

2014

Questions and answers: Understanding the connection between questioning and knowledge in game-centred approaches

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Recommended Citation

Forrest, Gregory J., "Questions and answers: Understanding the connection between questioning and knowledge in game-centred approaches" (2014). *Faculty of Social Sciences - Papers*. 598.
<https://ro.uow.edu.au/sspapers/598>

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Abstract

Over the last 20 years, there has been considerable enthusiasm for approaches to teaching games and sports that use a game-centred approach (GCA). GCA is an umbrella term for pedagogical approaches and models that have game play and reflection on game play as central elements of the learning process. However, they should not be confused with the games concept approach used in Singapore and reported on in Chapter 3. The underlying philosophy of the GCA approaches described here is that students need to develop an understanding of how to play rather than an overriding focus on what to do when they do play and that this understanding is developed through their active participation in, exploration of, and reflection on, their play. The how element can be developed because GCAs have the capacity to examine a broad range of game-play elements, such as strategy and tactics and decision making, as well as movement skills, and to explore the relationships these elements have with performance. As a result of this learning through games via progressions from simple to more complex practice games and the use of questioning, students in classes characterized by GCAs can recognize that there is more to play than movement alone. This, in turn, provides them with the opportunity for greater learning, engagement and participation. The study presented in this chapter investigates how physical and health education (PHE) pre-service teachers may gain an understanding of how to effectively use GCAs (see Forrest 2009; Forrest, Wright and Pearson 2012). Conducted over a five-year period, it examined the development of GCA understanding in second- and third-year PHE pre-service teachers arising from their engagement in a formal course of study focused on GCAs. The study revealed a range of issues associated with pre-service teachers developing an understanding of GCAs. Prominent amongst these was the management of more open questions and discussions in a GCA lesson. This is an important area as it has direct links to the quality of student learning experiences in GCA lessons (Light 2013). However, data from this study strongly suggests that while the participants (pre-service PHE teachers) valued the role of appropriate questions and question structures, and understood the role these played in improved learning, they could not sustain this type of questioning. This chapter will use participant self-reflections as well as comments and exchanges from GCA lessons to demonstrate this and other issues relevant to the investigation.

Keywords

centred, questioning, approaches, game, between, knowledge, connection, understanding, answers, questions

Disciplines

Education | Social and Behavioral Sciences

Publication Details

Forrest, G. J. (2014). Questions and answers: Understanding the connection between questioning and knowledge in game-centred approaches. In R. L. Light, J. Quay, S. Harvey & A. Mooney (Eds.), *Contemporary developments in games teaching* (pp. 167-177). Abingdon, United Kingdom: Routledge.

Questions and answers – Understanding the connection between questioning and knowledge in game-centred approaches

Greg Forrest

Introduction

Over the last twenty years, there has been considerable enthusiasm for approaches to teaching games and sports using Game Centered Approaches (GCAs). GCAs is an umbrella term for pedagogical approaches and models that have game play and reflection on game play as central elements of the learning process. However, they should not be confused with the Games Concept Approach used in Singapore and reported on in chapter 3. The underlying philosophy of these approaches is that students need to develop an understanding of *how* to play rather than an overriding focus on *what* to do when they do play and that this understanding is developed through their active participation in, exploration of, and reflection on, their play. The *how* element can be developed because GCAs have the capacity to examine a broad range of game play elements, such as strategy and tactics and decision making, as well as movement skill and to explore the relationships these elements have with performance. As a result of this learning through games, progressions and the use of questioning, students in GCA classes can recognise that there is more to play than movement alone. This, in turn, provides them with the opportunity for greater learning, engagement and participation.

The study presented in this chapter investigates how physical and health education (PHE) pre-service teachers may gain an understanding of how to effectively use GCAs (see Forrest, 2009; Forrest, Wright and Pearson, 2012). Conducted over a five-year period, it examined the development of GCA understanding in second and third-year PHE pre service teachers arising from their engagement in a formal course of study focused on GCAs. The study revealed a range of issues associated with pre-service teachers developing an understanding of GCAs. Prominent

amongst those was the management of more open questions and discussions in a GCA lesson. This is an important area as it has direct links to the quality of pre-service learning experiences in GCA lessons (Light, 2013). However, the data from this study strongly suggests that while participants (pre service PHE teachers) valued the role of appropriate questions and question structures, and understood the role these played in improved learning, they could not sustain this type of questioning. This chapter will use participant self-reflections as well as comments and exchanges from GCA lessons to demonstrate this and other issues relevant to the investigation.

