possibilities for positive affective experience and the development of creativity. There is a reasonable degree of certainty for teachers in this approach with the teacher's or coach's role being to impart knowledge and with the students being responsible for being able to perform these skills with a degree of competence. Typically, there is one correct way to perform the skill during practice and an expectation that the skill will be performed correctly in the game or modified game played once execution is good enough. In terms of promoting creativity there are few opportunities available during the drilling of technique and, although there is some possibility for creativity during games, this approach does little to actively promote it.

Game Sense emphasizes the learning environment by contextualising learning in conditions that replicate aspects of the end game or sport the students or players are practising for. All games or learning activities must have an element of awareness and involve some decision-making for transfer from the games lesson to the full or modified end game (Light, 2013). Learning to play games involves making 'sense of the chaos' (Light, 2005) as a process of adaptation arising from a conversation between embodied, non-conscious learning and conscious, articulated learning (Light & Fawns, 2003). Game Sense pedagogy emphasizes structuring experience by creating and managing the physical learning environment with much of the learning in a Game Sense lesson arising from engagement with the learning environment, which is how Dewey (1916/97) suggests we all learn. These are conditions that are infinitely more conducive to encouraging creativity than direct instruction of technique.

The dynamic environment of practice games requires constant adaptation, decision-making and responses that involve some sort of creative response but which can be difficult to identify. Two features of Game Sense teaching that are of prime importance for

encouraging creativity are: (1) the provision and encouragement of processes of collective inquiry and, (2) the provision of a supportive socio-moral environment (Light, 2013).

Promoting collective inquiry

As practice games increase in complexity they offer more opportunities for students to have 'team talks' or engage in the 'debate of ideas' (Gréhaigne, Richard & Griffin, 2005) in which they formulate solutions for problems they have identified in the game. They then test their ideas in the game, after which, they reflect upon the results and make appropriate changes or abandon the idea if necessary. This inquiry approach encourages interaction, creativity and opportunities for experimentation. It can excite children and young people by empowering them to actively take charge of their learning once they have adapted to this empowerment and feel comfortable with it. In this approach the students work together to create ideas, improvisations, strategies and/or new ways of performing skills, test them, reflect upon results and respond.

Providing a supportive socio-moral environment

The way in which being creative involves risk of failure requires the teacher providing a supportive environment in which students are not anxious about making individual or collective mistakes. Indeed, to promote inquiry and creativity, the Game Sense teacher needs to develop a class culture in which students recognize and accept that any learning involves making mistakes. They should be encouraged to understand that learning requires making mistakes that we learn from through reflection upon them. This is the type of socio-moral environment from which creative solutions and ideas can emerge and which can encourage a creative disposition toward game play and life more broadly.

Conclusion

Playing games inherently fosters creativity, whether in impromptu games played by young children in the playground or in practice games used in elite level sport. The key issue here is the level of complexity required for the game to be deeply engaging and to provide opportunities for creative thinking and action. The more complex games are the more problems emerge that offer opportunity for creative solutions on an individual and collective basis. This is why reducing games to skill drills dehumanizes teaching and 'kills' creativity. To foster creativity the teacher must focus on creating appropriate physical learning environments (typically modified games) through which s/he structures experiences and provides opportunity for creativity by encouraging curiosity, inquiry and learning how to learn. The excitement, positive affective experience, sense of discovery and empowerment this can produce can make learning liberating and transformative.

Dewey (1938) makes a distinction between experience that is educative and experience that is miseducative, which is useful for thinking about how a Game Sense approach provides opportunity for developing creativity. Educative experience expands possibilities for learning and growth in the future while miseducative experience restricts possibilities and growth in the future. From this perspective, 'skill drills' are miseducative while Game Sense pedagogy is educative because it enhances the possibilities for human development, including creativity. Teachers cannot directly teach creativity but they can develop environments that can foster its emergence and development while contributing toward the pursuit of fuller humanity (Freire, 1970). This requires an open and inquiring disposition on the part of the teacher (and some creativity) with a view of his/her role as being a co-learner and guide instead of an instructor who teaches how to be creative. It also requires the patience to let creativity emerge over time in ways that may not be immediately noticed or easily measured.

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Developing collective leadership and a 'sense' of team in high school sport

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This paper reflects on the development of collective leadership and team culture in a regional high school team, based on the application of Edgar Schein's (2010) three level theoretical model of organizational culture integrating artefacts (rites & rituals, symbols and stories), values and beliefs, and core assumptions. A self-reflexive approach has been used from the perspective of the team coach, the lead author/researcher. Examples are provided of the development stages of team building involving setting 'great expectations' and the integration of team rituals and values which are consistently reinforced. Examples are also provided of the development of a collective 'senior' leadership approach, which is focused on reinforcing a sense of pride and unity throughout the team.

Introduction

Team culture and leadership

The theoretical framework this research is founded on is Schein's (2010) three level theoretical model of organizational culture using artefacts (rites, rituals & symbols), values and beliefs, and core assumptions (see Figure 1). Schein defines organizational culture as, "*a pattern of shared basic assumptions learned by a group as it solves its problems of external adaptation and internal integration*" (2010, p. 18).

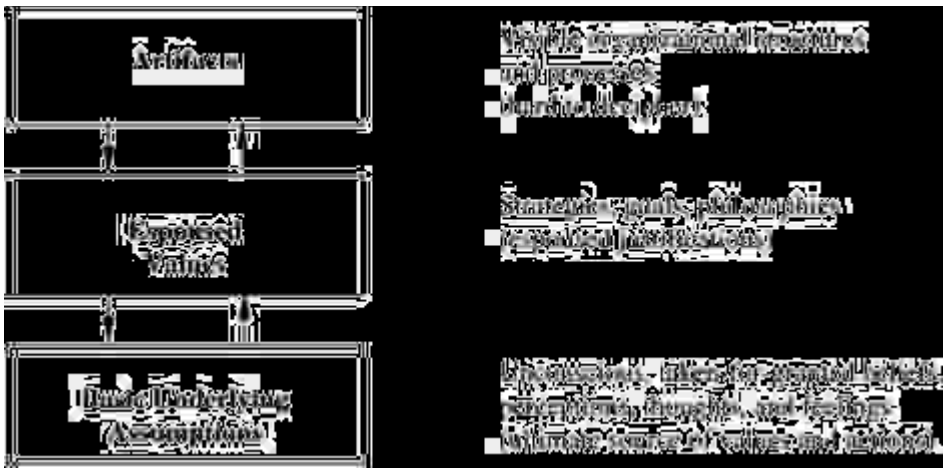

Figure 1. Schein's three level model of team culture (2010).

Schein's (2010) first level contains artefacts which are visible but sometimes not comprehensible, the second level involves the values of the organisation and the third level is the entrenched basic expectations and traditions that are taken for granted by the members of the organization. Every sports team is different and the culture within each team is unique and special. The difference between an ordinary sports team and a *winning* sports team however, is the demand of the development of a winning team culture (Goldsmith, 2007). Culture can be compared to an iceberg. Just as an iceberg has a section that is visible above the waterline and a larger section that is invisible below, the concept of culture has some aspects that are visible and others that can only be assumed, and are invisible (Hamdan, Belkhouche & Smith, 2008). Schein (2010) outlines six essential steps for a strong establishment of team culture:

1. Team leaders, with formal and informal influence, must embrace values
2. The values must be continually reinforced through formal and informal means.
3. The leader's reaction to crisis, using this as a vital opportunity to reinforce the team values and demonstrate them as unwavering.
4. Emphasis the team leaders place on situations to reinforce the values.

5. Firm selection of members that will embrace the team's desired values.
6. And finally, the team values are reinforced through rewarding appropriate expression of the desired culture.

Another aspect that is vital towards the creation, formation, and maintaining of a successful winning culture within a sports team is that of leadership. Sweetenham and Parker (2009, p. 36) define leadership as "*providing direction and opportunity in all situations and ensuring success for average people to achieve greatness because of your influence and presence*. Schein (2010) explains that leadership is fundamental towards developing a successful organisational culture and that "*culture is created, embedded, evolved, and manipulated by leaders*" (Schein, 2010, p. 3). Whilst cultures create leadership, leadership also creates culture. Schein (2010) claims that leadership plays a significant role in the establishment of a positive team culture, combined with firm and specific set of values, beliefs, and rituals, a team with these elements will perform considerably better than a team where these elements don't exist.

The purpose of this current paper is to apply Schein's model to a regional high school sports' team to develop their team culture and leadership. The sport context is a netball A1 (1st) team competing at school and senior regional level. A self-reflexive approach has been used from the perspective of the team coach, the lead author/researcher, as advocated by Kerwin and Hoeber (2015).

Sport teams

Johnson, Martin and Watson's (2014) investigation of why the All Blacks win indicated that a positive team culture inspires a higher degree of inclusion from the individuals involved. They develop a sense of ownership over their performance within the organisation and a sense of pride in what they have contributed. A culture with a positive, inclusive environment also promotes the long-term development of responsible, mature work habits on the part of

each individual member and over time, members begin to personally identify with the goals of the organisation. Goldsmith (2007) claims that developing a winning team culture means that the primary goal of the team, the players and the management and coaching staff, is the creation of an environment for all involved that is founded on excellence.

In netball, players work together collectively as a team to help make another player "shine", for example, by helping to create an important intercept. This can also lead to players accentuating the emotionally supportive and sympathetic role that they play for one other. It is critical to forgive players in the team who may be down because they made a mistake in the game and to focus on encouraging them instead (Heeran & Requa, 2001). For many elite sports players, in their imagination they often seem to make the connection between winning and uniting with teammates (Mallett & Cote, 2006). Team sports, such as netball, require time and energy to be devoted to building a culture that will lead to success (Taylor, 2013). In a sporting context, teams often form a special bond that is often very strong. With this bond come particular ways of behaving, a special determination to win and ways of dealing with both winning and losing (Lussier & Kimball, 2009). Johnson, Martin, Palmer, Watson and Ramsey's (2013a) study of the All Blacks' long term success revealed the alignment of informal and formal leadership to be even more powerful in reinforcing and emphasising strong team culture.

Method

Narratives of self are highly personalized accounts that draw upon the experiences of the author/researcher for the purposes of sociological understanding (Ellis & Bochner, 2000; Sparkes, 2000). Whilst self-studies have been scarcely used when examining experiences associated with the management of sport, more recently Kerwin and Hoeber (2015) have encouraged personal reflection as a tool to strengthen methodological approaches in qualitative research. Using self-ethnography, "*the researcher-author describes a cultural*

setting to which s/he has a 'natural access"" (Alvesson, 2003, p. 174). Reflexive practice involves "*purposeful visibility*" of the researcher with then being written into the work, resulting in "*methodological transparency*". The researcher's reflexivity provides a unique perspective and insights "*in a deeper and more sustained manner"* (Anderson & Austin, 2012, p. 140). Collaborative ethnography then allows two or more ethnographers to work together to gather data on the same social phenomenon, where data collection may occur in different social settings (Clerke & Hopwood, 2014).

This case study (Stake, 2008) of a high school female sport team provides a self-ethnography from the perspective of the team coach, the lead author/researcher. A collaborative approach with a second researcher, also a coach of a high school sport team, allowed comparison, insight, analysis, and interpretation of perspectives. It is argued that this approach has strengthened the credibility of the findings in this case (Flyvbjerg, 2006). Being an integral part of the research process has allowed the researcher to be part of the participant/instructor group and activities that were observed (Yin, 2009). In presenting the findings, the nature of interpretive and case study research seeks to form a unique interpretation of events rather than produce generalizations. *Transferability*, the interpretive equivalent to generalisability, is enhanced here by the provision of a 'thick' description (Merriam, 1998). Kerwin and Hoeber (2015) argue that collaborative self-ethnography of researchers' sport experiences (e.g. coaching) incorporates reflexivity as a credible qualitative method in sport management research and theory development.

Findings/Discussion

Developing core assumptions: Setting "great" expectations

Culture change is dependent on, shaped by, and specific to the context in which it is delivered, for example, player motivations, needs, and team preferences (Cruickshank, Collins & Minten, 2013). In this female netball context once the final squad had been

confirmed, season aims, goals and expectations were set at an initial team Bar-B-Q held at the school involving the players, their parents, the coach, manager and trainer.

> *This 'mutual' environment allowed discussion of our aims and goals, which were agreed upon by the coaching and management team, in conjunction with the schools sport department to make sure the team expectations aligned with the school rules. These 'great' expectations included:*

- *Commitment towards attending trainings, keeping up with personal fitness outside of regular trainings*
- *Attitude: positive attitudes towards teammates, coach and management staff, opposition teams, and umpires; positive attitudes towards work ethic and intensity during training sessions*
- *Behaviour: in regards to players when on-court and also parents when on the side-line at games, making sure comments are positive towards players, opposition, umpires, and the coaching and management team*
- *Court time during a game is not guaranteed at all for any player. From a coaching perspective, if a combination on court is successful there may not be any changes made. The decision around the players named in the starting 7 is that of the coach; several factors are considered including recent commitment and work ethic during trainings, positive attitude, and prior knowledge of effective combinations on court.*

These findings support those of Cruickshank et al. (2013) who emphasised that culture change in a (professional) sport is about shaping environmental contexts and regulating power. Culture change does represent strict, linear steps but instead requires an integrated, holistic, and dynamic process. Regular team building sessions were then also scheduled in the netball calendar. Sessions included an adventure based learning session, Laser Tag, pizza and movie nights.

Developing values: Reinforcing team values

Wang and Struab (2012) argued that a team without a core set of values to provide guidelines for all players and management to behave and abide by, will struggle to form a strong foundation to become a successful winning team. For the girls' netball team, values (Figure 2) were discussed and agreed upon by all team members together during an initial team meeting.

> *We created a symbol encompassing these values, which was printed, laminated, and tied onto each of the girl's team bag. In this way our team values went wherever the team went.*

- *Trust: in each other, in the coach, management team,*
- *Commitment: to trainings, games, own personal fitness/training,*
- *Respect: players, teammates, opposition, umpires, management staff, parents,*
- *Spirit: positive team spirit, attitude, atmosphere.*

Figure 2. Team values.

A united front for both junior and senior players was identified so that everyone 'walked the talk' and the values of the team were properly believed in, demonstrated and reinforced. This process, highlighted earlier by Schein (2010) six steps, has encouraged the establishment of a strong team culture.

Developing rites, rituals, & symbols

Schein (2010) describes artefacts and creations as the visible, tangible elements that one sees, hears and feels about the culture. The girls' netball team had a lack of consistent, defining rituals, however there were some *initial* rituals that were recognised, but none on a regular basis through the season.

- *Training singlet: At the player/parent BBQ, each player was presented with a team training singlet with their name printed on the back recognising their achievement at being selected into the team, and also to create a "sense of pride". The team was involved in the "Top Team" challenge at school, competing in a variety of different challenges throughout the school year. At each challenge, the girls would wear their team training singlets reinforcing the sense of "pride" of being in the team together.*
- *Naming of the captain: The management team, including the coach, manager, and team trainer, met and discussed the qualities that we were looking for in our team captain. These qualities included the ability to lead by example in on-court performances, commitment and intensity at trainings, demonstrating leadership qualities, building trust with all team members, being the 'voice' representing the players and communicating with the coach and management. Once the captain was decided upon, this was then announced at the player/parent BBQ to create a sense of "pride" and "achievement".*

Johnson et al. (2013b), in an All Blacks context, argued that rites and rituals are vital to establish and to be upheld by team members and play a significant part in the creation of a winning team culture.

