A CRITICAL APPLICATION OF THE 'TEACHING GAMES FOR UNDERSTANDING' APPROACH IN THE COACHING CONTEXT. AN ACTION RESEARCH STUDY.

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DECLARATION

This Work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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List of Abbreviations

AR	Action Research
CARN	Collaborative Action Research Network
CLA	Constraints-Led Approach
FG	Focus Groups
GBA	Game Based Approach
GCA	Game Centre Approach
GCA	Games Concept Approach
GPAI	Game Performance Assessment Instrument
GS	Game Sense
GT	Grounded Theory
IG	Inventing Games
JOPERD	Journal of Physical Education, Recreation & Dance
PE	Physical Education
TAT	Tactical Awareness Test
TDLM	Tactical Decision Learning Model
TGfU	Teaching Games for Understanding
TGM	Tactical Games Model
TSAP	Team Sport Assessment Procedure
ZPD	Zone of Proximal Development

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"It's a magical world, Hobbes, ol' buddy…Let's go exploring!"

(*Calvin and Hobbes,* Bill Watterson)

Abstract

The innovative nature of the 'Teaching Games for Understanding' (TGfU) approach (Thorpe, Bunker & Almond, 1986) has led to considerable interest from researchers and practitioners (e.g., MacPhail et al., 2008). Consequently, many variations of TGfU have come to the fore (e.g., Griffin, Mitchell & Oslin, 1997). Despite the considerable interest from physical education related researchers, those in sports coaching have been slower to embrace the TGfU approach. Therefore, the aim of the study was to improve my practice as a coach and players' subsequent game understanding through the TGfU framework. An Action Research (AR) methodology involving progressive circles of practice was employed with a volleyball female team over the course of a full eight-month season, with data being drawn from reflective field notes and focus group discussions. Results indicated the development of my ability (as a coach) to reflect in and on the process, emphasising the importance of reflecting on personal reflections. Such practice reinforced the benefit of being exposed to reflective frameworks, and highlighted the role that emotions can play within coaching practice. From this, it became evident that the implementation of an emancipatory AR had a positive impact on my learning as a coach. Nevertheless, findings also highlighted the loneliness of such a process, suggesting the need for critical friends in the field. As a coach, they also reinforced the need for control, thus contradicting the player-centred standpoint that sustains the TGfU approach, whilst suggesting a reconceptualization of emphasis from being 'player-centred' to that of 'interaction-centred' as being crucial to effective practice. Also, the current study demonstrated an improvement in the players' ability to reflect, progressing from on-action to in-action as well, in particular from moments of less temporal pressure to more temporal pressure. Lastly, despite not linearly, the players' game understanding and overall performance improved throughout the season.

CHAPTER I

INTRODUCTION

I. Introduction

1.1. Background

Different approaches have been used over the years to coaching team sports. Molecular perspectives, focusing on the technical elements of the sport, have predominated in this respect (Harvey, et al., 2013; Kirk, 2010; Mesquita & Graça, 2006). Despite this, numerous authors have highlighted across the years that such traditional technique-based approaches do not consider the constraints and opportunities inherent to the game, which require constant interpretation and adaptation to a dynamic context (Bunker & Thorpe, 1982; Harvey, et al., 2010a; Light, 2004). For instance, whilst hitting a ball as an isolated movement may be considered an innocuous action in and of itself, the same gesture contextualized to a volleyball game gains a completely different meaning. In this context, the player needs to interpret the situation and decide what to do according to the constraints and opportunities presented to him/her in that particular moment. Consequently, several questions might go through his/her mind: "Shall I hit it hard?", "Would a tip[1] work?", "Shall I hit it down the line or crosscourt?" Indeed, players are constantly required to make decisions in relation to the game's overall intentionality and, for doing so, tactical awareness and decision-making are indispensable (Light, 2004; Light & Fawns, 2003; Mesquita, et al., 2005). These concepts have been defined as the ability to identify tactical problems that arise during a game (tactical awareness) and to select the appropriate responses to deal with them (decision-making) (Mitchell, Oslin & Griffin, 2006).

Team sports have been presented as complex and dynamic systems due to the number of players, the interactions between them, and the constraints and opportunities which inform related decision-making (Chow, et al., 2006; Gréhaigne, Richard & Griffin, 2005; Jones, 2007; Lames & McGarry, 2007; McGarry, et al., 2002). To better prepare players for such dynamic environments, Bunker and Thorpe (1982), and later Almond (Thorpe, Bunker & Almond, 1986), developed the Teaching Games for Understanding (TGfU) approach; a constructivist and game-based pedagogy that contextualises learning to game situations as opposed to

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[1] Tip is a soft attack in which the ball is controlled with the finger tips.

overemphasizing isolated techniques (Memmert & Harvey, 2008). This built upon Bunker and Thorpe's (1982) premise to see the game as a series of problem-solving moments rather than a moment of technique application. It is important to note, however, that the TGfU approach does not deny the need to teach technical skills, but suggests for specific technical skills to arise from game appreciation (Roberts, 2011). In short, if the player does not understand the game, his or her ability to identify the correct technique for any situation is impaired and, therefore, their technical ability is compromised (Mitchell et al., 2006). According to Mitchell et al. (2006) then the main question is not related to whether or not coaches should focus on tactical or technical aspects, but how to link the two components so as to enable players to learn more about the game and ultimately improve performance. Furthermore, TGfU stresses the importance of promoting the players' active role in their own learning (Griffin & Patton, 2005) by focusing on their understanding of 'why', instead of solely 'how', thus stimulating thinking and interaction (Wright & Forrest, 2007). One of the main characteristics of the TGfU approach is that it assumes a player-led teaching style, in which participants are exposed to a tactical problem in the game context, and are encouraged by the coach to find solutions (Pill, 2016). Advocates claimed that this allows players to develop a conscious level of game understanding that enables deliberated and appropriated tactical actions (Graça & Mesquita, 2007).