Method

The data presented in this chapter were collected as part of a larger study that inquired into the development of understandings of GCA by PETE undergraduates in New South Wales, Australia. The course was undertaken by participants (n=119) involved them in four consecutive practical studies courses over four semesters (two years) that covered three *categories* of invasion, net/court and striking/fielding sports and games.

The common elements in sports and games that GCAs examine are strategy and tactics, decision-making, concepts of movement skill and game performance. These four elements, plus the additional elements of communication and concentration, became the foundation of knowledge in games and sports to be learnt by participants through their course. They were applied in game play in tutorials. This approach builds on that suggested by Light (2013) who argues that teachers of Game Sense (a GCA) should develop a basic theoretical knowledge of learning and pedagogy to empower them to make their own decisions about their teaching. For example, if one understands the underlying principle of strategy and tactics such as deception - defined by Gréhaigne, Richard and Griffin (2005) as the deliberate intent to deceive the opposition - then it does not matter whether one fakes an overhead smash and plays a drop shot in a net/wall game, dummies a pass in an invasion game or plays a bunt in a striking fielding game. It is still the application of the

principle of deception. The elements can then be used as templates for game play observation to further develop analysis skills to allow greater understanding of the elements of GCAs and from this, to teach using a GCA more effectively.

Participants were not required to develop knowledge of these elements in specific sports but focused on comprehending the underlying *principles* of play for each game category. This idea is evident in the work of Hopper (1998) and Hopper and Bell (2002) in net/wall games, Memmert and Harvey (2010) in invasion / field territory games and Howarth (2005) in viewing games as problems to be solved. Each principle has a range of tactical underpinnings (understood by participants as *action rules*) to help students deepen their understanding of principles. For example, in striking / fielding sports, the underlying principles of play for the team in the field is to minimise the scores made from the bat and minimise the scores made not off the bat. This principle can then be enhanced through understanding the action rule of ‘all throws must be backed up by other fielders’, to minimise runs not off the bat, one applicable to all striking / fielding sports. The principles are then combined with the common elements of games and sports, for example, strategy and tactics. The principle of deception can be explored by developing plans to take advantage of teams not following the action rule, such as pretending to sneak in softball style games to force an overthrow and can also be observed in the sports of cricket and softball as specific contexts. This expanded application aims to deepens content knowledge of both the elements and the category. The sport and game categories, elements, principles and action rules were the key areas of knowledge to be acquired in the four practical studies components in the course. The knowledge was applied in the practical tutorial sessions. Assessment across each of the four subjects addressed the ability of the pre-service teachers to work with this knowledge in a teaching situation. This assessment consisted of two parts. Part one required the participants to teach a GCA lesson to their peers. This was aimed at developing their pedagogical skills in an environment less hampered by behavioural and management problems (because the ‘students’ were their accommodating peers). Each lesson was recorded on an iPod and the participants used these recordings to support the

second part of the assessment, which involved reflection on their GCA lesson and development of a presentation made to staff and peers. This reflective analysis was structured by the interrelated aspects of the lesson purpose or focus, games and progressions used and the use of questions in the lesson. Over the four semesters, this produced four self-reflections and presentations in their GCA lessons in three different games and sports categories. The self-reflections analysed using a constant comparative qualitative analysis suggested as by Strauss and Corbin (1998). This was further clarified through ongoing discussions with colleagues and comparisons with the field notes recorded by the researchers.

Participant responses

The participants all felt more comfortable with their knowledge of the games and sports areas studied and in their ability to observe and analyse games and sports. They noted improved understanding of games and sports, even in their own specialist sports. Renee noted that:

I never realised why my coach developed different strategies for different teams. On the weekend, I could see he recognised the resources of our team and the opposition and came up with a great plan. While he used the terms we do, I could see how he used the underlying principles and it actually made more sense. I could actually see what was happening and I felt a little like I was a coach!

Others, however, now armed with a well- developed understanding of the elements and principles of games and sports as well as a better understanding of how to teach using GCAs, were questioning their coach or teacher's expertise. For example James noted:

It is really hard because we have not been performing well and people in the different positions are not working together. I can see it is a strategical issue at a sub team level but

he (the coach) just blames everyone and yells at the players.

Luke also noted that:

It is really annoying that I can no longer be the 'biased observer' when I watch a sport. I am always analysing the play, even when it is in sports I don't really know. I can see the reasons why the players do things due to the links with, for example, decision-making or concentration, and realise why this occurs.