Developing collective leadership

Schein (2010) claims that leadership plays a significant role in the establishment of a positive team culture, combined with a firm and specific set of values, beliefs and rituals, a team will

perform considerably better than a team that doesn't hold these. The girls' netball team formed a leadership group comprised of the coach, manager, trainer, captain, and three "nominated" players that were anonymously voted for by the team. The need for collective leadership to improve the team culture is strongly supported by Johnson et al. (2012) who believe this approach of sharing the leadership role assists in supporting a culture where relationships are considered precious and are appreciated and team members experience a sense of pride and self-confidence.

> *The players selected were three Year 13 'senior' players, who had previous experience in the team and were recognised by their fellow teammates as having leadership qualities. The leadership group was responsible for developing and running warm-ups both before training and games, planning regular team bonding sessions, supporting the captain in her role, and being the 'communication line' between the players and the management sharing any concerns/worries they may have heard amongst the team.*

- *The 'buddy' system: Team management paired up a 'senior' member with a 'junior' member of the team. As buddies they were responsible for looking out for each other, helping each other with anything not necessarily netball-related (school work, issues/concerns/worries). The buddies often got together for coffee, hung-out together outside of the netball team environment, and became confidants.*
- *A team Facebook page was set up, which was accessed only by the players, parents, and team management. Here, any information from team management was posted, and the girls often posted team photos and videos for all to view. Through the Facebook posts the team developed a sense of unity.*

The following two quotes were posted on the team Facebook page by two members of the leadership team. The first was posted after the team had suffered a rather significant loss,

and were feeling quite disappointed in their performance. The second was posted after the team had a very good team performance resulting in a well-deserved win (Figure 3).

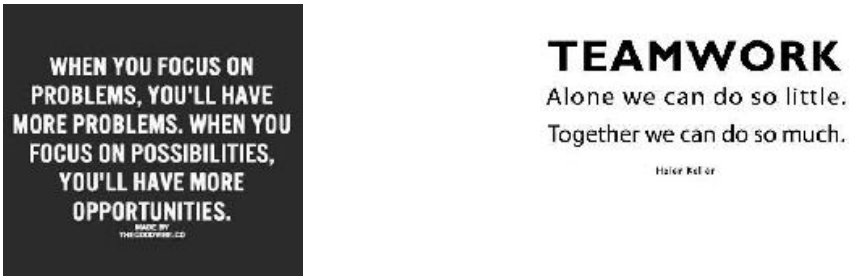

Figure 3. Player 'team' Facebook posts.

Sweetenham and Parker (2010) agree that one of the most important factors of creating a winning team culture is to have strong leaders that lead from the front and act as role models for the other team members. These leaders must set high standards and positive examples, whilst living and breathing the winning culture they are attempting to build.

Conclusions/Implications

Evaluating the development of (a winning) team culture

Is it working? From a self-reflexive coaching perspective, the initial formation of a positive team culture was a catalyst that was built upon and reinforced throughout the season. However, it took time and commitment from both players and team management to believe in what we were trying to achieve. A collective leadership approach was very evident within the team throughout the season. Team culture was enhanced through successful implementation of Schein's theory using the three steps of artefacts, values, and core assumptions. There was an increase in overall winning of games with the team experiencing a higher degree of success compared to the previous season: In the Regional Premier One Grade the team finished 6th place (out of eight teams), with 4 wins in 2015 compared to zero wins in 2014. In

the Regional Secondary School competition, the team made the grand final match, finishing second.

It is important that the process of developing team culture and collective leadership is reinforced again at the start of next season particularly with changes in team personal evident. However, it is argued that there have been improvements this season that will able to be built upon. It is hoped that this collaborative and self-reflexive approach can be transferred to other sporting teams in developing their team culture and leadership.

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Game Sense pedagogies: Changing roles for teacher candidates and teacher educators in Outdoor Education

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Changing our view of the role of the teacher or coach is important for Game Sense (GS) pedagogies. This article explores my experiences of changing my teaching role in order to hand over control to teacher candidates on an outdoor education camp for school students. I examine the different scripts required by both myself and the teacher candidates. Seeking to provide a generative space for the teacher candidates I sought to be more open-minded about how teacher candidates planned for teaching school students outdoors. The changing scripts resulted in discomfort and tensions for me and also the teacher candidates as we entered new roles. I provide three examples of student behaviour that highlight these tensions: the 'focused planners', the 'wave-jumpers', and the 'tent slackers'. The focused planners were essentially replicating a classroom planning process but without the desks; I had hoped they would be more responsive to the outdoor context. The 'wave jumpers' I viewed with suspicion; were they using the planning time well? I found the 'tent slackers' in their tents and playing on their phones. I was clear on my response to the tent slackers. I explore the implications of this study for the negotiated space between open-mindedness and discernment using a GS approach.

Introduction

Pill (2014) states that Games Sense (GS) emerged from the work of Rod Thorpe with the Australian Sports Commission in the 1990s. GS is primarily an approach to structuring learning so that students are exposed to increasingly realistic experiences which enhance tactical understanding, decision-making and enjoyment (Light, 2012). This pedagogy allows

students to become not simply good technicians but also good players of the game. From these beginnings, GS has been applied broadly and there is a growing body of literature advocating GS for PE teacher education. However, because GS arose from the domains of coaching and physical education, there has been limited work with GS outside of sports. This article draws on foundational ideas about GS and extends them to the preparation of teacher candidates (TCs) for outdoor education (OE) settings. In essence a GS approach to teacher education requires that TCs experience increasingly teaching-like experiences as part of the progression of them learning to become teachers.

Game Sense and teacher education

The GS focus on independent decision-making through more realistic experiences has also developed within initial teacher education (ITE). For example Lave and Wenger (1991) have shown that people achieve knowledge of a practice by participating in that practice. If the TCs are learning to teach OE, then knowledge is best gained by actively participating and in fact teaching OE. Similarly Dewey (1900) argues that learners should be engaging in 'occupations' which reproduce some form of work carried out in society. This requires that students learn to talk, rather than learn from talk, and learn to do and relate rather than from watching others doing and relating (Kemmis & Smith, 2008). It is not only the teacher educators who call for experience of practice, TCs also highly value experiences of teaching (Rossi , Sirna, & Tinning, 2008). In OE contexts, experience of teachers in particular contexts has been linked to improved safety (Brookes, 2003b) and to enhanced student learning (Brookes, 2003a). Ultimately the best learning for TCs occurs through personal experiences of teaching.

Like GS, the experiences of teacher candidates can be modified to emphasise certain aspects of teaching. Schön (1987) directs teacher educators to examine particular aspects of practice when designing learning experiences for their TCs. In particular teacher educators

should focus on the level of risk, the freedom to learn, and the kinds of coaching TCs will need for professional learning. Schön's approach links well with the foundational concepts of GS.

The focus on designing learning experiences that are more realistic and which provide more of a sense of the 'whole game' is a significant focus both within teacher education and within GS. This approach requires that both teachers and students have an attitude of open-mindedness to new ways of teaching and learning. Spiegel (2012) sees open-mindedness as a virtue, a form of intellectual humility and the recognition of our fallibility. Teachers should therefore be sufficiently humble to acknowledge the uncomfortable fact that we have a limited and partial understanding of what the best learning is for each of our students. Pill (2015) also found that teachers using GS approaches were "disrupting the comfort of familiar practice" (p.15) which resulted in feelings of insecurity. Likewise, our students need to understand that learning within a GS approach will feel very different to a lecture and requires them to step out from familiar and often comfortable roles. All participants in this pedagogical endeavour therefore need to come with open minds and a willingness to consider different ways of teaching and learning.

However, open-mindedness is only a virtue when held in tension with discernment. In addition to an openness to new and creative approaches, teachers, also have certain expectations of what quality learning looks like, and need to pay careful attention to what is being learned. This requires a high level of discernment.

The question that guided this research was 'How does engaging with a GS approach to teacher education affect the roles that I needed to take on as a teacher educator?' This article therefore documents how, as a teacher educator, I implemented more realistic experiences for the TCs in my courses. It also explores some of the discomfort I felt as a teacher in trying to balance the need for open-mindedness with the need for discernment.

Methodology

I use a self-study methodology to explore this question. Self-study is a type of practitioner research that uses practice as a window into understanding both the practice and the practitioner. Within physical education, Brown (2011) argues that self-study research offers a way to achieve multiple goals, including professional development and the improvement of our teaching. According to LaBoskey (2004) self-study requires the use of multiple, established data gathering techniques. My research draws on the perspectives of students (interviews and focus groups), recordings of my classes, my reflections as teacher educator (both a private journal and an open journal which I shared with TCs) and interviews with critical colleagues who observed my teaching. I use different fonts to help distinguish the different data sources in the article. Self-study conceived in this way results in collaborative and personal research (Brown, 2011) and therefore provides meaning in my research for me, my TCs and the wider community.

This research was part of my doctoral studies and was carried out in 2013, within a Bachelor of Education in Physical Education degree in Aotearoa, New Zealand. In this article I describe my research on a two-day OE camp which prepared teachers for junior high school OE teaching. The camp is about two hours' drive from the campus at a beach with a camping area in a forest. The experience begins with me leading an orientation to the area on the Sunday, and on the Monday, the TCs teach an OE day programme for students from a local school. The particular period of time this research focuses on is the transition between the Sunday teacher-led activities and the Sunday evening TC led planning in preparation for the arrival of the school students on the Monday. The camp therefore provided an opportunity for my TCs to experience a transition from being a student to a realistic teaching experience.

Analysis was through the framework of open-mindedness and discernment. Data from interviews with students and critical colleagues alongside my reflective journals was examined for examples of teaching decisions based on open-mindedness and discernment. Ethical issues are always present in research and in self-study research there is an added concern due to the power imbalance between the researching teacher and the participating TCs. This concern arises because the researching teacher has the power to pass or fail the TCs who are also participants in the research. The TCs may therefore provide a filtered account of their experiences and result in research which simply supports the effectiveness of our teaching and assumptions (Hamilton , 2002). Within self-study, a high level of transparency is required as it is the readers who assess the trustworthiness of the qualitative data, re-framings, and analytical interpretations (Loughran & Northfield , 1998). Through this article I hold my research to these established standards and show how I challenged my assumptions.

Findings

> *One of the things I struggle with as a teacher is letting go of power. I always want to chip in with my ideas. There is a place for teaching from the front and giving information, but as we transition to the camp experience I need to make sure I don't dominate sessions, yet I am still there to support everyone's learning. I decided to say less in the facilitator lead session but could definitely feel the pull to get involved. I feel like I am "being a teacher" when I am giving lots of information.*
>
> *(Open Journal 6 March, 2013)*

This extract from my open journal indicates my experience of the tension between being open-minded and allowing TCs to take control of a more realistic learning experience on the one hand, and my desire to manage and control the quality of the learning that was

occurring. This tension emerged as I observed different groups of TCs planning on the Sunday afternoon for the arrival of the school students on the Monday.

One group was sitting under some trees, writing and discussing. I waved and passed them by. In my mind they were the embodiment of active learners; they had identified their task and were working to solve the problem at hand. As de Corte (2010) states "What is essential in the constructivist perspective is the mindful and effortful involvement of students in the processes of knowledge and skills acquisition in interaction with the environment" (p.50). These TCs looked both mindful and effortful to me.

Another group was playing in the water (they were permitted to go up to waist deep in the shallow bay). I wondered if they were productively using their planning time, but I did not intervene. I did follow up later with the group because I was concerned in particular with two of the group members as there were previous instances where these TCs had proved unreliable:

> *Chris- I can feel it in myself, and I'm like, I'm not sure that I really trust you guys with staying focused and going hard core for quality. And that's just my own feeling that I'm recognising there. So what I'm putting out to you guys is ...I'd be really keen for you to be… I don't know what's the word?*
>
> *Student- More switched on?*
>
> *Chris- …What I'm wanting from you guys is just that um that commitment, "we are on it Chris we are working hard" and this may be your style but also you need to show me you need to make it quite demonstrable to me that I can see…*
>
> *Student- Like when we're out swimming before like we were actually … we were talking about what we're going to do. …we weren't just being dicks the complete whole time (Audio Recording)*

In this exchange I was negotiating the tension between giving them the freedom to "do it their way" and needing to feel comfortable that they had done sufficient planning. My strategy in this context was to be transparent, and I told the TCs my feelings of unease. I also asked them to be careful to show me that they were using the time productively. As such, it seemed that I was expecting certain types of behaviour that would show me that planning was occurring. Also within OE, Bowdridge and Blenkinsop (2011) state that teachers make judgements "as to what kinds of behaviour and ideas are sanctioned and not sanctioned within this newly forming culture" (p.156). I was drawing on my prior knowledge of these particular learners as I only spoke with two members of the group. The other two members I considered reliable and did not question them.

I was open to groups planning in ways that were not simply sitting down with pen and paper or laptop to plan. However some TCs seemed to be wasting their planning time. After I walked around the entire area, I still hadn't found one group. I finally saw them lying in their tents and recorded the following comment as I walked away:

> *It's so funny. I just went and saw [three TCs] in their tents playing on their phones. I don't know, it's not kind of what I had in mind. Actually it's completely diametrically opposed to what I had in mind, maybe I need to have a talk about it or maybe I just need to back off. I'm building up and accumulating a list of things I feel uncomfortable with. What are they doing there? How much is it OK for them to be …Aaah, I'm going to rark them all up and get them out of their bloody tents …and onto the beach. Here we go. (Private Audio Journal from Camp)*

This brief extract reflected the decisions that teachers have to make hundreds of times a day in teaching settings. It highlights how my attempt to remain open-minded led to a feeling of dissatisfaction, which in turn pushed me towards discernment and finally a course of action.

As a consequence of my intervention the TCs got out of the tent and I did follow up with them to ensure that they had indeed planned sufficiently for the next day.

These three examples demonstrate the tensions that teachers, coaches and leaders face when they embark on a GS approach to teaching and learning. In the first example of the 'focused planners' I felt that the TCs were being productive but perhaps not making the most of the freedom to 'do it their way'. In the case of the 'wave jumpers' I was pleased that the TCs were taking some freedom to plan creatively but became suspicious that they were not being productive. Finally the 'tent slackers' pushed me to intervene. Each of my responses to these different situations can be viewed through the discernment and open-mindedness continuum.

Discussion

The balance between open-mindedness and discernment lies at the heart of creating quality learning opportunities whether students are learning within a sports context or in teacher education courses. This article highlights the tensions that coaches and teachers need to negotiate. By being too open-minded, we risk students setting low expectations and missing out on valuable learning. The GS literature supports the active engagement by teachers through questioning in order to guide student learning (see for example Breed and Spittle (2011), Light (2013) and Pill (2011) and this was certainly my experience.

By contrast, if teachers and coaches' expectations are too rigid, we risk stifling the creativity and agency of our students. For example if we tell our students that they will experience increasingly realistic experiences of a game, yet we continually step in to control and provide feedback, we are sending a clear signal to our students. We are telling our students that there is a right and a wrong answer and they will then learn to look to the coach or teacher to find the right answer. Rather than promoting agency, this promotes dependence in our students.

As with all complex learning situations, there is no simple answer. My learning as a teacher educator was that it is uncomfortable stepping out of my familiar role as the 'upfront' teacher and into a more facilitative role. I needed to remain alert not just to what my students were doing, but also maintain a high level of self-awareness. When I felt drawn in to intervene, I needed to constantly ask myself if my action was justified. Was I being sufficiently open-minded? Was I being sufficiently discerning? When viewed from both of these perspectives simultaneously I felt that my teaching of through GS approaches was enhanced.