1.2. Rationale

The innovative character of TGfU has led to considerable interest, with advocates claiming its potential to promote accelerated player learning (Chow et al., 2006; Light, Harvey & Mouchet, 2014a; Stolz & Pill, 2014; Turner & Martinek, 1992). Although it has been widely investigated in Physical Education (PE) (Harvey & Jarrett, 2013; O'Leary, 2016), its application within formal competitive sport settings has been limited, which has limited the scope of its claims (Chow et al., 2006; Harvey et al., 2010b; Light, 2004; Light et al., 2014a; Strean & Bengoechea, 2003). In fact, in a

recent review of Game Based Approaches[2] (GBAs) – in which TGfU is situated – in the coaching context, Kinnerk and colleagues (2018) were only able to identify 23 papers investigating GBAs in competitive team sports environments. From these, only eight explored the TGfU approach, none of which were conducted in contexts which contained adult players. Even within the PE context, a lack of consensus exists about the efficiency of TGFU as a teaching approach, with numerous studies demonstrating teachers' inability to implement and/or adapt the approach to their own context (e.g., Barrett & Turner, 2000; Brooker, et al., 2000; Rossi et al., 2007). Indeed, according to Jarrett and Light (2019), the lack of implementation of GBAs in teaching practices has been justified by a variety of reasons ranging from a lack of "effective GBA professional development opportunities to the acceptance by educators of a performative culture often embedded within school-based physical education programmes" (p.566).

Indeed, despite Thorpe, Bunker and Almond's (1986) call for researchers to enquire if TGfU actually works, not enough supportive evidence has been garnered to support its claim as an effective teaching and coaching approach; a situation which led Oslin and Mitchell (2006) to urge researchers to gather such proof. An initial reason pointed out by Butler (2014) for this seeming disconnect was the practical nature of TGfU; as something developed by practitioners for practitioners as opposed to being theoretically (academically) underpinned. Relatedly, Chow et al. (2006) claimed the lack of progress in this matter has been due to the failure to provide a sound theoretical framework for the testing and formulating of research questions. Such a claim relates to an erroneous search for key indicators of TGfU on performance outcomes instead of focusing on establishing a strong theoretical foundation. Consequently, McMorris (1998) critically challenged the TGfU approach, suggesting that it did not add anything new to the field of study, apart from questioning which aspect to apply first, decision-making or technique. Indeed, McMorris (1998), a motor learning theorist, raised serious doubts that decision-

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[2] Game Based Approach (GBA) are also referred to as Game Centred Approach (GCA). However, Almond (2015) claimed that some of the approaches under this umbrella are not really game centred "which is interpreted as teaching a game through shaping game forms as a specific tool for learning" (p.16). Additionally, using GBA avoids the confusion with Game Concept Approach (GCA).

making in complex team sports could be learnt implicitly whilst learning techniques. He, therefore, suggested that the TGfU's effectiveness as a coaching approach was inconclusive. Indeed, despite the recent expansion in research, Butler and colleagues' (2003) question 'does TGfU work?' posed over 15 years ago, has still not been satisfactorily answered. Consequently, the TGfU model remains open to debate and contestation regarding the effectiveness of its pedagogy and related learning within the coaching context (Graça & Mesquita, 2007; Kinnerk et al., 2018).

In addition, the methodological strategies used to investigate TGFU have also been a point of contention. For instance, Blomqvist, Vanttinen and Luhtanen (2005) pointed out the difficulty to assess decision-making objectively, while Harvey and colleagues (2010a) highlighted the lack of instruments to assess players' in-game performances. Consequently, Harvey and Jarrett (2013) supported a recent shift towards qualitative methodologies, whilst also making the case for more longitudinal studies to better understand both the implementation and effect of TGfU. Similarly, Griffin, Brooker and Patton (2005) argued that a more critical approach needs to be adopted over an extended period of time to better grasp the complexities inherent in the approach. Given that TGfU was designed to promote active participation and to encourage reflective thinking, a research protocol based on an Action Research (AR) methodology holds considerable potential to facilitate and monitor developmental variations in participants' self-reflection and self-knowledge. In this respect, AR is recognised as able to generate knowledge through researchers' and participants' engagement in the change process, thus improving behaviours and performance in practice (Casey et al., 2018; Ollis & Sproule, 2007). The main advantage of such a methodology is that it would enable me, as a researcher and coach, to examine TGfU within my own training sessions, with a view to improving practice.

During its early stages of development in the 1940s, AR struggled with perceptions of legitimacy (Carr & Kemmis, 1986). Nevertheless, despite not enjoying the popularity of more traditional approaches, it has become increasingly accepted as both a methodology and a means of professional learning (McNiff & Whitehead, 2011). Indeed, the issue of the AR legitimacy is nowadays quite dissolved, being commonly recognised as a methodology of and for research (Mertler, 2014). Its role

in promoting knowledge and theorisation has been highlighted by several authors, as well as its exceptional and distinct practical application (e.g., Collins, 2009; McNiff & Whitehead, 2009). In this sense, practitioners'[3] knowledge stagnates and one's educative potential is unlikely to be fulfilled if critical, in-depth, and systematic reflection of one's practice is not promoted (Carr & Kemmis, 1986; McNiff, 2016). This reinforces the importance of engaging with AR's 'quest' for personal reflection and critical self-reflection (Gilbourne, 1999; Guba & Lincoln, 2005; McNiff & Whitehead, 2009).

Regarding the significance of the present study, an AR methodology can address the complex context of team sports by encouraging the improvement of both coach and player learning. As suggested by Metzler (2005) and Harvey et al. (2010a), instead of discussing which approach (traditional technique-based approach or TGfU) is better, time could be better spent exploring how coaches coach, and how tactical and technical skills can be integrated into game play to promote players' understanding and consequent performance.

1.3. Aim and objectives

The aim of the study was to improve my coaching practice and the players' subsequent game understanding through critical application of the TGfU approach.

This aim gave rise to a number of inter-related objectives:

a) To explore the utility of TGfU as a coaching approach with a competitive volleyball team;

b) To reflect and analyse how a TGfU framework, used through an AR approach, can contribute to personal coaching development;

c) To examine if and how players' learning is developed through critical reflection, as embedded in an AR approach, in relation to the TGfU approach;

d) To improve players' tactical knowledge, understanding of the game, their game-related decision-making, and consequently their performance.