This also translated into improved confidence when approaching their GCA lessons. For example, Nikki wrote that: 'I felt really well prepared to use a GCA before we began and prepared a range of questions to use that would really allow the class to explore the content knowledge I want them to know. These comments indicated that the pre-service PHE teachers felt they were developing in their understanding of games and sports and felt they could apply this knowledge and the attendant observational skills to their own sports within and, to an extent across categories. However, in each of these comments, the participant was able to concentrate observation and analysis without interference from other factors. The question became whether this enhanced knowledge of game elements, principles and action rules would assist them when they had to analyse the responses of those in their class, then use the responses to create more meaningful learning experiences through the key elements of all GCAs: the use of questions.

Questioning, question structures and GCAs

Questioning can be seen as representing the practical application of their content knowledge in their everyday work (Ball, Thames and Phelps, 2008). Thus they are very important in GCAs. Questions and question structures are a common element of all GCAs. They allow a teacher to contextualize the learning through by encouraging pre-service teachers to identify and explore solutions to the

problems that game play presents (Pill 2009). For example, using a 'Game Sense' approach, the teacher sets the game form and, after an initial bout of game play, questions pre-service teachers on technique, rules and tactics (Webb and Thompson 1998). In the Tactical Games Approach, the teacher manages a questioning session on an initial game and the answers received allow the teacher to progress the lesson to a contextually appropriate stage (Mitchell, Oslin and Griffin 2006). Questions in GCAs should be thought provoking, stimulate further discussion but also develop further questions from both the teachers and the players, allowing a genuine interaction between those in the lesson (Light 2013). As a result of the prominent role that questioning plays in GCAs, authors such as Meltzer (2000), Bailey (2001) and Light (2013) suggest that the structure of questions and the ability to ask higher order and probing questions are key elements for achieving success in creating GCA environments that promote quality educational outcomes. It was, in part, due to the strength of this connection between questioning in GCAs and quality learning, that Game Sense was promoted as a preferred approach for teaching games and sports in NSW schools (Webb, Pearson and McKeen, 2005).

The skill of asking appropriate questions and managing discussions related to game play has been an area of major interest for those researching games and sports environments, especially in GCAs (for example see, Wright and Forrest 2007; McNeill 2008; Forrest, Wright and Pearson 2012). One of the most common issues has been related to the use of most common question structure used in teaching, the three-way exchange, often referred to as an IRE or IRF exchange (Initiate – Response - Evaluation / Follow up or Feedback). Lemke (1990) describes this as a 'triadic dialogue', a three-way move between the teacher (as questioner) and the pre-service teachers (as responders). While a number of resources related to GCAs outline a range of questions to ask, they use an IRE/F structure (see for example, Turner, 2005 and Mitchell, Oslin and Griffin, 2006). However, this may be problematic in a GCA environment because the demonstrated structures often reduce pre-service teacher responses to simple confirmations of what the teacher wanted to know, while presenting

knowledge as fixed rather than allowing the exploration of a range of possibilities that game play scenarios present (Wright and Forrest 2007).

This issue is evident in the following exchange drawn from the study. After initial game play, the pre-service teacher conducting the session called the 'students' (their peers) in to begin the questioning process:

Pre-service teacher: So after that game, did you find that putting the bird to a space was the best way to win a point?

Megan (participant): Yes.

Pre-service teacher: Excellent!

Due to the closed structure of the question, the possibilities here for the participants are quite limited as they are reduced to 'responders' to the pre-service teacher's query, which in turn reduces the value of the learning experience. There is little exploration allowed and little examination of the range of possibilities. The pre-service teacher has placed a statement within the 'initiate' question, received a yes /no response and evaluated it as appropriate, to allow the progression of the lesson. The questioning sequence is therefore of limited value in relation to students involvement in the learning process due to its structure.

For lessons to more actively involve the students and to be of greater educational value, they should use what van Zee and Mistrell (1997) describe as an expanded IRE/F exchange known as a reflexive toss. When the teacher initiates the discussion, the opening question should be much broader and divergent to provide for a wider conceptualization of the topic, allowing for responses from more students. To continue this process, evaluation/feedback must be more than just an evaluation of the answer. It should allow further exploration of the ideas developed from these responses. Such a move throws the responsibility of the thinking back to the students and creates an environment to then examine the range of issues associated with and related to the opening question

and responses. This process, applicable in GCAs, allows the teacher to facilitate, encourage and guide pre-services to articulate their own thoughts and ideas and incorporate these into the progress of the lesson. It also places greater demands on the user's knowledge as they have to make judgements on the relevance and appropriateness of the responses generated (both verbally and in play) and then use them 'on the spot' to further learning in the class

Participant response to questioning in practice.

