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Questioning for learning in game-based approaches to teaching and coaching

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Despite the development of a wide body of literature suggesting the efficacy of game-based approaches (GBAs) to teaching and learning, GBAs have not yet been widely adopted by practitioners. A range of challenges face teachers and coaches taking up a GBA with two areas being of particular concern, which are: (1) the teacher's ability to design practice games, analyze learning, and be able to make the necessary adjustments and (2) the effective use of productive and generative questioning. Although these issues are interrelated this article focuses on questioning to provide the attention that the literature suggests it requires with a focus on the practitioners' implementation of GBA. After a brief discussion on theories of learning that support the use of questioning for learning in a GBA, the purpose of questioning is overviewed before the presentation of a range of specific questioning techniques for use in GBA. These are grounded in practical examples and which can be employed by practitioners to implement an authentic GBA.

Keywords: social constructivism; dialog; reflection; physical education; sport coaching

Introduction

Despite the development of a wide body of literature across the globe suggesting the efficacy of game-based approaches (GBAs) to teaching and learning they are not yet widely adopted by teachers and coaches (Pill, 2011). In part, this seems to be due to the ways in which the learner-centered nature of GBA pedagogy, with its focus on learning instead of teaching, requires a profound shift in the role of the teacher/coach from directing and controlling learning to facilitating and guiding it (see, Butler, 2005). This profound shift creates pedagogical challenges for practitioners with two areas being of particular concern, which are: (1) the ability to design practice games, analyze learning, and make the necessary adjustments (see, Howarth, 2005; McNeill et al., 2004; Turner, 2014) and (2) developing productive and generative questioning (Kidman, 2001; McNeill, Fry, Wright, Tan, & Rossi, 2008; Prain & Hickey, 1995; Roberts, 2011). Although these issues are interrelated, this article focuses on questioning in a GBA to give it the attention that the literature suggests it requires (Forrest, 2014; McNeill et al., 2008).

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The main body of this article is structured around the purpose of questioning in GBA to emphasize the ways in which practitioners need to go beyond simple yes/no questions that shut down learner thinking to employ questions that are open-ended and, which foster the debate and dialog between the teacher/coach and learners and between learners, which is a feature of GBA (see Gréhaigne, Richard, & Griffin, 2005; Kidman, 2001). We then suggest what types of questions, and what questioning strategies and techniques, could be used to meet the purposes of questioning in GBA and provide practical examples of how to implement them. The main body of the article is preceded by a brief discussion on theories of learning that support the use of questioning for learning in GBA.

Learning through questioning

Despite suggestions for theorizing learning in and through GBA from other perspectives such as constraints-led theory (see, Renshaw, Chow, Davids, & Hammond, 2010), interest in GBA such as Teaching Games for Understanding and Game Sense over the past two decades has predominantly drawn on social constructivism to explain learning and enhance it (see Butler & MacCahan, 2005; Kirk & MacPhail, 2002; Rovegno & Dolly, 2006). Social constructivism is widely seen in the work of Vygotsky, developed by others such as Bruner (1966) and Dewey (1916/97). Specifically, we utilize Vygotsky's notion of the Zone of Proximal Development (ZPD) and supplement this with Complex Learning Theory (CLT), proposed by Davis and Sumara (2003) and developed by Light and colleagues (see Light, 2014a; Light & Kentel, 2013), to explain how questioning is used in a GBA to enhance learning. These theories both emphasize the role of language in learning such as in the dialog between learners, and between learners and the teacher/coach in GBA (Light, 2013), which is a particular focus of the questioning used in a GBA.

The Zone of Proximal Development

From a theoretical standpoint, Vygotsky's (1978) ZPD provides a useful way of thinking about questioning that is pertinent due to the way in which it emphasizes the importance of language and verbal interaction in learning. The ZPD refers to the gap between the learner's 'actual developmental level as determined by independent problem solving' and the higher level of 'potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky, 1978, p. 86). The ZPD is the zone between what a child can do without adult assistance and what she/he can do with it. The skills and understandings that exist within a learner's ZPD are heightened when she/he engages in interactions with knowledgeable others such as peers and/or adults. For Vygotsky, the most effective instruction aims at the ZPD instead of at the learner's level of independent performance to produce gains in their development.