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[3] According to the English Dictionary, practitioner is "someone involved in a skilled job or activity". It should not be mistaken with participant ("a person who takes part in or becomes involved in something") or professional ("a person engaged or qualified in a profession") (Cambridge English Dictionary, 2000).

CHAPTER II

REVIEW OF LITERATURE

II. Review of Literature

The purpose of this chapter is to critically examine literature relevant to this study, whilst identifying the limitations and gaps evident in the existing body of knowledge. More specifically, the chapter firstly provides an overview of key learning theories that serve as a foundation and justification for the pedagogical approach employed. It then delves deeply into Teaching Games for Understanding (TGfU), clarifying in detail its background, the model, its pedagogical principles, and the link between technical and tactical skills. The review then progresses to explore other GBAs derived from TGfU (e.g., Tactical Games Model).

2.1. Learning Theories

2.1.1. Behaviourism

Within a behaviourist perspective, learning is usually defined as a change (i.e., an improvement) in an individual's behaviour or knowledge (Bradley, 2004). Traditionally, it was considered that "learning took place through the differential strengthening of bonds between situations and actions'" (Chambers, Thiekötter & Chambers, 2013, p.107). This was the main idea postulated by Thorndike (1938), a founding father of behaviourism, which was the most influential learning-related school of thought in the early 20th Century (Borthick, Jones & Wakai, 2003).

Behaviourism considers that learning is achieved by changing the external behaviour or stimulus. Here, good habits are repeated and rewarded while bad habits are discouraged. In this sense, learning is influenced by modelling the environment, demonstrating the appropriate responses, and providing reinforcement when approximate behaviours to the targeted response are displayed (Palinscar, 1998). Here, then, behaviour is the primary research focus, because, unlike mental processes, it is directly observable and quantifiable (Tomic, 1993). Tomic (1993) also emphasized that in a behaviourist learning setting, the content taught is viewed as a collection of relationships or associations between stimulus and response. Consequently, the way a curriculum is structured corresponds to a logical progression from initially acquiring basic prerequisite skills, before going on to learn more advanced skills. Indeed, behaviourist learning is framed by pedagogues communicating predetermined content, with learners mastering the whole by fully

comprehend the parts (Borthick et al., 2003). This is linked with the principles of mastery learning, which consists of the need to achieve a level of mastery in every unit before moving on to the next (Tomic, 1993). During this process, the learner assumes a passive role, while the teacher/coach assumes an active and direct role, maintaining the control of the pace, sequence, and content of the session (Palinscar, 1998).

The influence of positivism on behaviourism is clear, as the goal of any positivistic research is the prediction and control of human action (Smith, 1986). According to Macdonald et al. (2002), despite not representing the entire range of positivist thought, behaviourism also adheres to the principle that scientific laws are unveiled through measuring objectively and systematically relevant variables, thus predicting the relationships between them. Indeed, behaviourism has been demonstrated to be effective at describing behaviours on predetermined tasks and teaching factual content (Steele, 2005). However, there is less evidence that it allows transfer to "higher order cognitive skills such as reasoning and problem-solving, nor is there sufficient evidence that direct instructional teaching results in the flexibility necessary for students to use the targeted strategies in novel contexts" (Palinscar, 1998, p. 347). Furthermore, it has been suggested that behaviourism is unable to explain the conceptual changes that affect learners; that is, the mechanisms that account for learning (Borthick et al., 2003). In this sense, and despite the contribution of behaviourism to notions of learning, an epistemological, ontological and methodological shift occurred in favour of other perspectives based on cognition and social sciences (Guba & Lincoln, 2005). It was in this context that constructivism emerged.

2.1.2. Constructivism

Constructivism refers to perspectives of human learning that rejects the notion of an objective reality suggested by behaviourism, and accepts the primacy of the interpretive process shaped by previous experience (Light & Wallian, 2008). It aims to explore and reconstruct people's existing understandings (Guba & Lincoln, 2005). However, Davis and Sumara (2003) added that a learner's previous constructions and

experiences should not be confused with the ancient assumption that "what and how one is able to learn are entirely dependent on one's history" (p.135).

Constructivism as a pedagogy has been associated with student/learner-centred approaches which emphasize 'hands-on' learning with students actively participating in lessons (e.g., Roberts, 2011). It was founded on the belief that participation is one of the most effective forms of learning (Ganly, 2009). In fact, a common assumption here is that "learners construct their own learning" (Bradley, 2004; Davis & Sumara, 2003, p.129). However, it has been argued that this is a simplistic, and arguably, erroneous claim, since the teacher/coach's role should not be neglected in the learning process (Davis & Sumara, 2003; Light & Wallian, 2008). This role, however, is more to do with being a facilitator, collaborating actively with the learners in order to guide them in the learning process as opposed to a transmitter of knowledge (Davis & Sumara, 2003; Light & Wallian, 2008). Furthermore, it has been suggested that the teacher/coach should create appropriate opportunities for learning by manipulating the environment (Davis & Sumara, 1997), which should be adapted to the learner's needs in order to help him or her reach their potential.

Constructivism has subsequently been described as a theory of knowledge in which individuals construct their own learning through collaboration in group activities (Borthick et al., 2003; Macdonald, 2004; McNeill et al., 2008). This is particularly relevant within the teaching and coaching context, where problem-solving and decision-making practices in small groups can promote opportunities for a constructivist learning process between participants. Indeed, these situations have been described as positive challenges that promote learners' creativity, reflection and criticality (Light & Wallian, 2008). However, Davis and Sumara (2003) pointed out that, simply doing group activities does not mean that constructivism is being employed. This is because group work is not necessarily the work of the group; it might simply be individual work developed in the presence of others. In this context, Davis and Sumara (2003) suggested that a theory of collective dynamics should prevail, in which individuals with varied interests work in collaboration towards a common project. Indeed, constructivism emphasizes not only the learner as an active and creative being, but also as a social one (Broek et al., 2011). He or she is

considered active in the sense of being involved in constructing their own learning by participating in decision-making, critical thinking and problem-solving (Light & Wallian, 2008). As creative learners, individuals are thus encouraged to explore and develop their own understanding of any subject matter (Broek et al., 20111); and as social learners, should "construct their intelligence by interacting with their internal physical environment, with their external physical environment and with their social environment" (Gréhaigne & Godbout, 1995, p.501).