The purpose of this article was not to settle and confirm the 'correct' approach to teaching and coaching using a GS approach. The purpose was to challenge my assumptions and by providing an example from my experiences, to assist others embarked on a similar journey. If this article has proven illuminating to readers it will have served its purpose.

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Investigating the influences on teacher learning when implementing game-based approaches

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Game-based approaches (GBAs) have become increasingly popular amongst physical educators because of their potential to enhance educational outcomes. Yet, the literature shows that implementing GBAs can be problematic. Research reports the conceptual and pedagogical difficulties, along with the feelings of insecurity, apprehension and confusion, experienced by teachers when trying to implement game-based pedagogy. Little has been revealed about how best to support teachers to explore what these approaches may look like in their own practice. The purpose of this research was to address this gap in the literature by examining the Professional Development (PD) required to support teachers in their implementation of game-based pedagogy. In doing so, this research proposes an effective model of PD to support the implementation of GBAs. To achieve this aim, this study was conducted using Action Research over four phases: Needs Assessment, Planning, Implementation and Evaluation. Multiple methods of data collection were employed across all phases of the research including interviews, focus groups, observations and document analysis. Data was analysed using triangulation thematic coding and constant comparison. Results revealed that limited teacher knowledge and the professional learning culture including the prioritisation of time, teacher accountability and student response, impact teachers' professional learning when implementing GBAs.

Introduction

Game-based approaches (GBAs) have become increasingly popular amongst Physical Educators because of their potential to enhance educational outcomes (Butler, 2005; Fry,

Tan, McNeill, & Wright, 2010; Forrest, Wright & Pearson, 2011). Research has linked GBAs to quality teaching in Physical Education (PE) (Pearson, Webb & Mckeen, 2006; Light, 2014; Light, Curry & Mooney, 2014), highlighting the capacity of GBAs to enhance quality teaching of games and address elements such as such as deep understanding, higher order thinking, student direction and inclusivity (Pearson, Webb & Mckeen, 2006).

Yet, the literature has revealed that GBAs are difficult to adopt and the implementation of game-based pedagogy can be problematic. Research reports the conceptual and pedagogical difficulties (Casey & Dyson, 2009; Dudley & Baxter, 2009; Roberts, 2011; McNeil et al. 2004), along with the feelings of insecurity, apprehension and confusion (Butler, 1996; Griffin, Mitchell & Oslin, 1997; Gubacs, 2004; Gubacs-Collins, 2007; Díaz-Cueto, Hernández-Álvarez, & Castejón, 2010) experienced by teachers when trying to implement game-based pedagogy. There is an evident 'epistemological gap' (Light, 2008) or 'cognitive dissonance' (Butler, 2005) between teachers' understanding of GBAs and their actual practice, reflected in the teachers' struggle to adopt game based pedagogy when teaching games. Furthermore, research has revealed little about how to support teachers to explore what these approaches may look like in their own practice. Limited research has been conducted with in-service teachers and how they learn and implement GBAs. Little is known about how best to support the use of game-based pedagogies to ensure quality teaching as a means of providing quality learning and positive educational outcomes for their students.

Professional Development (PD) offers a possible solution for bridging this 'epistemological gap' (Light, 2008) between GBA theory and teaching practice. The importance of professional learning is well documented in the academic literature (Guskey, 2002, Bechtel & Sullivan, 2006; Makopoulou & Armour, 2011). Guskey (2002) argues, "High-quality professional development is a central component in nearly every modern proposal for improving education" (p. 381). Moreover, PD opportunities are seen as critical mechanisms to facilitate teacher learning (Bechtel & O'Sullivan, 2006). However, current PD

research is fraught with concerns regarding the present state of PD (Day, 2004; Fishman et al., 2003; Armour & Yelling, 2007), deeming it inadequate and ineffective in supporting teachers to learn in ways that can enhance practice (Armour & Yelling, 2004, 2007, Makopoulou & Armour, 2011). It is clear that professional learning opportunities within PE are in need of serious re-evaluation if they are to have any significant impact on practice and subsequently improve the quality and standards of students learning (Fishman et al., 2003; Day, 2004; Armour and Yelling, 2007).

In an attempt to respond to this 'epistemological gap' (Light, 2008) and address concerns regarding the current state of PE PD opportunities, this study explored the features and characteristics of effective PD. Specifically, this study attempted to understand and gain insight into what elements of PD influenced the teachers' ability to design (i.e. planning) and implement (i.e. instruction/delivery/assessment) game-based teaching, with the aim to identify an effective model of PD that would support teachers to effectively implement GBAs in their teaching practice, which in turn would enhance educational outcomes for their students.

Theoretical/conceptual framework

The theoretical framework for this study adopts a social constructivist perspective, underpinned by beliefs that "learning is an active and creative process involving an individual's interaction with their physical environment and with other learners" (Kirk & Macdonald, 1998, p. 377). In doing so, it assumes a theoretical base in Wenger's (1999) notion of a 'Community of Practice' (CoP) and 'Professional Learning Community' (PLC), linked to Lave and Wenger's (1991) concept of 'situated learning' whereby knowledge is generated within relevant practice settings. Consistent with this line of thought, it is proposed that Action Research (AR) as a PD strategy has the potential to represent situated learning within a social constructivist theoretical framework (Nash, 2009; Gubacs-Collins, 2007). As

such, research using AR as a PD strategy is used to contribute to the theoretical base of this study and guide the research process. The theoretical framework for this research brings together theories of CoP/PLC and AR as a PD strategy, providing a starting point for the research problem and establishing a vision to which the problem is directed. The theoretical framework helped shape the research process and the model of PD to be used, which provided a structure for data collection and data analysis.

Procedures

Model of professional development

The initial model of PD is illustrated in Figure 1. As the diagram suggests, the PD process is initiated by the founding of a PLC. Theories of situated learning and CoP underpinned the establishment of the PLC and helped identify the characteristics of effective PD to guide the PD process. As such, six components (i.e. Knowledge/Capacity Building, Active/Practical, Situated, Collaborative, Continuous, Reflective) were embedded in the PD process.

Theories of AR as a PD strategy were fundamental to developing the model of PD, where Kemmis and McTaggart's (1988) AR framework (e.g. Plan, Act, Observe, Reflect) was used to inform the four PD phases:

1. Phase A: Needs Assessment: establish a starting point for GBA PD
2. Phase B: Planning (Plan): develop a GBA unit and lesson plans to be delivered to students
3. Phase C: Implementation (Act/Observe): implement the GBA unit/lessons plans and observe and document the effects of the unit and lessons
4. Phase D: Evaluation (Reflect): reflect on the effects of the unit and lessons for further planning and informed action

In the initial PD model (Figure 1), the 'Acting' and 'Observing' phases were combined together in the 'Implementation' phase, since it was a simultaneous process of the teacher

delivering the lesson and the researcher observing. Informed by the PD literature, a preliminary 'Needs Assessment' was introduced in Phase A, giving the teachers a voice and empowering them in the direction of their learning. Armour and Yelling (2004) highlight, "PD should involve teachers in the identification of what they need to learn and, when possible, in the development of the learning opportunity and/or the process to be used" (p.82).

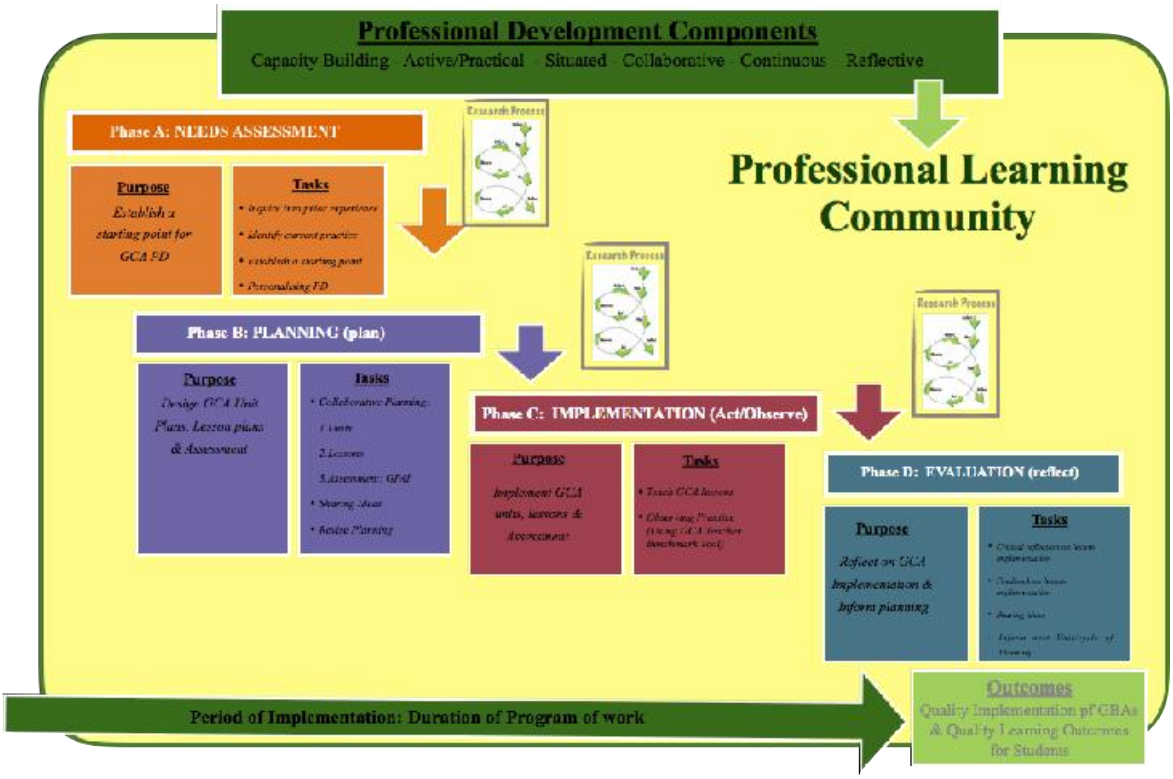


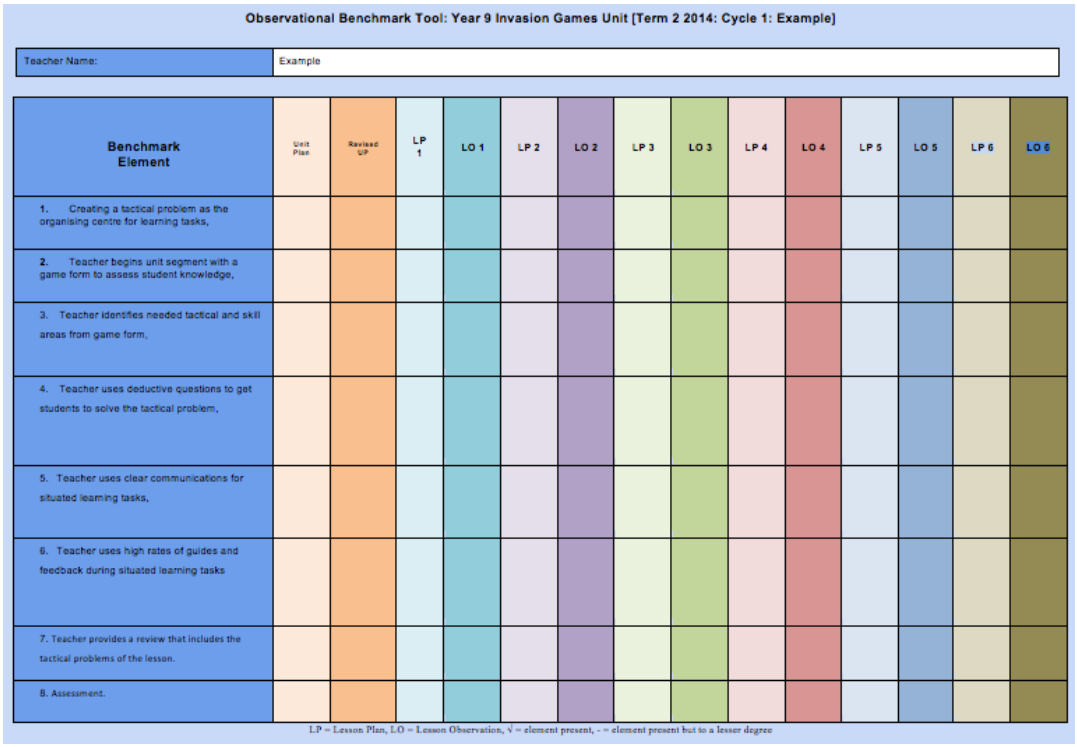
Figure1. Diagram showing the initial model of PD.

Data collection and data analysis

Data collection and data analysis were a concurrent and ongoing cyclical process, as prescribed by the AR framework (Kemmis & McTaggart, 1988). The process was focused on planning, action and fact-finding (Lewin, 1946), enabling the teachers' voices to be described and interpreted when attempting to implement GBAs. This permitted ongoing changes to be made to the PD process and to the teachers' subsequent teaching practice.

Multiple methods of data collection were used as part of this study, including semi structured interviews, lesson observations, teacher reflections, researcher reflections and documentation and course materials (unit/lesson plans). Data collection took place throughout the four consecutive PD phases. Each phase had a different focus, aimed to contribute to the overall aim of the study, to support teachers in implementing (planning, delivering and assessing) GBAs.

A GBA observational tool was designed using Metzler's (2011) eight 'teacher benchmark elements' to analyse the teachers' GBA unit plans, lesson plans and lesson delivery (see figure 2). This provided a verification of instructional process to ensure that the teachers' GBA lessons had been "designed and implemented with an acceptable degree of faithfulness, increasing the likelihood that the stated student learning outcomes will be achieved" (Metzler, 2011, p.375). Analysis involved coding whether the benchmark elements were present, present but to a lesser degree or not present at all. Coding was then followed by further data analysis and reduction to generate themes.



Observational Benchmark Tool: Year 9 Invasion Games Unit [Term 2 2014: Cycle 1: Example]

Teacher Name:	Example

Benchmark Element	Unit Plan	Revised UP	LP 1	LO 1	LP 2	LO 2	LP 3	LO 3	LP 4	LO 4	LP 5	LO 5	LP 6	LO 6
1. Creating a tactical problem as the organising centre for learning tasks,														
2. Teacher begins unit segment with a game form to assess student knowledge,														
3. Teacher identifies needed tactical and skill areas from game form,														
4. Teacher uses deductive questions to get students to solve the tactical problem,														
5. Teacher uses clear communications for situated learning tasks,														
6. Teacher uses high rates of guides and feedback during situated learning tasks														
7. Teacher provides a review that includes the tactical problems of the lesson.														
8. Assessment.														

LP = Lesson Plan, LO = Lesson Observation, √ = element present, - = element present but to a lesser degree

Figure 2. Example of the observational benchmark tool used to analyse the teachers' GBA unit plans, lesson plans and lesson delivery.

All interview sources were transcribed verbatim, then all data were analysed in NVivo, using inductive analysis and constant comparison (Denzin & Lincoln, 1994; Lincoln & Guba, 1985). Data generated were analysed to identify common themes and ideas that were specific to supporting teachers learning and implementation (planning, delivering and assessing) of GBAs. Pseudonyms (e.g. Jenna, Sarah, Fred and Barry) were used to protect the participants' identity and maintain the school's anonymity.