In particular, teachers/coaches can utilize a form of group scaffolds (Cazden, 2001) in a GBA to develop knowledge and assist student/player learning within the ZPD through questioning to generate a productive and focused discussion within teams in-between bouts of game play (Wood, Bruner, & Ross, 1976). These discussions are typically guided by core teacher/coach questions and stimulated by appropriately timed and expressed questions from the teacher/coach that suit

student/players (as learners) zone of competence and allow for clarification of problems in understanding (Cazden, 2001). They allow the students/players to make connections between new situations and familiar ones by regulating the complexity and level of difficulty of the information at their disposal (Cazden, 2001). As student/player 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). This utilization of the group scaffold and the questioning within it provides a context within which students/players can actively construct knowledge. This therefore encourages appropriation (as opposed to transfer) of knowledge (Bakhtin, 1981) because students/players begin to share experiences, making what is private-public so that these thoughts can be discussed, summarized, and potential solutions to the games tactical problems tested (Cazden, 2001).

Complex Learning Theory

Another theory in the physical education and sport coaching literature that helps thinking about questioning and can explain how it works is that of CLT. CLT was first proposed by Davis and Sumara (2003) as a way of circumventing some of the contradictions between different constructivist theories of learning, ranging from intra personal theories of Piaget to more social views of learning such as that of Vygotsky (Windschitl, 2002). Recently applied in physical education and sport coaching by Light and colleagues (see Light, 2014a; Light & Kentel, 2013) CLT condenses a range of sometimes conflicting forms of constructivism to three broad and interrelated elements:

- (1) Learning as an ongoing process of *adaptation*
- (2) Cognition is a *social process* and not only an intra-individual one.
- (3) Learning involves processes of *interpretation* in which there is no pre-given external reality.

CLT proposes that learning is a complex process of adaptation (appropriation) that is social and interpretative in nature. Consequently, as Light and Fawns (2003) suggest, learning through games can develop as a conversation between the actions of the body in practice games and the language of discussion, debate, etc. in-between these games. CLT rejects the idea that learning is an internal representation of an external reality that takes part in a disembodied mind and promotes the body's role in learning where action and cognition are intertwined through the various iterations of game play and reflection on game play.

The interpersonal or 'social' aspects of learning through which individuals absorb the habits and culture of their environment in a spontaneous, nonconscious, and embodied way play a significant role in learning especially in physical education and sport (Light, 2005). A CLT perspective has implications for how we understand learning/improvement in physical education and sport and the ways in which it is taught/coached. It necessitates a re-positioning of the teacher/coach and his/her role in learning so that learners are afforded the opportunity to make decisions independently of the teacher/coach. This includes being given the opportunity to

reflect on experience, make meaning of it and reconstruct knowledge through manipulation of the 'story of self' (Cushion, 2011, p. 175).

In GBA, reflexive dialog between the player and the appropriate game context is scaffolded (Wood et al., 1976) by effective questioning from the teacher/coach and provides a powerful tool for the development of independent, emergent decision-making in sports where knowledge is enacted (Light & Fawns, 2003). By structuring opportunities for questioning episodes within lessons or practice sessions and in-between bouts of game play, the teacher/coach can guide, facilitate, and scaffold the learner's problem solving capabilities. The teacher/coach can prompt and probe when needed to allow the learners to explore specific aspects of their performance to encourage the development of 'new' knowledge that is emergent from these reflective episodes, and enacted within, repeated bouts of game play (Cazden, 2001). This contributes toward the engagement of students and players in learning that teachers and preservice teachers feel a GBA promotes (e.g., Wang & Ha, 2009). Finally, these interactions also assist in the development of empathy between the students/players themselves and with the teacher/coach (Lémonie, Light, & Sarremejane, 2015).