When examining the use of questions in the GCA presentations, the majority of undergraduate presenters attempted to use a range of questioning structures but by far the most dominant was the problematic IRE/F structure. What was of interest was that most evolved from the question structures suggested by GCA literature. Most undergraduates attempted to use the more divergent questions such as the reflexive toss but this became problematic for those in the study. In the example above, the pre-service teacher was ready to move on, having evaluated the answer as 'correct' with her 'Excellent' evaluation. However, her peers, as 'students in the class', were quite involved in the lesson and unwittingly forced her into a situation where she had to use the 'reflexive toss' when 'Ash' used the polite 'hand up'. As the pre-service teacher responded, the following occurred:

Pre-service teacher: Excellent. Ok, next we will...Yes Ash?

Ash: Well it depends.

Pre-service teacher: Sorry, depends?

Ash: 'The best way'. It depends where you are on the court.

Nic: Yes, and where the other player is and what they are thinking.

Ash: You could actually hit it at them and force an upwards shot!

Tim: Or they could give you the space and then be already moving there when you hit it. Then you would be hitting it to a space where they wanted it, which would be a poor option.

Pre-service teacher (uncertain): Yes?

Ash: Yes. (Agreement from others)

Teacher: But if you hit it to space, wouldn't it be good??

Ash: (pause) I suppose it could be??

Pre-service teacher: Excellent!

For those in the study the second half of the exchange represented a common scenario if the range of responses moved beyond what they believed was 'correct' or required more analysis related to the play action that had occurred. In this example, the discussion explored a very valid range of possibilities with excellent undergraduate student involvement. However, the pre-service teacher's uncertain response indicated that these possibilities had not been considered or were beyond her knowledge map. Her response was to shift back to an IRE/F, gain a positive affirmation from a closed question, evaluate this affirmation as an indication of 'understanding' and progress the lesson. Here, it seemed it was not structural issue related to the question but the pre-service teacher's application of knowledge in practice that hindered the learning. It seemed that the pre-service teacher used a closed IRE/F structure, both initially and in response to the discussion, to avoid or control what was becoming a difficult situation for her. This was confirmed in the pre-service teacher's self reflection, when she wrote:

During that presentation, I felt terrible. The studentss came up with a range of answers that were all beyond what I knew. They went off on their own discussions, which seemed to be all on topic but I was excluded. I really had no idea; I had not seen or considered any of

answers they were talking about. I just ended up rambling on with some general points to end it but I really felt pretty useless.

This feeling of ‘uselessness’ was repeated regularly in undergraduate self-reflections on their GCA presentations. Steve, another pre-service teacher, found himself in a similar situation to the one above. He wrote:

I felt really confident at the beginning of the presentation. I asked a number of different types of questions in relation to strategies as time went on it would not have mattered what structure I used or what type of question I asked. I did not really understand the answers I received and did not really see them or connect the answers given to their play.

Even Jenna, who loved the flexibility questions gave her and enjoyed using GCAs, wrote:

The use of more open and intuitive questions meant I had to think on my feet, but I really liked the flexibility it gave to the lesson due to the range of responses I received. However, it was scary and just because I liked it, it didn’t mean it always worked. For example, after the second game, I asked an open question and the students came up with a range of answers. At that point, I just went blank. I did not know whether they were answering appropriately or not. Sometimes, because of this, I did not come up with anything definitive at the end. The discussion seemed to fade away because I was unsure whether what they said was appropriate in relation to the topic. In the end, I just closed the discussion and we moved on.

These responses clearly indicate the issue for these pre-service teachers was not related to questions and question structures. It related to their ability to manage the outcomes of more open, divergent questioning *process*. The pre-service teachers felt comfortable with the process of questioning noted

as important in GCA literature, the purpose of questioning, the type of questions to ask, the value of good questioning, the need to generate a wide range of responses, both verbally and in play. They were also willing to try these more open structures. The issue for these pre-service teachers was the application of their knowledge in practice, to adequately respond to the answers emerging from the questions and develop the emerging discussion into meaningful learning experiences. While they demonstrated confidence in their content knowledge in the area prior to presentations, the demands created by questioning practices – such as determining whether the range of responses represented appropriate solutions and whether they would lead to improved learning – meant they were overwhelmed and struggled to use it in relation to the answers. Without this, even those most supportive of GCAs felt forced into using a closed IRE structure, though they knew it stopped the discussion and went against the principles of GCAs.