Discussion and findings

The findings of this study revealed (1) teacher knowledge and (2) learning culture to have a significant influence on the teachers' ability to design (i.e. planning) and implement (i.e.

instruction/delivery/assessment) game-based teaching, and as such, to have direct implications for teacher professional learning and GBA PD.

Teacher knowledge

The findings of this study revealed, the teachers possessed limited knowledge of GBAs and more specifically, they possessed limited Pedagogical Content Knowledge (PCK) relevant for using game-based teaching. This negatively impacted on the teachers' ability to plan, implement and assess when using GBAs and impeded the PD process. Encouragingly, the findings revealed that teacher GBA knowledge and GBA PCK could be improved by PD activity.

The teachers' knowledge of GBAs was basic and limited in regards to some elements of GBAs. For example, they included some form of modified games in their understanding of GBAs. Typical of teachers' comments is, "I see it as modified games, leading up to the big games. Skill based things using the game" (Fred, Teacher Interview 1, 20 March 2014). Teachers also had some awareness of the use of questioning sessions. For example, "So you're doing a skill centred approach and then you're asking the kids questions, throwing them into some sort of a game or activity" (Jenna, Teacher Interview 2, 28 March 2014).

When probed further, it was clear to see that the teachers had difficulty fully conceptualising GBAs. They struggled to see how game pedagogy would look in practice. This is illustrated in the conversation below:

> Researcher: "So last week you were talking about your understanding of GBAs as modified games and questioning, what do you think these modified games look like?"
>
> Fred: "I don't know. I have got zero idea."
>
> Fred: "I'll tell you, I have got zero idea of what it will look like, to be brutally honest, I don't think I could tell you what it looks like."

Researcher: "So in terms of the questioning, do you have any idea what the questioning would look like?"

Fred: "Not really, I know it is going to be great…" (Teacher Interview, 28th March 2014).

As a result, the professional learning was impaired, since the teachers' lack of familiarity with GBAs inhibited their ability to identify their learning needs. This could be attributed to each teacher "did not know what they did not know" (Researcher reflection, 30th April 2014). They did not have the knowledge of GBAs to identify what they needed to support them in using this approach. In this situation, the teachers requested resources. For example, "send us something so we can read it and then try to implement it ourselves" (Barry, Teacher Interview, 20th March 2014). However, the teachers experienced difficulty engaging with the material, and the 'epistemological gap' (Light, 2008) was evident since the teachers struggled to conceptualise how GBAs look in practice. The teachers required further and ongoing support to translate the theory into practice and see what the GBA elements looked like in an actual lesson (i.e. practice).

Document analysis of the teachers' unit and lesson plans, along with lesson observations, using the GBA observational tool, showed that the teachers were not familiar with all the instructional processes involved in GBAs (i.e. 'pedagogy'). Similarly, the analysis showed that the teachers had limited knowledge and understanding of the actual games they were trying to teach and the syllabus outcomes they were trying to address (i.e. 'content'). This was illustrated in the researchers reflections, "Working with Sarah made it clear to see her lack of knowledge or limited understanding of games" (Researcher reflective journal, 9th May 2014).

Drawing on Shulman's (1987) amalgam of PCK, the combination of subject matter knowledge and pedagogical skills, and Metzler's (2011) 'tactical games teacher benchmarks' as a lens to make judgment on the teachers' level of PCK, it was evident that the teachers

possessed limited GBA PCK. This limited GBA PCK impacted on the teachers' ability to successfully implement game based pedagogy, having obvious implications for their professional learning (as illustrated in Table 1).

Final observations occurred at the end of the 6-week, 7-lesson unit (end of Term 2); analysis showed improvements in the teachers GBA PCK. Evidently, this had a direct impact on their successful implementation of GBA lessons since analysis using the observational benchmark tool showed all benchmark elements being demonstrated in the final lesson plans and lesson implementation.

Table 1. Examples from inductive analysis and grouping into Metzler's (2011) 'teacher benchmark elements' as a lens to make judgment on the teachers' level of PCK

Theme	Teacher benchmark element	Raw data
Limited PCK	Creating a tactical problem as the organising centre for learning tasks,	"Sarah failed to focus learning around a tactical problem and didn't set up a problem to be solved." (Sarah, lesson observation, 16 May 2014). "She [Jenna] didn't leave a problem to be solved. She started the session with the question and answered it there and then without letting the students explore the activities and come up with the answers. She asks the question and gets the answer there and then rather than letting them explore the answer. (Jenna, lesson observation, 16 May 2014)
	Teacher identifies needed tactical and skill areas from game form,	"I don't think she was able to step back and see what was going on in the game". (Sarah, Lesson Observation 1, 16 May 2014) "Jenna seems knowledgeable and has great classroom management but I'm not sure she knows what she is looking for in the lesson. (Jenna, Lesson Observation 1, 16

		May 2014)
	Teacher uses deductive questions to get students to solve the tactical problem,	"She [Sarah] seems to be struggling with the questioning nature of this approach and needs some support with what sort of questions to be asking". (Sarah, Lesson Observation 1, 16 May 2014). "There is a clear lack of connection between Jenna's questioning and the aim of the lesson". (Jenna, Lesson Observation 2, 21 May 2014).
	Teacher uses high rates of guides and feedback during situated learning tasks	"Jenna shouts 'change your angle' a lot. I question whether her focus is on the skill execution rather than the space. She attempts to make the link between changing the angle and setting up an attack and using the space." (Jenna, Lesson Observation, 30th May 2014) "Sarah needed to show her presence a bit more, even if it was just counting the number of passes. They needed to use freeze frames a lot more." (Sarah, Lesson Observation, 16th May 2014)

Learning culture

The findings of the study revealed that the learning culture (i.e. the values, conventions, actions and practices that encourage the teachers to continue to develop knowledge and teaching practice) created in the PLC, as a result of the teachers' actions, had a significant influence on the PD process. Prioritising time, student response and teacher accountability were all identified as significant features of the learning culture established within the PLC, each having a significant influence on the teachers' professional learning when planning, implementing and assessing GBAs.

Prioritising time

Time or the perceived 'lack of time' had a significant impact on the teachers' professional learning in this setting. 'Lack of time' was identified as a constant barrier to the PD process in both the planning and implementation of GBAs. However, through the on going and concurrent process of data collection and data analysis, the teachers' prioritisation of time

was revealed as a more valid explanation for this perceived barrier of time within this context, as outlined in the conversation during the planning phase below:

> Researcher: "So you think you would have strengthened it [GBA unit of work], if you had had time to sit down together and do it?"
>
> Sarah: "Yeah."
>
> Researcher: "Um, yeah and I guess you know it's coming back to that time thing again."
>
> Sarah: "Or 'priorities' I think is a more appropriate word."
>
> (Teacher Interview, 1st May 2014).

Teachers prioritised other task over the planning, implementation and assessment of their GBA unit and lesson plans. This again impeded the PD process and affected the teachers' successful implementation of GBAs. Moreover, consistent with other research in this field (Wang & Ha, 2009; Díaz-cueto, Hernández-álvarez, Castejón, & Javier, 2010; Casey & Dyson, 2009), the teachers also experienced difficulties with time management during the implementation of their GBA lessons.

Student response

The findings revealed that the teachers perceived there to be certain types or characteristics of students that would respond best to being taught using game-based pedagogy i.e. more open to change, more physically able, better behaved. More specifically, the teachers' viewed these characteristics to be vital for the successful implementation of GBAs.

The students' response to teaching using GBAs was a significant factor in establishing a positive learning culture, where the teachers were motivated to continue with the PD process and persevere with the implementation of GBAs. The teachers perceived the benefits of GBAs to include better engagement and inclusion in their lessons. For example, "students, continually active throughout the whole lesson" (Jenna, Teacher Reflection, 16 May 2014).

They also noted how their GBA lessons were able to address all abilities, improve interaction and promote learning in the cognitive domain, as well as develop students as more confident learners.

Teacher accountability

Teacher accountability, or lack of teacher accountability, proved to be a prominent, yet contentious theme as the teachers engaged in the PD process. Preliminary findings of the study revealed that there was no one holding the teachers accountable for their behaviours or to establish processes for promoting a professional learning culture. This lack of accountability had implications for the overall PD process, since the teachers were not held accountable for their participation within the PLC or for their commitment to the PD.

The findings showed that the on-going presence of the researcher and the requirements presented by each phase the PD process, offered some level of teacher accountability. The teachers were held accountable for their actions (i.e. planning, implementing and assessing of GBAs) and there was an expectation that they would be committed to their own growth and development as professionals.

In this study, the level of teacher accountability presented by the PD process acted as both a facilitator and inhibitor for the teachers' professional learning. For two teachers, the presented level of teacher accountability supported their planning, implementation and assessment of GBAs. For example, it was noted, "having you come in to watch and talk to us made us get things done and focus on the unit" (Jenna, Teacher Interview, 20th June, 2014). This presence promoted a learning culture whereby the teachers were encouraged to continue with the PD and implementation of GBAs. Inconsistent with these findings, this same level of accountability presented by the PD process made two other teachers feel uncomfortable, possibly due to the scrutiny of their practice. As a result they withdrew from the study, claiming they did not have sufficient time to commit to the study. This had negative

implications for the learning culture within the PLC with ensuing dissent and separation within the PLC.

Conclusion

These findings report the influences on teacher learning when implementing GBAs and shed light on what teachers need when implementing GBAs. As such, the findings presented in this paper can be used to inform PD in GBAs, helping move towards a more effective model of PD for supporting teachers in implementing games-based pedagogy.

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Informing Game Sense pedagogy with dynamic systems theory for coaching Volleyball

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Dynamic systems theory helps understanding of the complex interplay of collective decision making evolving and emerging from momentary configurations of play and the personal coordination dynamics of the player 'at action'. This theory foregrounds the information-movement couplings that are associated with how players produce the functional behaviours that answer the requirements of momentary configurations of play. This paper therefore builds on recent theoretical debate in the areas of skill acquisition, the complementarity of perception-decision making and personal coordination dynamics (techniques), complex learning theory and coaching pedagogy. Links to the pedagogy of the Game Sense approach to enable theoretically informed Volleyball coaching practice will be established. Practical implications of game-based training will be explained.

Introduction

Teaching and coaching literature describes a 'traditional' approach characterised as coach-centred as it features a mostly directive or command instructional style that is technique focussed. Kirk (2010) described it is sport-as-sport techniques. Technical perspectives to coaching volleyball have tended to dominate coaching practice and the behavioural orientation of coaches (Pereira, Mesquita & Graca, 2010). Volleyball coaches have also been found to privilege technical issues in the early stages of game learning and to hold the belief that skill development must initially be addressed in an 'out-of-game context' (Coutinhol et al., 2011). For example, a study of 28 youth volleyball coaches by Pereira et al (2011) showed that independent of players' gender and age, the coaches showed a preference for

coach-centred approaches. A coach-centred approach features coach control and direction of all elements of the practice and playing context. Within this style of teaching/coaching players are limited to mimicking behaviour and memorising actions and not understanding or problem-solving (Kidman & Lombardo, 2005).

Game Sense Approach

The Game Sense approach (GSA) was introduced to Australia while Rod Thorpe worked with the Australian Coaching Council between 1994 and 1998 (Thorpe, 2005). The *Game Sense: Perceptions and Actions Research Report* (Australian Sports Commission (ASC), 1996) described the GSA as one where 'the game' becomes the focus and start of sessions. Further, the report suggested the modification of games for representation of the essential features of the 'adult' form modified and/or adapted to suite the level of the group being taught. The report emphasised that the GSA did not ignore 'skill' in favour of playing games as coaches still "need to determine if guidance from them will assist players become more skilful" (ASC, 1996, p. 50). The GSA approach can be described as both game-centred and player/athlete-centred as the GSA suggests a teaching 'style' whereby the teacher/coach supports player autonomy by implementing teaching strategies intended to enhance each player's decision-making ability during game play (Desouza & Oslin, 2008). This is why the GSA is often described as an approach targeted at developing 'thinking players' (den Duyn, 1997). The GSA emphasises the complementarity of technical and tactical dimensions of skilled performance, with den Duyn (1997) describing the game sense 'equation' as "Technique + Game Context = Skill ('game context' refers to elements such as pressure, decision-making, timing, use of space and risk)" (p. 6).

Developing thinking players

There is research in volleyball pointing to the efficacy of game and player-centred approaches. Chatzipanteli et al (2014) compared a Tactical Game Approach to a control group for the development junior players' meta-cognitive behaviour. They found the number of players in the experimental group classified as 'high-level' increased from 5.63% pre intervention to 22.53% post intervention, and they suggested that the pedagogy of 'guided discovery' questioning assisted the players in the experimental group to become more strategic thinkers. Popelka (2013) also found that a tactical approach had a more positive impact on learning tactics and junior players ability to apply those tactics during games than a 'technical approach'. Harrison et al (2004) suggested that the use of TGfU increased the self-efficacy of volleyball players, while Henninger et al (2006) suggested the importance of learning contexts foregrounding tactical-decision making during game play. Broek et al (2011) found that the experience of 'questioning' pedagogy improved tactical knowledge significantly, while Norton (2005) found that the use of questioning was challenging and time consuming, but worth the effort because of its (perceived) contribution to the establishment of a positive team culture via a sense of player empowerment.

Dynamic Systems Theory (DST)

DST explains how assumptions of the GSA about tactical and technical learning in games might be supported. Team sports such as volleyball have been explained as examples of dynamic systems (Laporta et al., 2015). The interactions between the two opposing volleyball teams lead to the emergence of situated momentary dynamics. This specificity of momentary conditions creates game events that are unique and inherently variable from moment-to-moment. That is, behaviour is emergent from the dynamics of the moment.

The individuality of player ability and how this combines collectively to bring about tactical responses through the system of ball movement in play suggests the need for the

coaching of situation-orientated patterns of play based on the classification of teams in offense verses a defence situations. DST can offer a heuristic for the GSA approach by focussing attention on new ways to solve questions of motor development for volleyball competency and expertise as problems of information-movement coupling, which can also be thought of as perception-action coordination of interceptive actions. These are actions that involve coordination between the player's body parts, and/or an object, and/or surface, and/or or target in the environment (Davids et al., 2002) - such as performing a forearm pass in volleyball. The dynamic systems theory postulates that 'purposeful movement' stems from the interaction of the personal coordination dynamics of the player with the task factors and goals, and environmental factors (Ives, 2014).

A highly deterministic coaching approach focussing on predictability through player replication of a single and often idealised model of movement coordination response, frequently referred to as a 'technique', does not cater for the situational potential of the moments in the game when an on-the-ball action response is required. These moments are by definition inherently complex and dynamic, and therefore characterised by variability.

Handford (2006) suggested there is a paradox between volleyball coaching for certainty of players actions through a common optimal movement pattern as a template for movement skill and game unpredictability.

Using the Game Sense approach to inform Volleyball coaching: Practical applications

If the game of volleyball is accepted as 'unpredictable', and it is accepted that the 'traditional' approach focussed on the certainty of movement reproduction contradicts the inherent nature of the game, another 'teaching' approach is necessary. Most of the GSA research to date has been with invasion games, and there is a need to explore pragmatic and theoretical questions across and within the game categories (Invasion, Net/Court, Target, Striking/Fielding games) along the continuum of game development, from entry level – to

elite sport. Having briefly described the pedagogical expression of the GSA and grounded its pedagogical expression in the field of skill acquisition through DST, I will now provide practical examples of the pedagogical expression of the GSA for volleyball skill development, something that is largely absent from the literature.