The purpose of questioning in GBA

The importance of effective questioning is not limited to the utilization of a GBA within physical education and/or sports coaching contexts. The significance of questioning for learning is widely recognized in the general education literature for meeting alternative curriculum goals (Cazden, 2001). For example, it develops problem solving ability (Sullivan & Clarke, 1991) and critical thinking (Yang, Newby, & Bill, 2005), both of which are prioritized in GBA. Questioning promotes an alternative discursive activity and social practice within and beyond the classroom (Gee & Green, 1998; Fairclough, 2013; Prain & Hickey, 1995; Prain & Tytler, 2013). It necessitates a different role of the teacher/coach, one of facilitator, and one where the discourse shifts to one where the teacher/coach accepts alternative answers and solutions and opportunities for independent learning (Prain & Hickey, 1995).

Moreover, questioning provides a critical link between the cognitive and social aspects of learning (Cazden, 2001). In physical education and sport, cognitive and social skills are central to successful game performance (MacPhail, Kirk, & Griffin, 2008) with successful performance in games resulting from the interaction between technique and tactics, where learners learn to employ the correct technique in the context of a particular (social) game situation (Kirk & MacPhail, 2002). To develop this 'game sense' or 'understanding in action' (Lauder, 2001), the teacher/coach must have the ability to construct an appropriate learning environment so that learners can interact with this environment to make effective decisions (Light, Harvey, & Mouchet, 2014). Constructing this learning environment is aided by practitioners being critically reflective and reflexive which can be achieved through the teacher/coach viewing themselves as a *co-participant* who guides learning while learning themselves (Davis & Sumara, 1997).

Skillful questioning in GBA aims to empower learners to take responsibility for their own learning and to learn how to learn (Light, 2014b). A study on the influence of Game Sense on elite-level coaching found that New Zealand coaches believed its athlete-centered approach and the use of questioning promoted strong interpersonal relations and empowered players (Evans, 2012, 2014). It can also generate curiosity

and persistence (Cazden, 2001), which can boost the desire and ability of learners to find answers to the problems posed by the learning activities structured by the teacher/coach. Consequently, learners are encouraged to collectively develop ideas and experiment in practice as something that requires them to think, reflect, and enhance self-monitoring of their own learning/progress (Cazden, 2001). Effective questioning in GBA should encourage learners to reflect upon their performance to allow them to best solve problems and make correct decisions (Oslin & Mitchell, 2006). Good questions should not limit the possible responses, but, instead, expand them to help call learners attention to develop their critical thinking skills (Wright & Forrest, 2007) and encourage them to pay greater attention to their own thinking and knowledge (Cazden, 2001). Using this nontraditional dialogic approach can also assist teachers in learning about their students while also heightening their expectations for their students' learning and development (Cazden, 2001).

Moving beyond simplistic questioning

Simply asking questions will not necessarily assist in the implementation of a GBA because the questions used by the teacher/coach need to stimulate thinking and social interaction from which learning emerges (Cazden, 2001). Research in education shows that although questioning is common practice among teachers, it is largely limited to asking inauthentic, surface-level questions to which the teacher already knows the answer, thus not promoting metacognition (Cazden, 2001; Kracl, 2012). For example, Daines' (1986) pilot study of 38 elementary and high school social studies teachers indicated that most questions asked during lessons were at the literal level of comprehension (93%), with less than 7% being interpretive (open-ended). In addition, Sellappah, Hussey, Blackmore, and McMurray (1998) identified that clinical nursing teachers used predominantly low-level questions, which prompted them to suggest that they be taught how to use questioning. A study conducted on physical education teachers in Singapore by McNeill et al., (2008) had similar findings. Working with groups of elementary and secondary school pre-service teachers who had learned to teach using a GBA during their teacher education program, McNeill and colleagues found that the majority of questions used by the pre-service teachers (76%) were low-order involving knowledge or recall with only 6.7% being open-ended or divergent and capable of developing tactical awareness and critical thinking.