In order to clarify some important features of constructivism, Fosnot (1996, in Light & Wallian, 2008) presented five principles:

1. Learning is development, in the sense that it demands the learner to be inventive and self-organized, and the practitioner should facilitate this;

2. Disequilibrium facilitates learning, in the sense that challenges should be created to "unsettle or disturb the learner's existing understandings and preconceptions leading to the construction of ways of knowing by restoring a state of cognitive equilibrium to their world or personal experience" (p.391);

3. Reflective abstraction is the driving force of learning, which should include reflection on action. It should (also) include reflection in action, in which the individual achieves "a state of mindfulness during action" (p. 392).

4. Cognition arises from dialogue within a community, which highlights the collaborative aspect in constructivism;

5. Learning proceeds toward the development of structures, which requires critically reorganizing pre-existing concepts.

Despite these general features, Davis and Sumara (2003) suggested that there isn't a single type of constructivism, but rather a variety of discourses grouped under constructivism's umbrella. Two of the most popular are the cognitive/psychological and the sociocultural (Light & Wallian, 2008). The first is essentially based on the work of Piaget, and accepts learning as a process actively constructed by the learner, in which past experiences are considered. It pursues a state of cognitive equilibrium, considering moments of disturbance that come from the adaptation to change. It is, therefore, believed that "disequilibrium forces the subject to go beyond his current state and strike out in new directions" (Piaget, 1985, p.10, in Palinscar, 1998). Cognitive constructivism draws on individuality, namely on the quality of individual

interpretation and development of knowledge at a micro level (Light & Wallian, 2008). On the other hand, sociocultural constructivism (or simply, social constructivism) assumes a macro level view, in the sense that it considers the individual within a cultural and sociological context (Light & Wallian, 2008). The main difference between Piaget's perspective and sociocultural constructivism is that the first considers development as necessarily preceding learning, while in the second, social learning precedes development.

Social constructivism, with Lev Vygotsky as its principal advocate, claims that "the social dimension of consciousness is primary in time and in fact, (while) the individual dimension of consciousness is derivative and secondary" (Vygotsky, 1978, p.30). Social constructivism then has been described as a theory of knowledge in which learning and knowledge are not just influenced by social factors, but are social phenomena (Palinscar, 1998). In this sense, constructivism is located as part of a 'broader activity system'. Social constructivism is also viewed as a more modern perspective, or how Palinscar (1998) called it, as postmodern constructivism. Such perspective rejects the individual as the focus of knowledge, thus acknowledging learning and understanding as a social process. In doing so, it considers cultural activities as playing a crucial part in conceptual development. In this context, Vygotsky (1978, 1986) developed the concept of a Zone of Proximal Development (ZPD), which underlying premise is that cognitive development in social contexts precedes development of an individual's capabilities. The ZPD was considered the distance between a learner's ability to successfully fulfil a problem-solving situation with the help of others (e.g., peers, practitioners) and the ability to do it independently. The focus then is on the learner's collaboration with significant others to gain ownership and knowledge within sociocultural practices, rather than a simple transfer of skills (Borthick et al., 2003; Lave & Wenger, 1991).

Despite the differences between cognitive and social constructivism, both emphasize the importance of experience and activity to holistic personal development (Light & Wallian, 2008). This was emphasized by Davis and Sumara (2003), who revealed three common points to both approaches. Firstly, learning is seen as a complex and dynamic process, following the "Darwinian model of structural fluidity and ongoing adaptation (rather) than...the Cartesian assumptions of linear

causality and steady progress" (p.125). Secondly, these dynamics allow the learner to maintain his/her coherence, according to the different constructivist discourse applied. The third and final point mentioned by Davis and Sumara (2013) referred to the rejection of 'representationist' accounts of cognition. In doing so, the traditional and commonsensical learning perspectives (e.g., behaviourism), which had previously dominated the field, were rejected in favour of a more critical approach.

In relation to the distinct constructivist views, Light and Wallian (2008) suggested that it is "more fruitful to see the dialectical relationship between them, rather than having to make a forced either/or choice" (p.389). They thus argued that by coordinating the two perspectives a self-organized, encultured and participative view of learning can be developed. Additionally, regardless of the approach, constructivism should always be seen as a framework that helps to guide teaching and learning, and not as a prescriptive approach for teaching (Cobb, 1994; Light & Wallian, 2008).

It is widely accepted that GBAs exist under the banner of constructivism (Butler, 2005; Cushion, 2013; Dyson, Griffin & Hastie, 2004; Light & Wallian, 2008; Roberts, 2011). Such approaches, of which TGfU is the most prominent, promote learning through empowering learners, whilst developing game appreciation, tactical awareness and decision-making (Butler, 2005; Cushion, 2013). Indeed, in a constructivist learning context, the learner is educated towards understanding.

2.2. Teaching Games for Understanding

2.2.1. Background

Teaching Games for Understanding (TGfU) has its roots in Bunker and Thorpe's (1982) discontent in the way that school PE was being taught. They believed that PE teachers tended to teach games by emphasizing the technical aspect; i.e., teaching through a technique-based approach, where skills were learned in isolation from the game (Bunker & Thorpe, 1982; Chow et al., 2006; Harvey, 2006). This implies a decontextualisation of skills, with technique having to be learnt before tactics could be introduced; a linear pedagogy from simplicity to complexity (Stolz & Pill, 2016). Such technique-based, traditional approach was "historically adopted by PE teachers

and sports coaches" where the teacher/coach takes full control of the content, delivery and assessment, and includes a demonstration and explanation of the skill/activity before practice (Stolz & Pill, 2013, p. 150).

In contrast, Bunker and Thorpe (1982) developed the TGfU approach which proposed teaching from tactical problems in the context of play, emphasizing cognitive learning before the motor performance. TGfU then was based on a constructivist idea, stressing the importance of promoting learners' active role in their own learning (Butler, 1997; Griffin & Patton, 2005). Bunker and Thorpe's sensitivity to this matter started to flourish when, whilst students at Loughborough University, three of their teachers – Alan Wade, Eric Worthington, and Stan Wigmore – made them think on the benefits of small-sided games, and of the possibility of teaching game skills through the principles of play[4] (Bunker & Thorpe, 1982).