Representation

Representation is the pedagogical practice of the reduction of complexity in the game without losing the logic of the system of play. The example of *representation* of volleyball in Figure 1 demonstrates the introduction of the logic of three contacts to set up the 'attack' shot over the net into the opposition court space with the complimentary defensive principle to keep the ball off the floor. The game rules assume the players have developed coordination and control of the 'fundamental movement skills' of overhead and under-arm catching and overhead and under-arm throwing.

Simplification

The game illustrated in Figure 1 demonstrates simplification of the motor actions in the game so understanding of the game can be introduced before players focusing on coordinating their movements into more sophisticated 'sport specific actions'. *Simplification* of the game also occurs when the game is made small sided. In this example, simplification is demonstrated by reducing the number of players from 6-a-side to 3-a-side. The small sided nature of the game increases each player's potential for ball contacts and therefore the possibility of a higher practice volume than a 6-a-side game. *Simplification* could also occur by playing in a modified environment, such as on badminton sized court with net at full height. Modifying the game environment to a reduced sized court space results in each player having to defend less space and an increased likelihood of rallying continuing as the ball is kept off the floor;

also achieving the desirable skill learning outcome of an increase in the volume of technical and tactical actions performed during the game.

Shaping play

Shaping play refers to the use of cue reinforcement, feedback, questions, practice tasks and game modifications to guide player game development (Rushall & Siedentop, 1972; Thorpe et al., 1986). To shape play teachers/coaches must: (1) know the desired game behaviour; (2) appropriately sequence the steps; (3) be able to use 'primes', such as metaphors (like, 'look through the window', to direct the positioning and shape of the hands in preparation to make a finger-pass/set), cues (for example, 'press', to remind of the need to develop power from the floor when jumping) and questions, to guide performance; and (4) reinforce game learning with sufficient volume of play and practice (Rushall & Siedentop, 1972). These behaviours speak to the necessity of well-developed pedagogical and content knowledge on the part of the volleyball teacher/coach. *Shaping play* may involve the constraint of space to encourage (shape) game behaviour. For example, constraining the court size to wide and short to change the way players look for space to play the ball into the opposition court.

Rules: ►Teams of three players per side

►Win a point and right to serve by getting the ball over the net and onto the floor in the oppositions court space

►Two handed underarm throw 'serve' over the net into the other teams court space to start the rally.

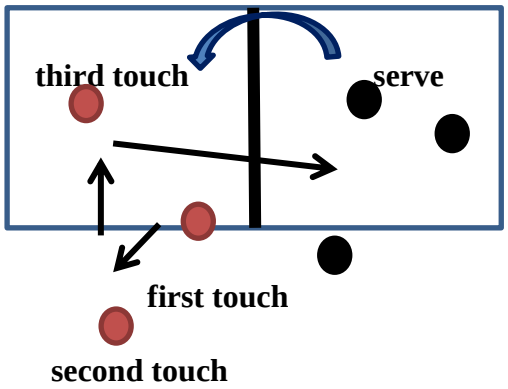
►First touch/play of the ball is a two handed 'underarm' catch, followed by a high underarm two-handed throw to a team-mate.

►Second touch/play of the ball is an overhead catch, followed by a high two-handed overhead throw to a team-mate.

►Third touch/play of the ball is an overhead or underarm catch, followed by a high overhead two-handed throw if caught above the head or two-handed under-arm throw if caught below the head, over the net.

►Play stops if the ball hits the ground or if the third touch/play of the ball does not go over the net.

*players are not permitted to move with the ball



Example Questions:

What do you have to do to win a point and the right to serve? (Get the ball on the floor in the oppositions court)

How do you do that? (Throw the ball into space)

Where is the easiest place to pass the ball over the net from inside your court? (Close to the net)

Why is that? (Less distance to throw the ball, less effort to throw the ball)?

Game Progression (Increasing complexity)

Permit the third touch/play of the ball to be a one handed strike of the ball

Shape the second touch/play of the ball into a finger pass 'set' using isolation practices, such as a drill

Figure 1. Representation of the essential features of volleyball in a modified game.

Exaggeration

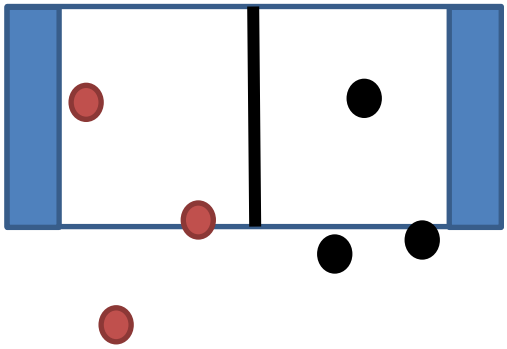
Exaggeration refers to the modification of 'secondary' rules that do not change the essential nature of the game, to focus player behaviour on a desirable movement model or tactical response (Thorpe et al., 1986). An example of a 'primary' rule of volleyball would be that each team is allowed a defined number of ball contacts (touches or plays of the ball) on their side of the court – normally set at three. In Figure 2, a target area has been defined in each team's court and three points is allocated if the team can get the ball to ground in their opponents' defined area. In this example, the scoring is exaggerated to encourage a particular tactical behaviour.

Progressing play

Progressing play involves the progress of players from simple to more complex game representations over time. For example, at the novice level 'setting to attack' involves playing a hittable ball to a front court player who will 'set' the second play of the ball to a third player that hits the ball into the opposition court. Further along the development progression, the player taking the 'set' may perform a front set in the direction they are facing or a back set to a hitter behind them as a means of attempting to unsettle the opposition defense. At a more advanced level, teams may play a designated 'setter', and if that player happens to be in rotation starting in the backcourt they will need to come from the back row to the front court to set up the attack. In Figure 3 a game to teach the team coordination dynamics of a back court setter is illustrated.

3v3 Volleyball

Modified Rule: 3-points for getting the ball to the floor in the opponents shaded area



Example Questions:

What do you look for in the opposition set-up to determine if a 3-point play is a better

game response than a 1-point play? (Player positioning means players have to defend by moving backwards to a deep ball)

From where in your court is it ideal to attempt a 3-point play? (Front court)

What is the player and team advantage of attacking deep using a 3-point play attempt from the front court? (Team – provides time to transition from attack to defense. Individual – less power required as not hitting the ball as far, and so personal coordination dynamics are easier to control)

Game Progression (Increasing complexity)

Change the target area

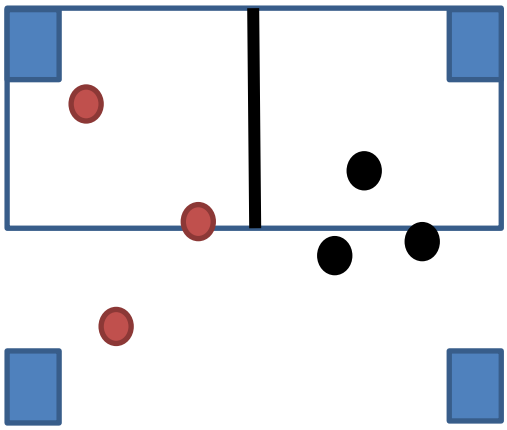
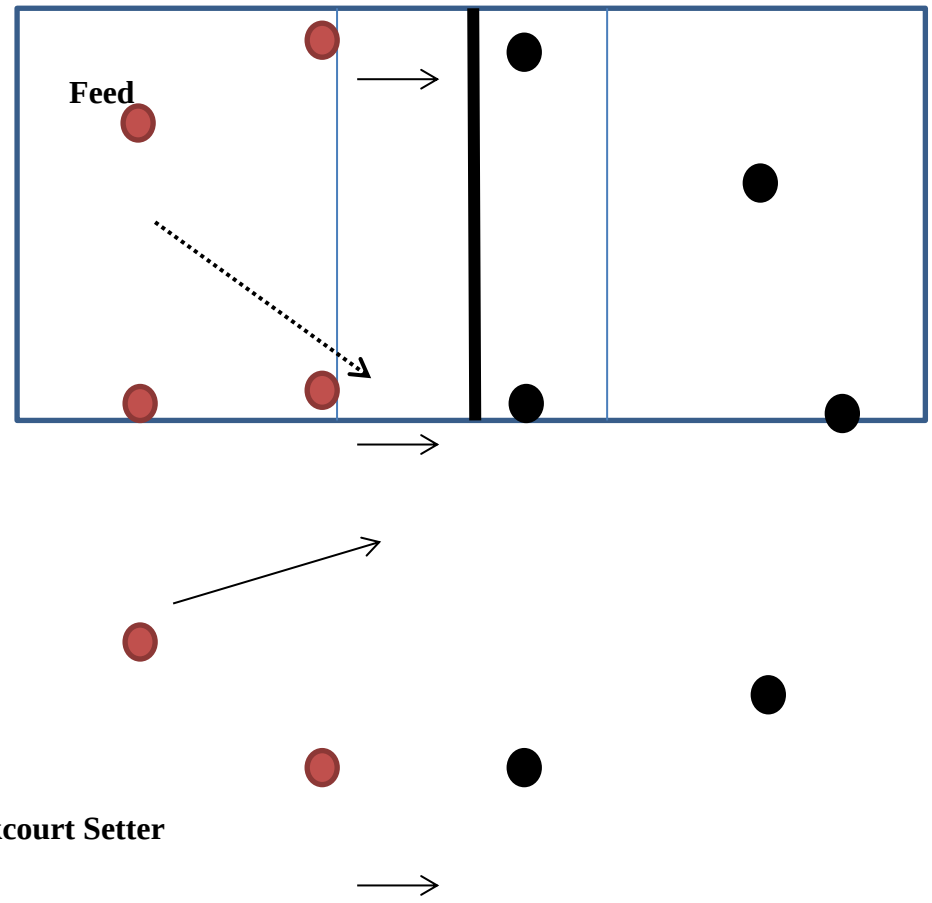


Figure 2. Exaggeration of the scoring system to encourage a tactical behaviour.

6v6 Volleyball with Backcourt Setter



Rules: ►Serve is replaced with a backcourt player performing an underarm toss to the front court between positions 2 and 3.

►Backcourt setter moves to the front court to play the ball as the ball is being toss to the front court between positions 2 and 3.

►Setter calls out 2, 3, or 4 to communicate to the front court hitters where the set will be played.

►Hitter plays the ball, and then rally continues until one team wins the Point and the right to "serve"

Game Progression (Increasing complexity)

Change the starting position of the feed from the backcourt

Change the position from which the set occurs

Example Questions:

How do you change sets? (Front set, back set, low set, high set, place on the court where the set is played)

What is the advantage of a backcourt setter? (Extra hitter in the front row – more attack options)

What do backcourt players have to do to cover for a designated backcourt setter? (Defend more space)

Figure 3. Progressing play – using a backcourt setter.

Making learning visible

In the GSA, teachers/coaches act more as facilitators setting challenges and probing player understanding than in the traditional directive coaching approach. Sport teachers and coaches make learning visible when they act more as facilitators of learning conversations than directors of highly prescribed behaviours. Within a GSA, making learning visible has at least two dimensions. 1. Planning using key questions and tactical problems. Positioning a tactical problem as the organisation centre for learning tasks within a lesson/session is central to the GSA (Parry, 2014) making learning visible. 2. The prominent pedagogical method of making learning visible in the GSA is the use of well-considered teacher/coach questions (Light, 2014) of players going into activities, coming out of activities, and during activities using pedagogical devices like ‘tactical time-outs’ and ‘freeze play’ moments. This creates the GSA as student/player-centred as the pedagogical method of questioning places player/student thinking central to performance.

Conclusion

This paper has addressed the need for the demonstration and elucidation of the GSA in Net/Court sports. It has outlined the connection between volleyball as representative of a dynamic system forming from the complexity of interactions between players, the task situated in the moment of play, and the environmental constraints on the play. The representation of volleyball within a GSA that foregrounds the complementarity of physical-technical and cognitive-tactical components of skill in meeting the situated demands of performance in teaching the game at all levels of game development is evident. The GSA approach emerging from sport pedagogy has been shown to be aligned with skill acquisition theory from a DST perspective that highlights the connection between perception-decision making and action as a coupling leading to skilled performance.

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Making learning visible - The pedagogy of questioning in a Game Sense approach

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The Game Sense approach is assumed to be an inquiry orientated learning approach creating an environment where player problem solving is inherent, and central to the aim to develop 'thinking players'. Questioning is a principal pedagogical device in framing this type of sport learning environment, however, although defining it is recognised as one of the major challenges in the design and implementation of game-centred approaches like the Game Sense approach. Research suggests sport teachers and coaches are not very good at using questions to promote learning. It is my experience that this difficulty is in part caused by practioners not understanding the difference between problem-based learning (PBL) and inquiry-based learning (IBL). This paper will examine the pedagogy of questioning within a Game Sense approach implemented as PBL and IBL to demonstrate the distinctive positioning of the role of the teacher/coach within each. Implications for game-play, and reflection on game-play, as central features of a Game Sense teaching/coaching approach will be considered, and thus the pragmatic implementation of a Game Sense approach.

Introduction

Game Sense is a pedagogical approach for games and sport teaching which emerged in Australia in the mid-1990's. The ambition of the introduction of the Game Sense Approach (GSA) was to re-organise Australian sport teaching from a focus on reproduction of technical movement models to a focus on the game and player understanding of the game being played. The desired effect of this being players who are more tactically aware, and thus able to make better decisions during the game, by developing skills (at least initially) within realistic and

enjoyable contexts in preference to practise in isolation, which had been the 'traditional' focus of coaching sessions (Australian Sports Commission, 1996). The GSA is an example of what has been referred to internationally as game-centred (Harvey & Jarrett, 2014) or game-based coaching (Evans, 2012; Light, 2006), and athlete-centred coaching (Harvey, 2009; Kidman & Lombardo, 2005). Each of these labels can be seen to be expressions of the ambitions for the GSA. For example, the GSA can be thought of as game-centred as the approach foregrounds cognition, expressed as the development of 'thinking players' (den Duyn, 1997), more so than the technically orientated skill-drill based approach labelled as 'traditional' (Australian Sports Commission, 1996) and described by Kirk as sport-as-sport techniques (Kirk, 2010). The GSA is game-based in so far as the GSA promotes the use of games as a pedagogical device to introduce (at least initially) and teach both tactical and technical components of the game. That is not say other pedagogies are not used (like peer coaching or drill practices) when one adopts the GSA, but to express that games are a more obvious and dominant pedagogical device than in the sport-as-sport techniques paradigm of what has been labelled 'traditional' coaching practice.

The GSA is also referred to as athlete or player-centred to express another contrast with 'traditional' technical-focussed coaching practice. Technique focussed, or a technical approach, is often characterised by directive 'command' style instruction that leads it to be labelled 'coach-centred'. In contrast, the GSA foregrounds the pedagogical use of well thought questions by the coach to promote player thinking and awareness of decision making, as well as the connection between perception and action. In essence, the pedagogical device of questioning makes player thinking visible and open to interrogation by other players and the coach/es. The player-coach relationship is reframed from 'coach-as-commander' to coach-as-facilitator, or what Jones (2006) referred to as the sport coach as educator.