In sports coaching research, and reflecting the influence of behavioristic perspectives on teaching, research has found that coaches provide large amounts of instructions, feedback, and demonstrations (Williams & Hodges, 2005) based upon an assumption of there being a positive correlation between this type of intervention and learning (Douge & Hastie, 1993). Researchers in sport coaching have suggested that this over emphasis on instructing learners what to do can limit their opportunities for developing their decision-making and problem-solving skills (Ford, Yates, & Williams, 2010), prompting greater attention to coaches' utilization of questioning. However, findings from a range of systematic observation studies show that coach questioning typically ranges between 2% and 7% of the total reported coaching behaviors (Cushion, Ford, & Williams, 2012). More importantly, when systematic observation studies have demonstrated the nature (i.e., technical, tactical) and type (i.e., convergent, divergent) of questions being asked by the coach,

it has been noted that coaches predominantly ask convergent (closed) rather than divergent (open) questions that are technical in nature (Harvey, Cushion, Cope, & Muir, 2013).

In her presentation of a traditional lesson format, Cazden (2001) overviews the triadic Initiation, Response, Evaluation/Feedback (IRE/F) method of questioning. In this method, the teacher/coach and students/players take turns in asking and responding to questions with evaluation and/or feedback provided by the teacher. Cazden describes this IRE/F format as being uni-vocal. Two examples of questions that generate lower-level comprehension and recall, yes/no, responses through a teacher/coach and student/player IRE/F exchange are provided in Table 1. These are within the context of a teacher speaking to a group of 12-year-old mixed-gender students who are learning about off the ball movement and support within a modified/conditioned small-sided soccer game. The modification is the use of a ‘joker’ player (Gréhaigne et al., 2005) who plays as an extra player for the team that has possession of the ball so as to help create an overload on the defensive team.

In these two examples, the teacher/coach is using low-order recall questions that typically do not stimulate participants to think at a deeper level or elaborate on their responses (Peterson & Taylor, 2012). They do not offer any way of developing substantive debate, discussion, and dialog between the participants who are engaged in that soccer activity because the teacher/coach shuts down thinking through the use of the IRE/F structure. In the next section we offer some specific examples of ways to develop the use of higher-order questions within physical education and coaching settings to help teachers/coaches move away from the traditional IRE/F format to a nontraditional format and meet alternative lesson/session goals (Prain & Hickey, 1995). This is not to say that the IRE/F format does not have its place. It is simply our contention that due to the links between the cognitive and the social dimensions of learning (Cazden, 2001) emphasized in GBA this traditional approach to questioning is inappropriate.

Questioning approaches for promoting deep thinking and dialog

Kagan (2005) suggests that questions can be divided into those that are skinny or fat, high consensus or low consensus, and review or true. Skinny questions are those who require a yes/no type of answer and little thinking on the part of the student (as demonstrated through the examples in Table 1). Fat questions on the other hand are

Table 1. Examples of yes/no IRE/F questions.

Q: Molly drew the defender then passed. Was that the best option?
A: Yes/No.
Q: What should she have done instead?
A: She should have dribbled the ball.
Q: That’s right.
Q: Do you think that Sean ran into a good space?
A: Yes/No.
Q: Where was the better space?
A: On the opposite side to where he ran.
Q: That’s right, because there was more space on that side of the field.

those which require more evaluation, synthesis and evaluation on behalf of the learner. These are similar to review and true questions. Review questions would be questions that simply ask learners to recall information, whereas true questions ask for more thought and detail in the answer. For example, this could involve the teacher/coach asking the learner(s) what tactics might be effective in a particular scenario. The idea of skinny and fat questions aligns nicely with high- and low-consensus questions. High-consensus questions are those for which most of the group would provide the same or similar response. On the other hand, low-consensus questions are questions where a divergent number of responses could be given due to the diverse perspectives that all the students may have. For example, at a given point in a game, individual learners may have different understandings of a specific incident based on their skills, knowledge, and prior experience.