Subsequently, Bunker and Thorpe, and later Len Almond, began to argue that the traditional technique based approach neglected crucial aspects of games teaching, in particular, that it failed to take account of the "contextual nature of the game" (Thorpe, Bunker & Almond, 1986, p.7). Similarly, Turner (1996) suggested that the technique approach presented sessions with unrelated introductory activities, followed by isolated technical work in which the purpose was often unclear, finishing with a game form inappropriate to the ability of the majority. Consequently, a low percentage of children succeeded when playing the eventual game, displaying inflexible techniques and poor decision-making capacity (Thorpe, Bunker & Almond[5], 1986). Furthermore, the obsession with technique meant that some sports could not be played until "extensive practice ensured competence at enabling skills" (Thorpe, Bunker & Almond, 1986, p.28). These authors clarified that when teaching a game, the aim should be that the players are able to play that same game, not to learn the skills or even to improve their decision-making or tactical awareness as an end.

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[4] 'Principles of play' are related to the tactical strategies employed both defensively and offensively in game play (Ward & Griggs, 2010). These authors adapted Mitchell and colleagues' (2006) categorization of the principles of play to each of the game samples; in invasion games, the principles of play are attacking, supporting, creating space, scoring and penetrating, defending, denying space and applying pressure; in strike and field games, it refers to sending into space, scoring, staying in, covering space, limiting scoring, and getting the batter out; in net/wall games, the principles of play are using depth and/or width to manoeuvre opponent(s) (Ward & Griggs, 2010).

[5] As a sign of deep respect and admiration for the three creators of the TGfU approach, and considering the importance of this publication to the present thesis, the referencing style will be ignored when referencing this source and the three authors will be named throughout.

Consequently, TGfU was positioned not as being concerned with "the mere development of tactical awareness, [but] about developing good game players" (Kirk, 2005, p.217). Skills, therefore, should only be considered as 'means to an end', learned to facilitate the accomplishment of a different game-related aim. When this failed to occur, Bunker and Thorpe (1982) concluded that poor decision-making and a lack of transferable skills were the only outcomes.

In further building a case for TGfU, Thorpe, Bunker and Almond (1986) claimed that if skills are decontextualized from a game situation, players will just understand how to carry out those skills in that specific situation, thus not possessing the flexibility to adapt to the dynamic changing context that is the game (Harvey et al., 2010a). Therefore, in order to be able to play any game well, the players need to understand how to apply that skill in the game context, but also to understand why they are doing it (Chow et al., 2006; Hopper, 2002). In this sense, the traditional technique-based approach might indeed improve the technique practised, but fails to develop knowledgeable players. This is because it doesn't account for the contextual nature of games in which players are "constantly required to interpret and adapt to a dynamical physical environment" (Light, 2004, p.116).

Another argument pointed out by Thorpe, Bunker and Almond (1986) against the traditional technique approach was the low level of enjoyment that it allegedly generated. Rather, they believed that the "pleasure involved when playing the game lies in making correct decisions in the light of tactical awareness" (p. 11). They further argued that what the students want to do is to play the game; that is the part that they actually enjoy, something neglected in the traditional technique-based approach to learning. More recent research has supported this claim, with students exposed to TGfU displaying higher levels of enjoyment when compared to those subject to technique-based pedagogy (McKeen, Webb & Pearson, 2007; Naimikia & Gholami, 2016; Walters, Spencer & Farnham, 2016). Furthermore, according to Graça and Mesquita (2007), promoting enjoyment and participation in the game, especially when working with youngsters, has the potential to lead to a healthier lifestyle. Moreover, according to TGfU, for that to happen, the game should not be seen as moments of technique application (Thorpe, Bunker & Almond, 1986). Despite such viewpoint, it has been argued that the technique-based pedagogy has been

dominant in both the practice of school PE (Kirk, 2010; Roberts & Fairclough, 2011) and sports coaching (Harvey et al., 2013). Some years have passed since the previous studies were conducted, but no evidence has come to light demonstrating that this predominance has changed.

As previously alluded to, in such linear and hierarchical approach, more advanced skills and tactics are only taught after basic skills have been mastered. Therefore, a typical session would start with an introductory activity, technique(s) would then be practised, and might (depending on the technical level acquired) finish with a game (Thorpe, Bunker & Almond, 1986; Rovegno, 1995). This usually includes a *command* or *task* teaching style[6] (Mosston & Ashworth, 2002), which emphasizes content as opposed to understanding (Thorpe, Bunker & Almond, 1986). Here, then, the content is taught the same way regardless of the learner and context, which, according to many, means that the learners' experiences of sport are not authentic (Savelsbergh et al., 2003; Stolz and Pill, 2014).

Alternatively, a typical TGfU session starts with a game form, which can be a modified version of the formal game, with the minimum rules necessary to be easily understood. The coach (teacher) should guide the players (usually) through the use of questioning to identify the tactical problems that emerge from that game situation. Thorpe, Bunker and Almond (1986) emphasized the importance of this latter point, stating that if the player cannot grasp the game and appreciate its structure, it will be difficult to develop sensible tactics for playing the game. Once the participants are aware of the tactical problem, they work specifically on it in a game-related activity. Finally, they return to the game situation, focusing on the content worked upon. However, if the problem encountered in the game is technique related, then that should not be ignored, hence, the coach should create an adequate scenario to address the issue at hand (Turner & Martinek, 1995). This way, the

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[6] Mosston and Ashworth's (2002) 'Spectrum of Teaching Styles' aims to establish the level of decisions within the learning process. On one side of the Spectrum is the teacher, on the other is the student. The Spectrum comprises two clusters. The Reproduction cluster implies acquiring and reproducing knowledge or skills mainly led by the teacher, and it includes the styles Command, Practice, Reciprocal, Self-check, and Inclusion. The Production cluster implies the production of new knowledge in which the learner takes further responsibility in the decision-making process. This cluster includes the styles Guided Discovery, Convergent Discovery, Divergent Discovery, Learner-designed Individual Program, Learner-initiated, Self-teaching.

players should understand the need to work on that problem and its relevance to the game situation (Bunker & Thorpe, 1982). As mentioned earlier, a new skill should only be introduced when learners understand its meaning and placed in the wider game.