The use of questions in preference to 'telling' is possibly the distinguishing pedagogical difference between the GSA and 'traditional' technical-focussed coaching

practice (Light, 2003). While coaches and teachers have always asked questions of players during games and sport teaching, it is the explicit nature of specifically planning questions to achieve particular understanding and game behavioural outcomes, as well as the content alignment of sessions via the stating of a tactical problem or concept that binds practice session content, that is uncommon in technical-focussed coaching practice. These features are summarised in Table 1. Research suggests physical education teachers and sport coaches find it difficult addressing the cognitive dimension of game performance (Light, 2002).

Questions: A central pedagogical device in making learning visible

Pearson and Webb (2008) suggested four categories of questions provoking different types of cognitive activity. They are:

1. Convergent questions that bring attention to a solution. For example, "is the ball in if it hits the line? is a convergent question as it brings the player to an answer which is unambiguous (in this example, a game rule – the ball is either 'in' or 'out' depending on the rules of the game);
2. Divergent questions bring player attention to possibilities. For example, "what options do we have for bringing the ball forward? Is a divergent question as it promotes solutions to novel and new as well as known game scenarios;
3. Value questions bring player attention to ethical and moral dimensions of play. For example, "is that how we want to play?" invites an opinion with a moral perspective; and
4. Recall questions that bring attention to what has previously been learnt. For example, "what do we already know about setting up to attack from the net? Requires a memory level answer.

Another pertinent consideration in the use of questioning is the protocol surrounding

the development of the questions. Pill (2007) suggested the use of Laban's movement framework of Time, Space, Force and Flow/Tempo (or Control) with the use of What? Where? When? Why? Who? How? prompts as a matrix to frame the writing of questions. Mitchell, Oslin and Griffin (2006) suggest 'Risk (Choice)' questions as an addition to the Time, Space and Force movement concepts.

Teachers and coaches using game-centred approaches distinctive pedagogical emphasis on questions to guide and promote player thinking has been likened to 'guided discovery' (Hopper & Kruisselbrink, 2001; Hubball, Lambert & Hayes, 2007; Light, 2014; Pill, 2012). Guided Discovery is often associated with Mosston's teaching style F (Mosston & Ashworth, 2002). In this style, the questions proceed from the general to the specific. Each question in the sequence of questions relating to a specific movement purpose: that is, the question sequence guides 'discovery' of understanding relating to a specifically selected subject matter, creating a coherent progression in cognition. Morgan, Sproule & Kingston (2005) comparison of practice and command styles with guided discovery found that the guided discovery style resulted in more adaptive cognitive responses. Despite the suggested advantages for learning games and sport by making participant learning visible by questioning in preference to telling and directing players, literature suggests it is this feature of game and player based approaches that teachers and coaches struggle with (Parry, 2014).

Because game-centred approaches foreground questioning as a distinguishing pedagogical feature, they are named in the literature as examples of problem-based learning (PBL) (e.g. Chow et al., 2007; Turner, 2014) and inquiry-based learning (IPL) (e.g. Curry & Light, 2006; Forest, Webb & Pearson, 2007). It is my experience that this difficulty with questioning as a pedagogical device is in part caused by practioners not understanding the difference between PBL and IBL, which are very different methodologies. It is therefore pertinent to consider the pedagogy of questioning within a GSA implemented as PBL and IBL to demonstrate the distinctive positioning of the role of the teacher/coach within each.

Problem Based Learning (PBL)

Originally emerging from the field of medical education and now applied at all levels of education from primary school to tertiary education across many disciplines, PBL is a highly context specific teaching methodology. It presents a 'real world' challenge or problem, calling on participants to apply what they know to that context to create a meaningful solution through the application of reasoning and critical inquiry. Central to the PBL methodology is the skill of 'facilitator' guiding the learning process, which consists mostly of independent, self-directed study interspersed with whole group/class discussion to refine understanding (Savery, 2006). A 'typical' PBL process looks like: Step 1. Identify and clarify the scenario; Step 2. Define the problem/problems; Step 3. Brainstorm explanations based on existing knowledge; Step 4. Arrange explanations into tentative solutions; Step 5. Formulate learning needs; Step 6. Gather further information; Step 7. Share findings; and Step 8. Review Steps 2-5 before returning to Step 6 and 7, or present results (Wood, 2003).

Examples of PBL in tertiary physical education teacher education are easily found, but not so in games and sport teaching/coaching. This may be because one of the constraints in the use of authentic PBL in games teaching is that physical activity can be limited while working on the project, and PE teachers can be swayed towards the rhetoric of physical activity accumulation and perceptions of that value in place of other potentially valuable educational outcomes from learning in and through a movement context (O'Connor, Jeanes & Alfrey, 2014). However, notwithstanding the challenge of persuading the use of PBL, I suggest the following as an example of PBL including the pedagogical distinctiveness of the GSA. The real world problem is the coaching scenario of designing, developing through practice, and then application against an opposition of an offensive strategy to beat a zone defence.

Start: In groups of ten, one group of 5 players sets up a 1-2-2 zone defence with the aim of the defenders to stay between the attacking player entering their zone and the

basket, and to stop or intercept passes from attacking players to a team-mate inside the zone. The other team of 5 players attempts to get the ball to a player inside the key to score. Normal basketball rules, such as a limit of 3 seconds on players staying inside the key and the 20 second shot clock, apply. Play starts with offensive team possession at the half way line, and play stops when the offense team scores or the defense team wins possession. After ten minutes the groups of 5 swap roles.

Problem: In groups of 5, design and develop an offensive invasion game strategy to get the ball to a player inside the key with time and space to score within 20-seconds (Shot Clock limit).

Guidance: What tactical knowledge assists the development of principles of play behind offensive strategies in invasion games? How does this knowledge apply to the capabilities of your team?

Share and **rehearse** the strategy with your team so all players know their roles in the strategy.

Share results: Combine with another group of 5. Play with the opponent group by taking turns to be the attacking and defending set-up in a 1-2-2 zone defence. Implement your strategy when it is your turn to be the attacking team.

Guidance: What is the aim of the defending player? What are some of things the defender has to think about?

Review: Evaluate whether your team can beat a 1-2-2 zone defence using that strategy. Brainstorm how to refine or further progress the strategy you developed, rehearse it .

Present Results: Put the refined strategy into action against another team defending set-up in a 1-2-2 zone defence.

Extension: Explain the application of your strategy in another invasion game.

Inquiry Based Learning (IBL)

Where PBL is not directly concerned with teaching problem solving skills (Savery, 2006), IBL is a context for learners to acquire, practice and further develop problem solving 'thinking skills'. Consequently, IBL is sometimes referred to as inquiry learning and a critical-inquiry process where deconstruction and reconstruction of ideas is a key feature of the learning process, where students learn content as well as thinking and reasoning skills (O'Connor et al., 2014). In contrast to other IBL processes drawing on reasoning and degrees of cognitive complexity (thinking skills), critical-inquiry tends to be interested in challenges to the status-quo constructions of reality and power that produce social inequalities (Wright, 2004).

There is considerable evidence supporting the use of 'direct' guidance or strongly guided learning to enhance learning progress and that unguided or weak instructional guidance does little to 'power' learning (Kirschner, Sweller & Clark, 2006). The session plan illustrated in Table 1 is an example of IBL. IBL is demonstrated as the session plan shows explicitly that it is about knowledge acquisition and application of understanding to a tactical problem, framed as a 'focus' question. Further, questions are explicitly developed to probe and extend understanding associated with the tactical problem going into, during and after games and practice tasks. The questions, in a sense, make player thinking visible and thus available for affirmation, contestation or refinement, as well as being illuminated to the player through the inquiry process.

Table 1. Inquiry Based Learning (adapted from Pill, 2010).

Tactical problem	How do you support the player with the ball when in an off-the-ball position?
Focus	Understand that in order to maintain possession off-the-ball players must be open (create a passing lane) to receive a pass. Understand that in order to maintain possession the player with the ball must choose and execute the correct passing option.
Modified game	3v3 Give and Go Grid Ball
Examples of developmental questions	• How can the players without the ball help the player with the ball? • What should off-the-ball players be doing in support of their team-mate with the ball? • What should you do after you pass the ball? • What happens to the space when you move? And what does that mean for your team-mates? • What happens to the space if you do not move? And what does that mean for your team-mates? • How can you indicate that you are open to receive the ball? • How can you use space to your advantage in maintaining possession?
Practice task	Give and Go 3v1 or 3v2 Grid Ball with passive defense.
Return to modified game	3v3 Give and Go Grid Ball.
Conclusion	What game principles did you apply in order to successfully maintain possession?

Visible thinking refers to an observable representation that presents and supports ideas reasons and reflections. 'Thinking routines' to create cultures of thinking (Ritchhart, 2015) are another example of the application of IBL methodology to 'make thinking visible' in a GSA. Hamada (2015) explains the application of thinking routines within a GSA by using a Claim/Support/Question routine to assist players to make thoughtful interpretations on a tactical problem framed as a question, encouraging reason with evidence. Bell (2003) explains the use of another type of thinking routine – if-then-production, to make evident player understanding of game solutions and how game factors configure to create a tactical moment of advantage (MOA) (an action-solution) over an opposition. For example, *if* the challenge is situation [A] (eg. beat a press) *then* an appropriate response would be to use these principles of play (eg. mobility in offense) to produce this response [B] (eg. keep the defense moving/repositioning) that creates this MOA (a free player forward of the ball). In Bell's explanation of IBL in a game-centred approach teachers/coaches create 'smart challenges' as inquiry spaces through adapted game forms to develop players' pattern recognition of the forming of a MOA and how to exploit it. The dominant teacher verbal behaviour of the teacher/coach in this process is questioning (Bell, 2003: Bell & Penney, 2004).

Conclusion

I have illustrated and explained in this paper how the pedagogy of questioning is the distinctive verbal behaviour of the teacher/coach using the GSA. Scaffolding that makes teaching strategies explicit and that embeds the pedagogical-content expertise of the teacher/coach in guiding the inquiry and/or problem solving (Hmelo-Silver, Duncan & Chin, 2007) is central in use of the GSA as a player/athlete-centred approach. Scaffolding is apparent in the instructional style of guided discovery with the questioning sequence conceptual coherence building towards progressive complexity in understanding and

application of a target concept. Scaffolding is evident in the planning of visible thinking routines typical of IBL and the facilitation of PBL. Pre-planning is an essential element of making the use of the GSA explicit and in deliberately positioning the teacher/coach educatively. Pre-planning questions is essential to the cognitive perceptual/decision-making intention to deliberately develop thinking players in the GSA.

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High performance coaching: Comparison between a highly successful coach's approach and Game Sense

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Game Sense locates learning within modified games to give relevance to practice by connecting it to the game as a whole. This develops understanding, decision making and skills that can be transferred to the full game (Light, 2013). This presentation draws on a study conducted on a high performance girls' basketball team in Australia to compare the highly successful coaches' approach with the Game Sense approach as outlined by Light (2013). Using a grounded theory approach, the study used participant observation during several practices and one game, and interviewed six girls in the team, aged fourteen to fifteen, and their coach. It suggested that the enjoyment of intensity in practice and in games came from the coaching style, where during practice games the coach tried to replicate game conditions. He applied psychological, physical and emotional pressure on them to allow the girls to deal with the conditions that they would face in a real game by encouraging them to have a calm state of mind, think, communicate and play as a team. Although he did ask questions, it was not strongly emphasized.

Introduction

Coaches enable athlete learning by designing experiences and Butler (1997) states that athletes develop their knowledge when involved in problem solving situations. Over the past two decades, there has been a considerable amount of research on tactical approaches to teaching games such as Game Sense (GS) and Teaching Games for Understanding (TGfU). 'Traditional' approaches tend to focus on the development of technique whereas these

methods focus more on the game as a whole, where they locate learning in modified games and there is an emphasis on questioning to stimulate thinking and interaction (Light, 2013).

As research in sport coaching suggests, many coaches base their coaching in games and some use questioning but few completely adopt the 'authentic' approach of Game Sense or TGfU (eg. Light & Evans, 2010). As Rod Thorpe noted when he came to Australia in the 1990s, many coaches were using games in their coaching but not employing questioning and this was seen to be a major contribution that he made to the development of Game Sense (Light, 2004). The original publication on Game Sense by the Australian Sports Commission (ASC – den Duyn, 1997) proposed a loose guide to coaching that emphasised using practice games, questioning and encouraging players to think and talk about the tactical aspects of team sport. Sixteen years later, Light (2013) stayed with the relatively loose approach to propose a pedagogical framework for Game Sense structured by four pedagogical features and suggests that there is great variation in regard to the emphasis coaches' place on these four features. Indeed, research suggests quite different interpretations of Game Sense with many coaches using some features of this framework while ignoring others (see Light & Evans, 2010). To us, this begs the question of whether or not this is Game Sense and how do we determine what is Game Sense and what isn't? This article draws on a study conducted on a high performance girls' basketball team in Australia and it examines the coach's approach to Game Sense, to explore the influence of game based coaching on his practice and of Light's (2006) suggestion that Game Sense coaching can be seen as just 'good coaching'. Using a grounded theory approach, the study used participant observation during several practices and one game, and interviewed six girls in the team, aged fourteen to fifteen, and their coach.

Game-Based Approaches

Several approaches based on games teaching have been developed over the past thirty years as responses to problems identified within the traditional teaching methods (see, Bunker & Thorpe, 1982). Over the 1990s, a tactical model was contrasted with a 'traditional' technical model (see Turner & Martinek, 1992). However, in contemporary debates over games teaching approaches fewer people suggest that there is a clear difference between the two models. Light (2004) suggested that the coaches in his study usually saw an overlap between the two models, and much of what is advocated by GS would be seen as 'good coaching'. Even the idea of a distinct 'traditional' coaching approach is questionable with Light, Evans, Harvey and Hassanin (2015) suggesting that coaches operate across a spectrum from a direct instruction, technical approach at one end to an athlete-centred, holistic approach at the other end. Here we outline some of the fundamental differences between the two approaches.

Traditional model and Game Sense approach

The traditional model sees technique and skills as fundamental to successful play. These skills are trained until they are performed well enough to allow a game to be played. Traditional models of coaching assume that technique must be developed in order to play the game (Blomquist et al., 2001). Traditional models of motor skill performance typically emphasise three sequential processes: perception, decision-making and movement execution (Abemethy, Kippers, Mackinnon, Neal & Hanharan, 1997). When adopting this model as a framework, the practice of motor skills is emphasised. The overall aim of this approach has been to produce skilful players (McMorris, 1998). This approach is characterised by direct instruction and a format divided into an introductory activity, a skill phase focusing on developing and improving skills, and a game.

Conversely, GS contextualizes learning within games or game-like situations. This model fosters both tactical awareness and skill instruction. The model does not assume that tactical

awareness in games must wait for the development of sophisticated skills. On the contrary, this approach starts with a game, which is modified to ensure that all athletes can play and gain insight into the particular game that they are playing (Light, 2013).

Game Sense was developed in Australia in the 90's by Rod Thorpe and the ASC (Webb and Thompson, 1998). Game Sense doesn't have a model, like other tactical approaches, and it is more open to flexible interpretation (Light, 2004, 2013). It focuses on the game and not on the skills or techniques that traditional approaches see as needed to be mastered before the formal game.

The Game Sense approach aims to locate learning within modified games to give it meaning and relevance to the full game or sport and develop skill at the same time as understanding (Light, 2013). Different skills and understandings can develop from verbal and nonverbal interactions between the coach and athletes or between peers, and this transcends that which can be obtained alone, so the use of language and reflection of the experiences are the main aspect of learning in Game Sense (Howarth, 2000; Light & Fawns, 2003). Game Sense teaching is an inquiry-based, athlete-centred approach where the coach acts as a facilitator of learning. Games taught using this approach give athletes opportunities to develop problem solving abilities and social skills that they can use in life. Game Sense makes people change their way of being in the world, and it makes them interact and have relationships with people, things and places (Light & Fawns, 2003).