One way of moving beyond the yes/no responses given in Table 1 is to utilize questioning along the lines of true, fat, and low-consensus questions. This would enable teachers/coaches to begin to use *metaprocess* questions that ‘ask for different kinds of knowledge and prompt longer and more complex responses’ (Cazden, 2001, p. 46). We offer some strategies for enabling teachers/coaches to do this in the next section.

Question starters

Kraci (2012) provides a list of ‘question starters’ that would enable teachers/coaches to increase the range of student/player cognition and the inclusion of a wider range of learners (Kraci, 2012). The notion of using ‘question starters’ and listing a number of these in practitioners’ session plans would help them generate *metaprocess* questions that may begin to develop higher-order thinking and meet the objectives/outcomes of their activity.

If we stick with the notion of players finding space off the ball used in the Table 1 example, Table 2 highlights various examples of ‘question starters’; questions that might be used to encourage higher-order thinking from learners in a ‘piggy in the middle’ 3 vs. 1 possession activity. Light, Curry, and Mooney’s (2014) use of the NSW Quality Teaching Framework (QTF) to assess the quality of teaching possible when using a GBA suggests the higher-order thinking it can generate. Focusing on the provision of intellectual quality as an expectation of the NSW QTF they suggest that they can be met when, “teachers provide opportunities for students to share,

Table 2. ‘Piggy in the middle’ ‘question starters’ and the types of thinking they generate.

-
- *How are you deciding* when is it best to make the pass and make use of the overload because you have the ‘joker’? – Decision-making
 - *How could you improve* your off-the-ball movement to make it easier for the person in possession of the ball? – Assessing
 - *What is the most important thing* the players off the ball must do in order for them to be successful in maintaining possession of the ball using the ‘joker’? – Evaluating
 - *If you passed the ball harder to your teammate, what might happen?* – Drawing conclusions/inferring consequences
-

Note: the types of thinking and ‘question starters’ are listed in italics; the rest of the verbiage can be changed depending on the context/needs of the practitioner (see Kraci (2012) for more options of ‘question starters’).

develop and demonstrate knowledge that encourages them to create new meaning and understanding, and to learn how to solve problems” (Light, Curry, and Mooney, p. 73).

Practitioners could use these questions by stopping the game at a teachable moment, posing a question, and then dividing their learners into small groups to discuss their possible solutions to the question posed. The teacher/coach could also prompt the students/players to be ready to enact and test one of their possible solutions in the subsequent bout of game play (Cazden, 2001). An alternative option would be for the teacher/coach to not stop play, but call one individual from each team off the field and ask them the question, matching this to their ZPD (Cazden, 2001). They could then be placed back into the game play or, depending on the rationale for selecting the two individuals (i.e., the teacher/coach wanted to reinforce a positive aspect of play or redress a reoccurring issues the team were having), they could pose the same question they were asked by the teacher/coach to their team to discuss during the next break in game play. The teaching/coaching strategy chosen would be dependent upon a wide range of factors that need to be considered. This might include the generalization of the incident, i.e., whether the same issue has been confronted by the whole group, one team only, or simply by one or two individuals. It could also include considering the stage of learning/development of the participant and the nature of the activity.

If the practitioner does decide to stop the whole group (which should be kept to a minimum), the teacher/coach should ensure that as many different learners as possible answer questions. This may necessitate some strategies suggested by Cazden (2001) such as employing wait time,¹ teacher/coach nomination of specific learners using some of the ‘question starters’ in Table 2 or student/player self-selection. The teacher/coach may also have students/players participate by handing-off the game/match ball to each other, i.e., when you received the game ball, it’s your time to speak (Cazden, 2001). These strategies for engaging a wide range of learners in the discussion can also be utilized when breaking students/players into small groups for discussion.

Teachers/coaches who lack initial confidence in designing their own ‘question starters’ but want to begin engaging their learners in small groups discussions could also consider using specific prompts such as those in the ‘debate of ideas’ (Gréhaigne et al., 2005), which is discussed in the following section.