It is, however, important to notice that simply utilising small-sided and mini-games does not mean that TGfU is being applied, as "'in themselves, mini-games are not progressive" (Thorpe, Bunker & Almond, 1986, p.58). Rather, according to these authors, "we build up to them, pass through them and go beyond them" They add that, although the design is important, the focus should be on the principles of play, and the players' decision-making based on tactical awareness. According to Mitchell, Oslin and Griffin (2013), the tactical problems unearthed and addressed should evolve in their complexity, according to the players' understanding and awareness. Consequently, it is expected the coach/teacher challenges the learner in understanding the 'why's' and 'how's' of the learning process (Stolz & Pill, 2013). In this context, the 'Spectrum of Teaching Styles'[7] developed by Mosston in 1968 (see Mosston & Ashworth [2002] for further developments on this) helped conceptualize "the purposeful choice of pedagogical action to meet specific teaching objectives" (Stolz & Pill, 2014, p.38). For instance, the guided discovery style, in which the coach guides the learner through the decision-making process, concurs with TGfU principles by prompting the players to think and have an active voice in their learning (McMorris & Hale, 2006; Stolz & Pill, 2014). According to these authors, a coach or teacher can help the learner make the 'correct' decision concerning what to practice, how to practise, and how they are going to change to perform better. It has subsequently been suggested that guiding learners to conclusions themselves improves the memory process (McMorris & Hale, 2006; Raab et al., 2009).

2.2.2. Six-step model

To help apply the approach in the practical context, Thorpe, Bunker and Almond (1986, p.8) proposed a six-step model (figure 1), in which the teacher helped

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[7] Mosston and Ashworth's (2002) teaching styles are often referred to as coaching styles when implemented in the coaching context (e.g., Pill, 2016). Therefore, these will be used interchangeably throughout the present thesis.

the learner to achieve a new level of performance. Thorpe, Bunker and Almond (1986) emphasized that following the order of these points is crucial, thus guiding the session and development of the unit (i.e., a set of sessions within the PE curriculum). Indeed, more recent literature underlined that the idea of 'a' model is supported by the assumption that coaches feel that it is pertinent to have more theoretical guidance in their practices, rather than simply supporting their coaching 'methods' through past experiences and personal intuition (Cushion, Armour & Jones, 2003; Cushion, Armour & Jones, 2006; Gilbert & Trudel, 2001; Jones, Armour & Potrac, 2004).

However, according to Cushion and colleagues (2006), the implementation of step-by-step models does not consider the wide range of variables that influence the coaching process. Consequently, they suggested that by fragmenting such a complex process, one is actually oversimplifying it, underestimating its potential. Additionally, practitioners find it difficult to implement such approaches as they are not coherent with the reality experienced in practice (Jones & Wallace, 2005). Another issue raised by Jones and Wallace (2005) is the assumption that duplicating the 'good practice' of expert coaches is the path to success, since what worked out in one context, might not work in a different one. As an example, the same model of coaching when applied by an experienced coach in a professional women's team will most likely have a different impact if applied by a beginner coach in a male youth team.

Despite this, the quest for an efficient model persists, following Cross and Ellice's (1997) assertion "that the ability to identify, analyse and control variables that affect athlete performance is central to effective coaching" (Cushion et al., 2006, p. 86). Indeed, as discussed later in this section, scholars have attempted to develop and/or adapt the TGfU original model. The original TGfU model (see Figure 1) presents the learner at the centre of the pedagogical process. In fact, TGFU is a player-centred approach in which the players are empowered to have an active role (Kidman, 2001). This means that if players are encouraged to think critically, to identify problems, and to collectively find solutions for those problems, positive outcomes in their motivation and ownership will result (Souza & Mitchell, 2010). In this sense, the coach should encourage players to participate in problem-solving situations and encourage them to 'engage in self-discovery' (Chow et al., 2007).

Essentially, by manipulating the session, the coach can stimulate the players to think critically and autonomously, helping them to make decisions 'in loco' (Kidman & Lombardo, 2010).
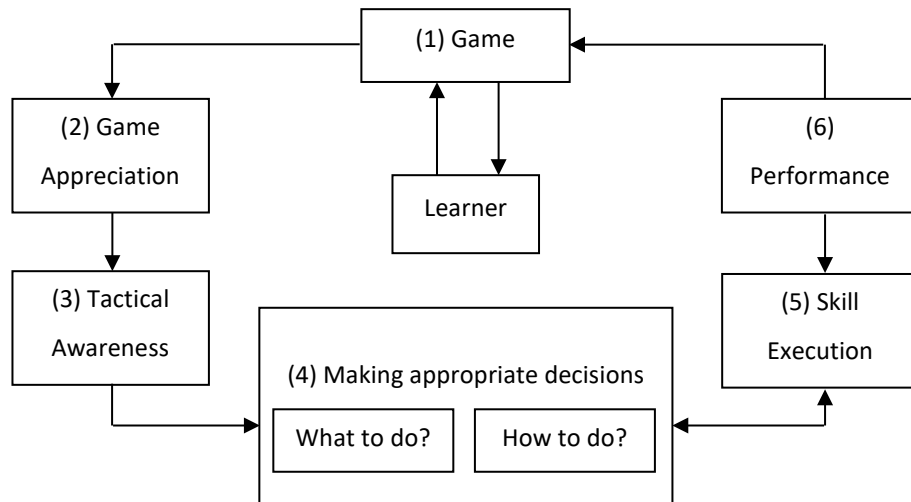
Figure 1 – The Teaching Games for Understanding six-step model (Thorpe, Bunker & Almond, 1986)