Methodology

We used a constructivist grounded theory approach, where the generation of theory is grounded in the data developed through an ongoing process of developing emerging theories from the data that were compared, contrasted and tested in subsequent rounds of data generation, leading to the identification of theory grounded in the data (Charmaz, 2006). The data generated compared the coaches' style with the Game Sense approach as outlined by

Light (2013). The data drawn on in this article were generated from a larger study on the nature of participation in high level basketball for girls aged 14-15 years.

The Site

The study was conducted in the under 16 A team within one of the strongest basketball clubs in Australia located in the city of Melbourne.

The Participants

The coach and six girls were randomly selected from those who responded to an invitation sent to all girls playing in under-16 teams to participate to volunteer to take part in the study and we interviewed them. Pseudonyms were used to protect the identity of the participants. They are referred as Anne, Rachel, Jackie, Susanne, Bella, Catherine and Peter. The study had ethical clearance from Federation University Australia.

Data Generation & Analysis Methods

The data were generated through an initial questionnaire sent to all girls in the four under 16's teams in the club. Analysis of this data was then used to develop the questions for the first interview in a series of three, conducted before training on Sundays over the season and of approximately 40 minutes duration. One interview was also conducted with the coach at the end of the study giving a total of approximately 760 minutes of interview data. We also observed one game and the practices following the interviews. Analysis was conducted using grounded theory methodology.

Results

A GS approach involves learning within modified games to achieve certain outcomes and asking questions that allow athletes to think and reflect to ensure that there are opportunities

for group interaction and collaboration. Light (2013) defined four core features for GS to offer a framework for its implementation: (1) designing a learning environment, (2) emphasizing questioning to generate dialogue, (3) providing opportunities for collaborative formulation of ideas/solutions that are tested and evaluated; and (4) developing a supportive socio-moral environment. Looking at Peter's coaching style, we noticed, through the observations, that he uses some of the features of GS, namely creating a learning environment and developing a supportive environment.

The observations of Sunday training sessions and the competition games, showed constant focus and commitment from the six girls and their teammates. During training sessions Peter tried to create game-like situations simulating similar pressure and intensity to that of a real game but which he managed accordingly to how the girls responded. When asked about his approach to training, he said, "These (practice) games put them under the same pressure as the game on Friday night so they learn to work together and deal with decision making under pressure".

Peter's approach reflected an athlete-centred coaching approach because he considered the girls' lives outside basketball and the lessons that he felt basketball should teach them about life:

> I mean it is a little bit of both, you want them to have fun, you want them to learn, you want them to learn to play hard, you want them to learn to play as a team because they are life lessons not only there, but you know I'm a teacher so I try to teach them things about life and I just want to see them progress as human beings. (Peter, int. 1)

In our observations of competition games on Friday nights, the team demonstrated good tactical understanding, decision making and composure under pressure that seemed to come from their deep engagement in training, games and the culture of the team. Our

observations were confirmed when the girls were asked what they enjoyed the most about training and games in interviews:

> I like the intensity, I like how competitive it is and I know that after each practice I have improved because of how hard it is and we cover every aspect of play. Not just shooting or just defence but a bit of everything. You need the intensity because the way you train is the way you play. You train hard and it gives you good game experience. (Bella, int. 1)

All of the girls nominated intensity as the biggest factor required to make training and playing enjoyable for them as Jackie explains: 'I like the intensity in training because it keeps you on the edge and keeps you focused on being your best and is never boring because you have to focus and do your best all the time' (Jackie, int. 1). The enjoyment of intensity in training and in close games demonstrates the meaning basketball held for the girls that was encouraged by being in a high level club with a culture of effort and success. Commitment to the team, maximum effort at training and on games, was a common theme:

> What I like (about this team) is when everyone comes to training they are prepared to go hard out there. If someone doesn't do it, it should be like you are not improving for the team and you never want to leave anything out there because the team is training out there and it's training hard and you are part of that team even if the girls are injured. Like sometimes they'll pull back but they'll push themselves until they can't anymore, they honestly can't do it anymore they just want to get better for everyone. (Rachel, int. 3)

In the interviews, the girls said that they felt training was sometimes too hard but that they were ready to give their best because the coach was able to show them what they were doing were connected to the competition game with demanding competitive practice games often leaving the team fatigued. This is a feature of GBA in GS and TGfU which emphasise the importance of deep tactical and strategic understanding for successful coaching. This is

also one way in which GBA can empower players to be independent and motivated learners. In the interview with Peter he said that: “I try making it enjoyable. I make it hard for them, there’s no doubt about it, I’m a ‘my way or the highway’ guy and I’m intense but they also know that”. (Peter, int. 1). This shows that he expects that athletes give ‘their all’ in trainings and games and if they were not, he would call them on it. This seems to contradict the more even relationships promoted in GS and other GBA (Evans, 2013) but there was a warm, trusting and respectful relationship between the coach and players as he always encouraged them to be calm under pressure.

Peter had a close relationship with all the girls in his team who had immense respect for him. He also respected them but at times, during games and training, he would shout at one of them when she made a mistake. This was, however, never intended to be, or was taken as being, personal. During timeouts in game or between/during the exercises he would tell them why he shouted and also gave an explanation, and when asked about it he said: “I tell them that it’s about the act. I always tell them, ‘I don’t mean you it’s what you just did’”. There’s a difference, there’s a huge difference.’ (Peter, interview 1). Throughout our observations we noticed that the girls didn’t take to heart what he said and they understood that he was there to help and work with them: “There has to be a bond of trust between the coaches and the team and the team with the coach. And they have to trust each other. Trust each other and know that each other one cares”. (Peter, interview 1). This demonstrates that he was not only showing them the correct way of playing but also creating a supportive environment where he could correct anyone without any fear of losing that players engagement. It also suggests a holistic approach to coaching that takes into account the players as whole people with lives outside basketball and an awareness that care for athletes as people, is necessary for them to fully realise their potential (Jones, 2009).

This learning and supportive environment seemed to be key to develop the girls enjoyment for intensive practices and in games. One of the other features of GS we discussed

above was providing opportunities for collaborative formulation of ideas/solutions that are tested and evaluated (Light, 2013). This feature wasn't so evident but during Sunday practice sessions Peter regularly used practice games to replicate game conditions. He would apply mental, emotional and physical pressure on the girls to allow them to deal with the very same conditions in real games by encouraging them to stay calm, think, communicate with each other and play as a team. In these sessions he wouldn't focus much on questioning as the GS literature suggests (see, den Duyn, 1997; Light, 2013). However, when he did he would give each team time to work together and develop a higher understanding of the game by letting them discuss what was going on in the game and what they could do about it. This helped them understand the connection between practice and competition games and how intensity "keeps you on the edge and keeps you focused" (Jackie). However, the interview data suggests that they also liked the intensity because of the ways in which it strengthened the connections and communication between them as members of the team.

Conclusion

By examining Peter's practice as a successful basketball coach, we are not interested in assessing the extent to which he was using an 'authentic' GS approach. The study was focused on the nature of the girls' experiences in basketball which meant that the study focused on how Peter's coaching approach influenced this rather than focusing on the influence of GS on his coaching. We only mentioned the term 'Game Sense' to him on a couple of occasions when he did not seem so knowledgable about it but it is clear that his coaching shares much of GS approach and other GBA. It is also clear that this made a significant contribution toward the deep engagement of the girls and their enjoyment of being in the team.

Approximately half of Peter's practice sessions which we watched were based on learning in games and he used some questioning as well as offering some opportunities for

the girls to discuss tactics and skill execution in the context of a game. From our perspective, this was very effectively transferred to the Friday night competition games. He cared about his players as whole people with lives beyond basketball and although he stayed on centre stage he enjoyed a warm and trusting relationship with his athletes. On the other hand, he rarely used small sided games, engaged in some quite directive skill work at times and used coach to player monologue far more than dialogue.

Peter coached in a way that is very similar to GS as defined in the literature from den Duyn (1997) to Light (2013) and which, despite some differences with the GS approach, seemed to be driven by the same underpinning principles and philosophy. Light et al., (2015) suggest that rather than putting coaches in boxes to categorize them as traditional or GS coaches we need to recognise how they work across a spectrum from traditional directive, skill drills to GS at the other end and this seems a useful way to look at Peter's coaching style. This also encourages consideration of how coaches interpret and are influenced by different discourses in coaching. Our focus on Peter's coaching also supports Rod Thorpe's suggestion that good coaches have long used games in their training with his contribution to GS being the emphasis he placed on questioning and providing some structure for improving and developing the use of training games (Light, 2004).

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Games Concept Approach (GCA) and Game Sense: A practitioner's reflections

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This is a personal reflective paper from a practitioner's perspective between Game Concept Approach (GCA) and Game Sense. It draws on my experiences as a PE teacher, and a Head of Department in Singapore where I was involved in the implementation of GCA and my growing understanding of Game Sense approach as a PhD student at the University of Canterbury (UC). Though both approaches stemmed from Teaching Games for Understanding (TGfU), they are culturally influenced with marked differences in planning, structure and delivery of lessons. I have taught GCA in Singapore schools for the last 18 years and have only been exposed to Game Sense in UC through my readings and observation of undergraduates, and experienced significant differences. In this paper, I suggest that the more accommodating framework of Game Sense is more suited for teaching games through the lens of social constructivism (Denzin and Lincoln, 2011) and present some of its benefits.

Introduction

Denzin and Lincoln (2011) purport that interpretive research and social constructivism aim to get into the many ways that others see the world, to explore what activities mean to those who take part in them and how it affects how they live and work. Freire (1998) also surmises that teaching is not just the transfer of objective knowledge but, instead involves deep, reflective thought and practice. This paper aims to share my reflections on my experiences of using GCA whist teaching games to secondary and primary school students in Singapore and my experiences on reading and involvement in observing teaching Game Sense (dey Duyn,

1997) to undergraduates at the University of Canterbury. Comparing the two approaches draws upon personal and professional experience and which is underpinned by a social constructivist theory of learning (Cobb, 1996; Vygotsky, 1978). Both approaches stemmed from Teaching Games for Understanding (Bunker and Thorpe, 1982) and share some similarities theoretically, yet they differ in terms of lesson delivery.

I emphasise how Game Sense relates well to being a more flexible approach for teachers to adopt as compared to GCA. This paper also discusses the benefits of Game Sense as a more accommodative approach to teaching PE.

Games Concept Approach (GCA)

Prior to 1998, Singapore's Physical Education (PE) syllabus was based on a discipline of mastery approach (Jewett, Buin & Ennis, 1996) that focused on drills and techniques (McNeill, et al., 2004). In 1999, the PE curriculum took a major change with a revised syllabus using GCA for games teaching for all grade levels (Curriculum Planning and Development Division [CPDD], 1999).

GCA is modelled from Bunker and Thorpe's TGfU in 1982 who surmised that for learners to be more engaged in lessons, the play component has to be maximized as opposed to traditional, technically taught PE lessons (Bunker and Thorpe, 1982). GCA shares the same primary goal of improving students' game performance, problem solving, decision making and competence in skills. GCA incorporates tactics and skills through appropriate use of skill development and application within the actual game context (Griffith, Mitchell & Oslin, 1997; Turner & Martinek, 1995). As such, GCA can be construed as a hybrid of TGfU and Tactical Games approach that "emphasizes game play and places skill learning within its game context" (CPDD, 1999, p.2).

GCA follows a defined game-questions-practice (replay)-game structure. It is problem based and the teacher uses various play-and-reflect strategies to extend student's knowledge

of what and how to play. With the introduction of GCA, it challenged the status quo of Singapore's PE landscape in three ways; (i) the play-practice-replay lesson structure was in contrast to specified warm-up and stretches, skills development followed by skills application; (ii) the lesson content focused on developing games play through understanding, rather than fitness and technique, and finally, (iii) the lesson process was informed by constructivist perspectives on learning instead of technical orientation (see McNeill, et al., 2004).

Game Sense

In 1997, the Australian Sports Commission (ASC) published a set of resources comprising of a booklet (dey Duyn, 1997), a video and a set of activity cards that drew on coaching practice in Australia, showing a range of modified games for each of the four game categories. The features of Game Sense are: (i) that most learning is shaped and contextualized within games or game-like activities that involve competition and decision-making, and (ii) that the coach/teacher uses questions to stimulate thinking and intellectual engagement (Light, 2013). The absence of the six step model and any reference to the four pedagogical principles of TGfU is evident in Game Sense. It was intentionally planned to avoid having any prescription about how it must be done by offering a framework with enough flexibility so that teachers and coaches may infuse their own beliefs and adapt to the nature of their students or players and the particular circumstances within which they work (Light, 2013).

Game Sense pedagogy is game-based, involves indirect teaching/coaching and is learner-centred (den Duyn, 1997; Light, 2013). The 4 core pedagogical features offer a framework for its implementation and they are: (i) designing the learning environment, (ii) emphasizing questioning to generate dialogue, (iii) providing opportunities for collaborative formulation of ideas/solutions that are tested and evaluated *and* (iv) developing a supportive socio-moral environment (Light, 2013). The next paragraph briefly explains each point.

Providing a learning environment reflects the indirect approach of Game Sense and the emphasis on learning through engagement with the learning environment suggested by Dewey (1916/96). The use of modified practice games also reflects its holistic approach, its focus on the whole game and on players as inseparable from each other with learning involving a process of adaptation to the dynamic environment (Light, 2013). Emphasising questioning to generate dialogue simply means the teacher asks questions to stimulate dialogue, reflection and conscious processing of ideas about playing the game (Light, 2013). Questioning needs to be open-ended to generate possibilities and a range of answers rather than leading to predetermined answers. Providing opportunities for collaborative formulation of ideas/solutions that are tested and evaluated refers to allowing the learners to discuss amongst themselves to solve problems that arise and come up with strategies that they feel might work (Light, 2013) which strongly suggests a constructivist view on learning. Finally, developing a supportive socio-moral environment as suggested by DeVries and Zan (1996) with regards to constructivist-informed teaching, means having a class culture in which the students are comfortable to speak up as collaborative learners with equal relationships and opportunities.

GCA: My reflections

In GCA, there is a format of game-questions-practice-game structure which must be strictly adhered to in every lesson. This created problems in my lesson deliveries. I had concerns adapting to understand and use GCA to suit the curriculum. I grappled with three main concerns of planning, structure and delivery of lessons using GCA. My reflections corroborates a preliminary study conducted by Tan et al. (2002) on the implementation of GCA in Singapore schools that found difficulties faced by inexperienced Trainee Teachers during their teaching practice.

Planning of lessons

During teacher training, PE teachers are required to design and write lesson plans in accordance to the syllabus by the Ministry of Education. In designing PE lesson plans, the structure of game-questions-practice-game itself already proved challenging for most experienced teachers and more so for Trainee Teachers, coupled with their lack of knowledge of various games and classroom management experience. The incorporation of all the phases within a time frame of 30 minutes, seemed daunting. I found the planning process very time consuming and tedious. The structure of GCA allowed very little room for me to be flexible and creative because it required detailed and careful planning on my part within my very short teaching time.