It became evident that pre-service teachers needed to develop another form of knowledge to allow them to address the issues that emerged for them in GCA presentations, one that relates to teachers using GCAs in everyday practice. The knowledge was identified by the work of Ball, Thames and Phelps (2008) who describe it as specialized content knowledge, the knowledge that builds on the common content knowledge of the subject area but is specific to the teaching of the content.

Developing this knowledge allows the teacher to ‘do’ games and sport but also talk the language of games and sports, to understand the different interpretations of the games and sports in a way that students do not, to unpack the elements of this content that make the features apparent to the students and finally develop extended expertise in a range of practices to effectively teach the content. Developing this specialized content knowledge in undergraduates can help them make sense of not only the content but of the different interpretations students make in relation to games and sports.

The development of this knowledge in pre-service teachers is a challenging task, considering the misunderstandings and challenges already presented when implementing GCAs in teaching games for understanding (as noted by Light and Curry in Chapter 8) and the addition of the extra

complexity to GCAs may seem unwarranted. However, this must be addressed if questions are to be used more appropriately in GCAs and the approach is to develop more long term sustainability. At present, adjustments to coursework are a work in progress and there is as yet no definitive answer on how to develop this knowledge (as is the case in subjects such as Math and Science). However, the better understanding of the common elements of all games and sports has demonstrated great promise in this area. A number of participants in the study used these elements in their teaching when on a final, fourth year practicum. Self Reflections from a number of these students suggested increased confidence in their ability to manage questions with their classes, even in sports they were not familiar with, through a focus on these common elements. For example, Scott wrote:

I decided to focus on the elements of strategy and tactics in my Frisbee unit, as I was more comfortable with this content knowledge. I used questioning both before, during and after each activity around the different aspects of strategies and tactics and the students really starting taking the concepts on board and explored them in the games, which was great to see. One student used a specific example from soccer and suggested how it could be used. Another brought an example up from cricket. This helped me to further develop the discussion and explain how the components of strategies and tactics relate to all sports, invasion and net court and striking. I was really comfortable with what I was asking and they all were really involved in the discussion.

Another student, Jess, noted that:

I wanted to use a GCA on practicum but I panicked a little when I had a number of units based on different sports that I knew very little about. However, when I focused on the elements and principles, I felt much more in control. I found it did not matter what sport I taught: I could focus on an element such as their decision-making, generate questions

around this and set meaningful tasks. I felt I could manage discussion better as I was the one with expertise in the classes and could really help the students understand the different elements of decision making in play.

These responses demonstrate encouraging initial development in the areas relating to the specialized content knowledge in the ability to unpack the elements of strategy and tactics or decision-making and the ability to explain them in a way that students can understand them. Importantly, this focus has also allowed better questioning and represents a much more positive view in relation to the use of questioning. While these are small steps in an ongoing process, they are encouraging signs in relation to future possibilities in all areas of GCAs.

Conclusion

The chapter has examined PHE pre-service teachers' experiences of a course aimed at developing understanding their understanding of GCAs. From their use of GCAs in practice it also identifies the issues that typically emerge for undergraduate GCA users when utilizing questions and question structures in a GCA context (see, for example, Wright and Forrest, 2007). By doing so, it draws attention to an area that features much in GCA literature: the knowledge needed by those using GCAs to manage the questioning process effectively. It demonstrates that in practice, despite the willingness of pre-service teachers to use more open-ended question structures, their inability to manage the outcomes forced them into more traditional question structures. This then points to the need to develop further forms of content knowledge in relation to games and sports, such as specialized content knowledge to assist future users in the area of questioning and GCAs in general. The chapter also illustrates the value of long-duration studies into how teachers (present and future) understand GCAs and implement them in practice, whether in schools, coaching environments or, as in the case of this chapter, tertiary education environments. The ongoing, needs based development of courses to improve outcomes related to pre-service teacher understanding of GCAs

demonstrated in this chapter has been assisted by the collection and analysis of qualitative data of a five-year period. The data provides an insight into the experiences of users of GCAs in practice, throwing some light upon what occurs for them when trying to implement GCAs in classes and tutorials and how these experiences impact on their understanding of GCA. I suggest this can make a valuable contribution to enhancing quality GCA implementation by pre-service teachers in a range of contexts and improve teaching and learning outcomes in games and sports for their students.

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