The first step considered in the model is a 'game form', which is not necessarily the formal adult version of the game. It should be adapted to the players' level, by modifying the area of play, the number of players, the equipment used, and the rules. From here, the players develop 'game appreciation' (step 2) in order to understand the impact on the tactical skills that derived from the modified rules, since these "will place constraints of time and space on the game, will state how points (goals) are scored, and more importantly, will determine the repertoire of skills required" (Thorpe, Bunker & Almond, 1986, p.9). After developing an understanding of the rules, and their implications upon tactics, which tactics to be used in the game should be considered, i.e., step 3 'tactical awareness'. These should be based on the principles of play, and be flexible enough to meet the needs of the moment. Thorpe, Bunker and Almond (1986) also emphasized that tactical awareness should not be restricted to understanding the constraints of their own team, but also to recognise the opposition's weaknesses. The learner will then have to think about 'what to do' and 'how to do it', i.e., step 4 of the model, 'making appropriate decisions'. Here, the coach challenges the players to read the cues and predict possible outcomes in order

to decide what the best option is in each case. Once this has been decided, players have to select the appropriate response. This is linked to 'skill execution' (step 5), which is described as the "actual production of the required movement" (Thorpe, Bunker & Almond, 1986, p.9). However, it must take into consideration not only the mechanical efficiency of the movement but also its relevance to the particular game situation. Skill execution should then be seen in the context of the learner and the game. The last step of the model is 'performance' (step 6), which refers to the observed outcome of the previous stages. This is measured by criteria external to the learner regarding the appropriateness of response and efficiency of technique. Finally, as the players' expertise develops, the game form is changed to keep challenging the players in terms of game appreciation, tactical awareness, decision-making, and skill execution (Thorpe, Bunker & Almond, 1986).

2.2.3. Technical and Tactical skills

It is important to clarify that, according to TGfU, the work of technical skills should not be neglected. Instead, it should be engaged with following the appreciation of the game and be developed as a tool to solve tactical problems in game-related situations (Thorpe, Bunker and Almond, 1986). In fact, it has been well documented that technical skills have a determinant role in game performance, however, it has also been suggested that making the appropriate decisions in a game situation is just as important (Mitchell et al., 2013). Moreover, the ability to use a skill in a game situation is empowered by the understanding that the players have of the game, which is achieved through teaching for tactical awareness (Bunker & Thorpe, 1982). Also, Thorpe, Bunker and Almond (1986) suggested that TGfU could potentially lead to bad playing habits due to contravening the rules and developing mechanical inefficiency. In this situation, technique should be taught, but only to players who have already developed an understanding of the game, and inherently, an appreciation of the meaningfulness of such technique within the game. Furthermore, as pointed out by Thorpe (in Kidman, 2001), technique and technical skills are distinct concepts in the sense that the former is simply referring to the motor execution, while the latter implies its contextualization. As den Duyn (1997, in

Soltz & Pill, 2014) puts it, Technique + Context = Skill. In this sense, in the context of TGFU approach, the concept of technical skills is more suitable than the concept of technique.

Regardless of these conceptual particularities, motor learning theorists have counter-argued that players need automaticity of skill execution before game understanding otherwise they won't be able to deal with the tactical challenge presented in the game situation (McMorris, 1998). McMorris (1998) thus claimed that a minimum level of skill domain is necessary in order to play any game, recommending a technique-to-cognition approach instead of the other way around (as in TGfU). He also emphasized that the criticisms presented by Thorpe, Bunker and Almond (1986) of the technique-based approach are, in fact, criticisms of general poor practice, rather than the skill-based approach itself.

Further research has pointed out that when learning a skill it is impossible to separate three crucial aspects: individual, task and environment; otherwise players wouldn't be able to understand how to adapt a skill when playing the game (Chow et al., 2007; Davids, Button & Bennet, 2008). In this sense, by manipulating the task to the performer's individual characteristics and the environment, a coach (or teacher) is promoting greater individualization of the performance. In a motor skill context, this means that when performing a skill, the individual should adapt the action to whatever suits the context, instead of trying to reproduce an idealized optimal pattern for all performers. In a game context, this means that the performer should be able to adapt his/her action to the situation that they would be facing while performing (Chow et al., 2007).

Accepting that technical skills are explicitly included in TGfU, the question becomes about 'when' and 'how' to introduce them. The traditional technique-based approach focuses on 'how' the skill is performed. Hence, a principal critique is that it teaches skills before the learner grasps their significance within the game (Griffin et al., 1997; Mitchell et al., 2013). As mentioned before, Bunker and Thorpe (1982) supported the idea that technical skills should be taught following an understanding of game context, otherwise games teaching becomes a series of drills that apply textbook techniques.

However, Hopper, Butler and Storey (2009) presented an interesting argument, stating that the focus should not be on when a skill is taught (if before or after gaining tactical awareness), but which skills to use, and how to use them, in order to play the game successfully. They thus argued that dividing the debate into technique or GBAs was over-simplifying the process as both (technique and tactics) play an important role in players' learning, with the difference being in the ways that they are linked together. In fact, Hopper and colleagues (2009) suggested that one of the main challenges for teachers/coaches is to connect a game's technical and tactical character, i.e., the game-practice and the skill-practice. According to Hopper (2002), teaching through a tactical approach does not mean that the TGfU principles are being employed. Similarly, by using a technical approach, the teacher/coach can still focus on a player's learning within a TGfU framework. Nevertheless, he suggested that a tactical approach is often perceived as focusing on the student over the content, while a technique-based approach is usually linked to the content over the student. However, Hopper (2002) added that this is not necessarily a polarising issue, suggesting then a division of teaching games into four types (figure 2). The first is a technique perspective focussing on content, i.e., an isolated skill focus approach in which the content is emphasized over the student (left bottom on figure 2). This is usually considered in the technique-based approach criticized by Thorpe, Bunker and Almond (1986). However, technique can be taught through a student emphasis (top left on figure 2), which includes gradual progression based on the players' needs. The other two approaches mentioned by Hopper (2002) emphasise the tactical (bottom right of figure 2) and the learner (top right of figure 2). In the first one, "there is no progression in the students understanding of how to play tactically" (Hopper, 2002, p.46). On the other hand, the last one is the closest to TGfU as it is related to the players' level, becoming progressively more tactically challenging.