Lesson structure

Usually, the unit of a lesson plan in GCA started off with a modified game. For example, in soccer, I started with a small-sided 5 v 5 game with the focus on spatial awareness. During the game, I allow my students to play the game whilst waiting for a 'teachable moment', like when overcrowding of play happens. After about 7 minutes of play, I would gather them to ask questions like, "What do you need to do to pass around effectively?". This was to elicit responses such as "Get into space" or "Move away from your opponents". It was followed by a series of leading questions such as, "How do you do it?" and "What do you need to do to create space?". Then, a replay of the same game played earlier in the activity was conducted, bearing in mind what had transpired in the questioning phase. Here, we see an example of a practice phase. There was no progression to the current game. Finally, the lesson ends with another game that can possibly be an extension to the practice phase.

The GCA structure is clear. But at the same time, I felt I was forcing my students to answer my inquiring questions instead of allowing them to think for themselves. With a large size class of 40 students within a short time frame, I was trying to ensure efficient and

effective time and class management so as not to have too long a lapse in between the GCA phases. Though possible to achieve, it did require a lot of experience and confidence of any PE teacher!

Delivery of lesson

With GCA as a mandated national PE curriculum in Singapore, it has been suggested that its discovery approach to learning can be used in other content areas like gymnastics, dance or track and field (see McNeill, et al., 2004) but teachers find it paradoxical in terms of the expectation of teachers in a climate of control (see Rossi, et al., 2007). They understand there are significant expectations on them of precisely what to teach and how to teach it but coupled with lack of space and short curriculum teaching time, PE teachers faced a mammoth challenge in implementing it.

For example, I often felt very 'rushed' in trying to complete a lesson and hence affected the overall delivery and outcome of my lessons. I felt I had shortchanged the students' learning as I was also adapting to the demands of GCA lessons. I was pressured to complete the syllabus within the time frame given or risked falling behind in giving knowledge to my students. I interacted with many trainee and experienced teachers, and they expressed the same concerns of time and content of lesson delivery. It is not that the teachers failed totally in delivering the lessons but rather, they struggled to make them into quality learning experiences using the GCA structure.

Discussion

Social constructivist and mandated practice: A paradox

In my opinion, TGfU, GCA and Game Sense all sit on social constructivist views on learning. Rather than seeing learning and cognition as an individual process that emphasizes the intra-personal dimensions and seeing the construction of knowledge as involving 'the

activation and reorganization of existing knowledge to make a unique understanding of the world' (Chen and Rovegno, 2000, p.357), social constructivism views learning as an ongoing social process with understandings and capabilities emerging from social interaction with and within a group (Cobb, 1996). It allows the learners to make sense of and construct their own learning of what was happening in the lesson through social interaction and within the context of the lesson.

The fact that GCA is mandated in Singapore's curriculum, works as an antithesis to the nature of constructivism. My own experiences of being creative and innovative in my teaching was greatly compromised as I was only equipped with a pedagogy that is rigid albeit through its structure and prescription by the Ministry. When teachers are not given flexibility to their teaching approach, it reduces their ability to be more supportive of the socio-moral environment of the students especially in situations where students create their own understanding of learning of the games. Teachers tend to be too fixated on trying to complete the phases of GCA and overlook the importance of students' learning and meaning construction of the activity. I was confused as whether to fulfil the demands of the structure of the lesson or to focus on the deliverables of the lesson content by stimulating students' learning and discussions.

Another antithesis to constructivism is the way GCA is structured. The components of the practice phase repeat the activity with the knowledge already informed by the teacher during the questioning phase. Students already knew the answers as opposed to having discuss the problem with their peers and engage in a dialectic discourse to frame a solution to the problem (Light, 2013). So where is the discovery and creation of understanding as experienced by these students when a teacher tells them the answer? Though my Ministry understood the questioning phase with solutions and replay structure as constructivist; it is a point with which I disagree. It actually perpetuates Singapore's teaching strategy of teachers asking and then confirming students'.

Benefits of using Game Sense

My readings on Game Sense and my observation of UC undergraduates using this approach, leads me to believe that Game Sense works more in line with social constructivist perspective on learning than GCA.

Game Sense has no prescriptive structures compared to GCA and TGfU (Light, 2013, p. 48) which allows the teachers and coaches to have the flexibility to change their teaching styles to adapt to the ever-changing and dynamism of game contexts. Teachers are not forced to comply with completing the structure in the lesson delivery itself. They have free reign to choose which modified games or game based activities to suit the needs of their students. They can be flexible to teach one lesson objective over a few lessons if need be. Thus, teachers are less pressured to complete a lesson quickly and are able to manage the lesson delivery more effectively if faced with a short curriculum time, lack of space and managing big groups of students.

Games Sense is clearer and less confusing. The focus on getting the students to apply what they have learnt to another game scenario and to see how well they problem solve is key in Game Sense. My observation of the undergraduates engaging in conversation during their lessons to reach a decision to improve their performance in their game illustrated this point clearly. The GS approach empowerments students to think and to act upon their decisions.

Conclusion

In my comparison, I recognize that there are powerful contextual factors such as short lesson times and a strictly prescriptive approach to its implementation by my Ministry and schools that created the problems I have identified. These same problems will likely also create challenges for adopting Game Sense approach in Singapore as PE teachers there operate in a context of mandated professional practice with regular evaluation and monitoring that induces high degrees of self-regulation as underpinned by what Foucalt (1980/1977) calls

strategic compliance. Every school is given a set of guidelines and practices with it and it is rare for any PE teacher to object openly to the Ministry.

I am positive though, with Singapore's regular syllabus changes that Game Sense, as a more accommodating approach, may play a role in its PE curriculum in the future. After all, both GCA and Games Sense came about from the same origin. In hindsight, teachers in Singapore and I may have already unintentionally practiced some components of these two approaches. At the end of the day, the focus on my students is and will always be, my key motivator to teach PE.

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Teaching games by using the principle of aggressive ball movements: A developmental study of learning through teaching games

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Traditionally, the purpose of physical education in Japan has been to acquire skill and help students develop physically. However, as recent research suggests (see. Light, 2013) learning to play games should not be limited to learning skill, but should also involve meaningful participation in games and the learning that emerges from this. Games are complex with skill, tactical knowledge, decision-making and other aspects of play interacting and inseparable from each other and this is emphasised in all the various Game-Based Approaches (GBA). The stress place on different aspects of teaching or coaching may vary but all these aspects sit on deep understanding of games. It has also been suggested that GBA involve core features as suggested by Light (2013) and Gréhaigne, Richard and Griffin (2005).

Following Gréhaigne et al. (2005) who detailed some principles of game play such as deception, surprise and opportunity, this paper focuses on teaching to promote tactical knowledge in invasion games by offering a simple principle that we suggest underlies strategy and tactics. Moreover, we focus on the basic structure of ball games with the assumption that the purpose of games is to move the ball to a target space such as a goal within a specific structure. This means that the velocity of the moving ball will be important and we refer to this velocity as, Aggressiveness of Ball Movements (ABS). Velocity is a dependent variable that uses the speed and direction as independent variables. Changing direction and/or speed of the moving ball makes a significant contribution to the game by defending or attacking players. We argue that focusing on ABS in games helps students to understand strategies and tactics.

Introduction

Over the past thirty years the idea of focusing on the game instead of on isolated skills has encouraged a range of GBA. Although different teaching approaches now exist, they have been strongly influenced by the initiation of Teaching Games for Understanding (TGfU) by Bunker and Thorpe (1982). It has taken a little longer for these ideas to influence teaching in Japan (Suzuki, 2014) but progress is being made due to the teaching guidelines for elementary schools (revised in 2008). This included the improvement of games performance in the framework of movement *on* and *off* the ball (Spackman, 1983, pp.98-99).

While it may be possible to improve performance in the context of games, it is equally evident and presumably worrying that these strategic pedagogies become isolated from the diverse contextual aspects within which they are introduced. More specifically, physical education in Japan has imported GBA, a model developed in US which targeted specific outcomes, outcomes which may not necessarily echo the contextual ones. For example, Griffin, Mitchell and Oslin (1997) proposed a tactical games approach (TGA) and illustrated a variety of small-sided games for teaching Soccer, Basketball, Volleyball, Badminton, Tennis, Softball and Golf. From a local perspective, Suzuki (2014) argues that the Japanese physical education curriculum is not organised to teach school children official sport but to diverse learning within a specific 'type' of game (like Invasion, Net / Wall and Fielding / Run-scoring). Within Japan, this learning however, has not been developed beyond concepts of on-the-ball skills and off-the-ball movements. Therefore, the application and pedagogical implementation of sports concepts and skills in TGA has been rather difficult for Japanese PE teachers and restricted the spread of a GBA as noted in other contexts (MacPhail, Kirk & Griffin, 2008). As a result, 'small-sided games' were adopted to promote 'correct' decision-making (Onizawa, Takahashi, Okade, Yoshinaga &Takaya, 2006; Onizawa, Komatsuzaki, Okade, Takahashi, Saito & Shinoda, 2007; Onizawa, Okade, Komatsuzaki & Takahashi,

2007) and to improve specific game skills (Suenaga, Tokuno, Motoduka &Takahashi, 2012). However, teaching children the 'correct' answers is a complex area (See Light, 2013).

Furthermore, the number of students who require special support has significantly increased (Ministry of Education, Culture, Sports, Science & Technology in Japan, 2012), including those with Attention Deficit Hyperactivity Disorder and other learning disabilities as well as obese students and students with little experience of exercise. Therefore, when preparing an environment for inclusive education, learning by a diverse range of learners should not be simply evaluated by the performance seen in the game. Lesson plans that enable peripheral participations in games and that do not rely only on the improvement of performance but which develop an alternative evaluation approach are urgently required. Focus must be placed on the principles of games that influence variable game configuration. In physical education, this focus should be directed towards not only the acquisition of movements but also an understanding of some kinds of patterns that exists within games. Also, the language used in lessons should be easy and simple to allow for better comprehension.

This paper addresses some of these issues by drawing on a small study conducted in Japan that aimed to develop learning that promotes an understanding of games in terms of ball movements that exist within games among study groups with different levels of sports skills, experience and knowledge.

Method

The plan for this study was to develop a principle in terms of the ball movements in games as a learning focus of PE. Therefore, the methodological framework for considering ball movements in games is discussed.

Variable game configurations, including tactics and strategies, must be deductively derived as the basis for a principle in terms of ball movements. This principle will be referred

to as ‘aggressiveness of ball movements’ (ABM). First, (1) the structure of the game is to be understood based on the game structure theories of Suzuki, Hirose, Tsuchida, & Suzuki (2008) in which the structure of a game is viewed simply as a means to develop the players’ problem-solving in the game. Next, (2) focus must be placed on the fact that all ball games are ball-progression games, and the movement of the ball is to be measured while ignoring players. Thereafter, the principles that influence the game configuration are extracted from the structure of the game and the movement of the ball.

Principles of aggression in ball movement

In this study, by focusing on ball movement, the individual issues of player skills and the techniques and tactics used in the game are removed from the main factors of variable game configuration. This is because offence and defence are relative concepts in which the ball is an intermediary (as opposed to the real concepts of an offender and a defender). The defender is not always performing defence, instead defence is a manifestation of the movement of the ball. The focus is on the ball and its movement and the player movement that this produces.

Basically, what occurs in relation to offence and defence is, (1) the movement of the ball to the target point (offence) and (2) the prevention of the ball progression (defence). Focus will be placed on this basic structure. In ball games, the players have some aim or some limitation, and they move the ball by applying force. In general, the movement of the object can be quantified by velocity in terms of the ‘speed’ and ‘direction (orientation)’. Furthermore, the challenge in ball games is to move the ball toward the goal (Suzuki et al., 2008). Therefore, a team moves the ball with speed and direction based on the aims of the players or the team. This ball movement can be seen by the defence as high in aggression (or low in aggression).

The above relation indicates that ball aggression is a dependent variable (velocity) that is determined by speed and direction as independent variables, and the connection

between these factors is considered to be a mathematical function (Sato, 1993). In this theory, as the purpose (P) requires the existence of a simple offence and defence model, ball aggression (or, 'aggressiveness of ball movements' (ABM) in which ABM = f (s, d ｜ P), i.e., ｜ indicates the conditions for competitive targets (P: to move the ball to the target point)) is a dependent variable that has independent variables of ball speed and direction (f = function), which was one of the principles in the consideration of the strategies and tactics of the game.

Lesson development

Focusing on the aforementioned ball aggression principle, the following lessons can be developed.

First, a simple game was developed in which a modification was made to touch rugby so that a try can be scored if the defence is broken through within 20 seconds. The turnover rule was not used to define the relation between offence and defence, configuring it like that of American football. In the lessons, a locus chart (Tsuchida, Abe, Sakakibara, Yonamine and Kitazawa, 2013) during offence was created so that students could analyse their own offence and defence. For example, two major approaches exist to ball movement, which are: 'Liner Approach' and 'Bypass Approach'. The offence team pursues the former by increasing the velocity of ball movement, whereas the defence team pursues the latter by reducing the velocity of ball movement.

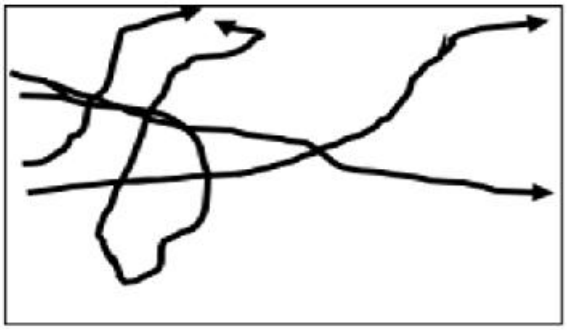

Fig.1 Ball locus chart

When this lesson was tested with university students, even novices understood that they could contribute to curtailing the aggression of the opposition based on the ball direction and speed as shown in the locus chart (See Fig. 1) during the opposition's offence.

The defence can have a peripheral participation in the game simply through their positioning as they are not involved in the handling of the ball. Even if an individual is beaten, the defence principle can be learnt by the layered structure of fellow defenders (Yoshii, 1994). By analyzing defence and developing lessons through discussions about reducing the speed of the opposition, students were able to experience the principle of the game. This was applied through planning a strategy and tactics in terms of the positioning of the line of defence and the distribution of team members, etc.

In this manner, when each team's defensive organisation progressed, it created a situation wherein defence was improved. Students in the offence team learn that it is surprisingly difficult to increase the velocity of ball movement in this game simply by running with the ball. The other challenge was that when the movement of the ball was slow, defenders could easily get close. Therefore, many teams tried to hide the ball so that the person in possession of the ball would not be identified. Some teams attempted high-level co-ordination, such as scissor movements, while others pretended that each member of the team had the ball behind their back. This can be considered to be the deception principle (Gréhaigne, Richard, & Griffin, 2005, p.30). Furthermore, by repeating the game with slower players after a fast player had scored a try, it was possible to teach the surprise principle (Gréhaigne et al., 2005, p.31).

Conclusion

This study was intended to develop learning contents that promote an understanding of games in terms of ball movements. As we have tried to illustrate in this paper, the principle (ABM) in terms of ball aggression was a dependent variable (velocity) that was determined by speed and direction as independent variables. By giving meaning to various actions in terms of what we see as the principle (ABM), learners are exposed to situations during which they can

develop ideas of playing games without using technical terms or specific knowledge of official sports.

If learners can meaningfully participate in the game, outcomes may not be an improvement in the performance itself, but rather learning the principles hidden within the game. Principles learned in this manner can then be transferred to other games. ABM, within this perspective, becomes an important learning focus in teaching games.

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