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## **Making Learning Visible - The Pedagogy of Questioning in a Game Sense Approach**

### **Abstract**

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

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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).

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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 (IBL) (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).

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**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                                                          |

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|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | ball must choose and execute the correct passing option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Modified game                       | 3v3 Give and Go Grid Ball                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Examples of developmental questions | <ul style="list-style-type: none"> <li>• How can the players without the ball help the player with the ball?</li> <li>• What should off-the-ball players be doing in support of their team-mate with the ball?</li> <li>• What should you do after you pass the ball?</li> <li>• What happens to the space when you move? And what does that mean for your team-mates?</li> <li>• What happens to the space if you do not move? And what does that mean for your team-mates?</li> <li>• How can you indicate that you are open to receive the ball?</li> <li>• How can you use space to your advantage in maintaining possession?</li> </ul> |
| 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

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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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