The ‘debate of ideas’

Gréhaigne et al. (2005) provide a framework or a pre-prepared list of generic questions for small teams of learners to lead their own ‘tactical timeouts’ through what they term the ‘debate of ideas’, an example of which can be seen in Table 3. While its initial application was for team sports such as soccer, basketball, and so on, this idea could also be applied to striking and fielding as well as net and wall sports in doubles play or even singles play where the player interacts with a peer coach. This idea has also been applied to individual sports such as swimming, throwing events, and running (Light, 2014a; Light & Kentel, 2013).

The idea of having this framework, especially in a physical education lesson or youth sport coaching session, is that the teacher/coach is likely to be facilitating and managing multiple groups. Using this framework at specific points in the lesson/

Table 3. 'Debate of ideas' setting 'tactical timeout' framework (Gréhaigine et al., 2005).

<i>In your team or with your peer coach, discuss the following items during your 'tactical time-out':</i>	
(1)	Identify the particular strengths of your opposition team. i.e., particular learners, patterns of play, physical strength, good attackers and flair learners, solid defenders etc.
(2)	What things did your team do well to cope with these strengths in the previous game? i.e., forced them away from the goal, we were strong on-the-ball, we moved well to get away from our opponents so they could not tackle us, etc.
(3)	What things does your team need to do to counteract the strengths of the opposition team? i.e., close the ball down quicker, work in pairs when tackling for the ball, work harder to get free from opponents.
(4)	How will you do the things you have mentioned in question 3 can you address in order that you can be effective in the next part of the game? i.e., look to move the ball on quicker by dribbling the ball less and taking less time to control the ball. i.e., get the ball wide so that it spreads their defense and look to play in the gaps between their defenders.

session means that space is being created for dialog, debate, and reflection in order that the learners, while being facilitated by the teacher/coach, are continually making public what is private and through this process generate new action plans (Cazden, 2001).

In a physical education and sport setting, the teacher/coach would either visit with multiple groups or choose a specific group/team during each 'tactical timeout' they were to visit. Due to the facilitative role of the teacher/coach, they would actively listen to the ongoing discussion between the learners themselves as they gained each other's perspectives. If the teacher/coach noticed the discussion waning or felt there was an opportunity for the learners to discuss something in more detail, they could use probing questions (Cazden, 2001) such as 'Please tell me more about that' or 'What happened then?' (Peterson & Taylor, 2012, p. 297) to further encourage multi-vocal interactions between the learners (Cazden, 2001). These probing questions can also be used by the teacher/coach to support the learners in linking back to the specific focus of the modified/conditioned game, which was the utilization of the 'joker' player as in the previous examples in this paper.

The 'debate of ideas' structure is similar to the Reciprocal Teaching strategy of Ann Brown (cited in Cazden, 2001) where an adult teacher and a small group of four to five learners take turns in leading discussions on a passage of reading using the four strategies of: (1) questioning, (2) clarifying, (3) summarizing, and (4) predicting. Brown suggests that using this structure allows the teacher/coach to monitor comprehension and indicate where learning progression is occurring. Moreover, this repeatable structure (scaffold) can be phased out as students/players improve their ability in managing discourse.

The reflective toss

The utilization of the 'debate of ideas' by the teacher/coach aims to increase the level of inter-group interaction within questioning episodes (Gréhaigine et al., 2005). The structure encourages what van Zee and Minstrell (1997) refer to as a 'reflective toss'. The 'reflective toss' begins with a statement from a student on their perspective on the game play interaction in the game just participated in such as the first question in

the ‘debate of ideas’ of Gréhaigne et al. (2005). This could also be achieved by the teacher/coach planning an alternative ‘question starter’. The aim of this opening question is to ‘toss’ responsibility back to the learners and have them reflect of their experience. This empowers learners to continue helping each other and elaborate their thinking to the rest of the group.

Methods such as the ‘debate of ideas’ in a GBA aim to promote interactions among players on the same team from which they can develop and appreciation and understanding of each other’s perspectives (Cazden, 2001; Forrest, 2014). This lies in contrast to the monolog of the IRE/F method of questioning that can shut down interaction between the teacher/coach and the learners and between the learners themselves. An example of a reflective toss episode can be seen in Table 4.

In this example the teacher/coach is able to prompt and probe different learners perspectives of the same bout of small-sided game play and thus encourage multi-vocal rather than uni-vocal interactions. This discussion draws on the learners prior experiences in order to shape the continued learning progression of the group by enabling reflection on this experience (Cazden, 2001). This reflection promotes the development of an agreed action plan for the next section of game play, within which the learners experiment with their agreed strategy which can then be reflected upon in another reflective toss episode during that session.

Table 4. Reflective toss episode.

Teacher/coach takes break from a modified/conditioned small-sided ‘zonal’ soccer game focused on progression of the ball up the field and is questioning a small group of learners:

- Q: What is the aim of the game we have been playing?
- R¹: Keeping our heads up when receiving the ball to help move the ball forward into the next zone up the field.
- Q: How have we been doing in regards to that aim?
- R²: I think it’s easier to receive the ball with our heads up when we are under less pressure from the defender.
- Q: Can somebody explain more about that?
- R³: Well, when you know a defender is close you tend to get a little nervous and fixated on the ball because you want to simply get the control right and are less focused on what you might do with the ball once you have received it.
- Q: Aside from changing the rules of the game, what might be some strategies we can use to help us?
- R⁴: One might be asking the passer to pass the ball away from the defender.
- Q: How do other people feel about that?
- R²: I think that is ok, but how would we make sure we can also face forwards at the same time?
- R¹: Well, that would mean that we would have to work harder and more dynamically to get into position to receive the ball on the half turn so that we can also see forwards and not just back, but I think this is manageable, as we all seem capable of doing that.
- Q: R⁴ and R², would you mind demonstrating what you mean for us so it’s clear for everyone?

Demonstration

Q: Are there any other comments?

Group all agree that there are no more comments

Q: Let’s play again and work on that, please.

Much like the ‘debate of ideas’, a key component to encourage the reflective toss is that the teacher/coach steps back and acts as a facilitator, offering various prompts and probes to the learners in order to stimulate further debate and discussion, thus creating an environment for higher-order thinking. The teacher/coach therefore calls attention to the individual learner’s own thinking and their own knowledge. Moreover, the use of the questioning structures suggested in this paper creates opportunities for the reflective toss to occur, thus allowing the learners to become a significant part of the overall learning environment, taking the role that is possibly usually reserved by the teacher/coach (Cazden, 2001). In the next section we provide some initial steps for practitioners to enable them to begin using a questioning approach.

Guidelines for practice

This article is focused on helping practitioners develop their skill in, and knowledge of, questioning that will enable them to successfully implement GBA. Although we recognize the danger of appearing to be prescriptive, we offer some suggestions or guidelines that teachers and coaches can use to develop their questioning approach within a GBA. Our aim here is to help practitioners develop a practical understanding of *when* and *why* to ask questions and not just *how*. Our guidelines are organized into (1) planning, (2) implementing, and (3) reviewing lessons and practice sessions.

Planning

- (1) Think small and build – start with one class or coaching group.
- (2) Pick your favorite sport – if you are a teacher pick a sport that you have good content knowledge in.
- (3) Plan learning activities focused on small-sided modified/conditioned games and/or game-like activities such as ‘piggy in the middle’ that build in tactical complexity. Teachers and coaches with little experience in GBA should plan ahead with options for making modified games easier or more challenging.
- (4) Prepare ‘question starters’ based on the above learning activities or the use of structured question formats such as the ‘debate of ideas’.
- (5) Plan how you will manage the questioning episodes to ensure the ‘reflective toss’ occurs and equity in contributions from all learners, i.e., wait time, use of teacher nomination, student/player self-selection or handing-off methods (see Cazden, 2001).
- (6) If possible work with a colleague to plan your lesson in (steps 3–5 above) and have them observe your lesson. Peer collaboration is very helpful for meeting the challenges involved in a GBA and to ensure that all learners are participating in discussions.

Implementing

In this section note the utilization of steps 1–6 that focus on the ‘P’ word process in *italics* for implementing the use of questioning: (1) purpose, (2) play, (3) pause, (4)

prepared, (5) probing, and (6) (action) plan. This process is adapted from suggestions by Kidman (2001), Light (2013), and Piggott (2015).

- (1) Explain the game or game-like activity to learners and ask questions to ensure they understand and keep the game simple. Provide a *purpose* question to set the scene before game-play begins related to the goal of the activity, i.e., how can we defend space so the opponent does not score?
- (2) Let learners *play* the game and give them enough time to begin to get a feel for it and to adapt to its constraints and the opportunities it offers. This would typically be suggested by evidence of engagement in the game.
- (3) *Pause* the game at an appropriate time. There can be a number of situations that operate as cues for stopping the game but normally involve recognition that the class or team has adapted to the rules and that they are beginning to wrestle with the challenge intended by the modified game.
- (4) Gather the learners in their small-sided teams to formulate strategies or action plans through intra-team dialog, debate, discussion, and reflection. Use *prepared* 'question starters' or the 'debate of ideas' structure.
- (5) Facilitate the discussion by active listening and prompting learners through the utilization of probing questions. Utilize wait time, teacher nomination, student/player self-selection, or handing-off methods (Cazden, 2001) to ensure all learners have an opportunity to participate and the reflective toss occurs.
- (6) Ensure the learners formulate an action *plan* for the subsequent bout of game play.
- (7) Restart the game to allow learners to implement their action plan/strategy and see how it works. Remind them of the purpose question.
- (8) Stop the game and repeat processes 5 and 6.
- (9) Continue but within the limits of the time available for the session.
- (10) Finish with all class/team questioning to review learning (using strategies suggested above by Cazden, 2001) to get an idea of how well the learners understand and to reinforce learning. Practitioners should also allow the learners to ask questions of the teacher/coach and/or of their peers. This part of the lesson or session is little different from good teaching using any pedagogical approach.

Reviewing

- (1) Ask a small group of learners (or your peer observer) about your use of questioning.
- (2) How engaged did they feel in the session?
- (3) How engaged did they look to you?
- (4) To what extent did they feel there were opportunities for learner talk as opposed to teacher talk?
- (5) Based on the above, how much did they feel empowered by your use of the questioning approach?
- (6) What did they feel they learned by the use of questioning approach?

- (7) To what extent did they speak about the challenges they faced in your use of the questioning approach?
- (8) Moving forward, how do the results of this session enable you to scaffold learning in future sessions?

Conclusions

Our aim in this article is to assist practitioners in meeting the challenge of using questioning that is effective for the implementation of GBA. While questioning is used across different approaches to teaching physical education and in sport coaching, and more broadly in education, we have maintained a focus on its specific use in GBA. This is due to the challenges that the literature, anecdotal evidence, and our own experiences as teacher and coach educators, suggests questioning presents for practitioners learning to implement an authentic GBA. It is also encouraged by the growing interest in GBAs suggested in the literature and by attendance at the growing number of conferences focused on GBAs.

To provide direction and coherence around our discussion about questioning, our suggestions and guidelines are structured around the core aims of asking questions when adopting a GBA, which are to promote thinking and the social interaction from which learning emerges. Although we finish with some quite specific guidelines as starting points for practitioners we would like to emphasize the importance of having a sound understanding of the role that questioning plays in GBA and of why and when to ask questions rather than just how to ask them. This aligns well with the emphasis placed on conceptual understanding in all GBA and deep foundational knowledge over technical knowledge.

We encourage readers interested in trying out our suggestions about questioning to consider and reflect upon the discussion in this paper so that they can continue to develop their GBA teaching and/or coaching questioning through the implementation of the six P's process and through reflection on the dialectic between theory and practice.

Disclosure statement

No potential conflict of interest was reported by the authors.

Note

1. Cazden (2001) draws on research by Mary Budd Rowe, which shows that waiting for at least three seconds after asking a question results in profound changes in student use of language and logic as well as in student and teacher attitudes and expectations.

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