When applying a TGfU approach then, the learning of tactics and skills should be integrated into modified games (Chow et al., 2006; Hopper, 2002), as "one of the main elements of this approach is the provision of small-group learning experiences that are game-like initially" (Turner & Martinek, 1995, p.51). These modified games include constraints or elements common to the formal game. Hence, they promote players' tactical awareness and skill application to solve contextual issues that

demand a constant interpretation and adaptation to the situation (Hopper et al., 2009; Kirk & MacPhail, 2002).

	Technique Perspective		**Tactical Perspective**

Student emphasis

Skill-learning progression
Technique focus

TGfU
← Tactic-to-skill domain →

Tactic-learning progression
Tactic focus

Content emphasis

Skill-nonlearning progression
Isolated skill focus

← Teaching games with no understanding →

Tactic-nonlearning progression
The game focus
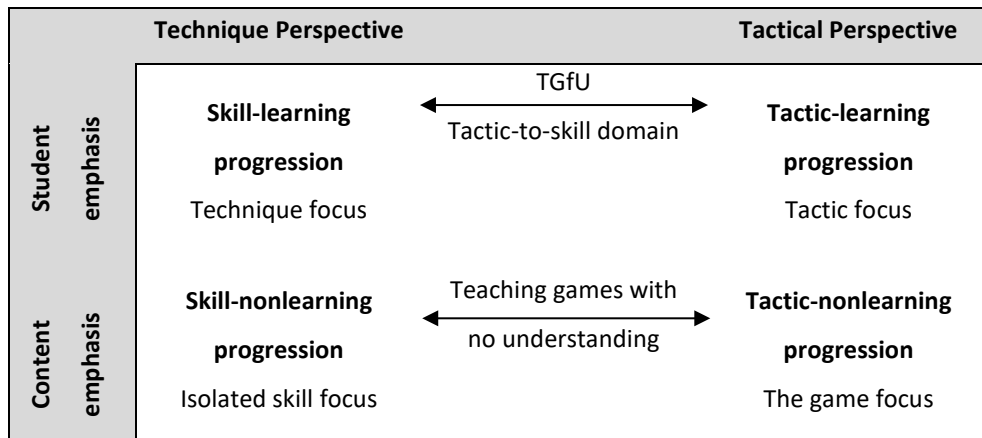
Figure 2 – Games-Teaching Matrix (Hopper, 2002)

2.2.4. Pedagogical principles

According to Chow et al. (2006), learners should learn through playing modified versions of the game which, in turn, evolve during the process. In the context of TGfU, the adaptation of such game formats respects four pedagogical principles (Thorpe, Bunker & Almond, 1986). The first is 'game sampling', which relates to the selection of the type of game that, according to Thorpe, Bunker and Almond (1986), can be divided into net/wall games, invasion games, target games, and fielding run-scoring games. The idea was to stop seeing games as singular sports, enabling a transfer of understanding from one game to another within a given category. Thorpe, Bunker and Almond (1986) suggested that learning the tactical principles of a certain sport allows transfer to another sport with similar characteristics. Such transferability claim, however, has been criticized (e.g. Griffin et. al, 1997) in terms of only basic tactical principles can be so transferable. This means that each sport cannot be taught in-depth, thus not enhancing performance. In fact, Tan, Chow and Davids (2012), highlighted that further empirical evidence is needed to corroborate the extent of skill transfer between game categories. Also, the implementation of such pedagogical principle has been developed and explored in the context of PE, not being yet clarified how it could be integrated within sports coaching.

Two other pedagogical principles developed by Thorpe, Bunker and Almond (1986) involved modifying games through 'representation' and 'exaggeration'. These entail small-sided games that *represent* the formal game format, while rules are manipulated to *exaggerate* tactical problems. This way, the link with the formal format of the game remains, with the players' attention being guided to certain tactical problems. An example would be a 4v4 mini volleyball game where the players adopt a tactical system transferable to the 6v6 format. Also, the rules can be manipulated by, for example, making a team execute three mandatory touches to emphasize the offensive organization or the ability to control the ball. The final pedagogical principle mentioned by Thorpe, Bunker and Almond (1986) was the adjustment of 'tactical complexity', which emphasizes the need to adapt the tactical problems to the level of play and understanding that the players possess.

Thorpe, Bunker and Almond (1986) claimed that these principles, linked with the six-step model, serve as a guide to help practitioners put the approach into practice. However, this was essentially based on Thorpe, Bunker and Almond's (1986) practical experiences thus lacking systematic evidence to verify it. This was a point raised by Chow and colleagues (2007) who claimed that the model lacked adequate theoretical grounding as an educational framework; a claim that (rather oddly) prompted Thorpe, Bunker and Almond themselves to challenge researchers to answer the question 'Does TGfU work?' (Butler et al., 2003).

2.2.5. TGfU variations

Consequently, the 1990s witnessed an enthusiastic adoption and exploration of the TGfU approach (Turner, 1996). This led to the development of some variations of the TGfU original model, or what Graça and Mesquita (2007) called "different cultural interpretations" (p.405). Hence, according to Mitchell (2003), by applying the approach and gaining practical experience using it, some authors/practitioners adapted the original TGfU based on their own ideas or to make it more user-friendly (e. g., Griffin et al., 1997). Some of these adaptations are discussed below.

2.2.5.1. Designer Games

These games were developed by Charlesworth (1994) within the coaching context and aimed to promote competition between teams, rather than developing a skill (technical or tactical). The conditions of the game could be manipulated by the coach; which included the size of the pitch, the number of players, rules, in addition to the number, size and type of goals. Charlesworth (1994), however, did not clarify which aspects impact on what to adapt, but highlighted that the game should be as close to the formal version as possible. For instance, he recommended excluding 1v1, as it does not consider passing options. By manipulating these constraints, the author claimed that players can improve their fitness, transition, strategic judgement and prioritisation, teamwork, competitive toughness and 'play reading'.

2.2.5.2. Tactical Games Model

Developed by Griffin, Mitchell and Oslin (1997), the Tactical Games Model (TGM) attempted to make TGfU more user-friendly by simplifying the original six-step model into a three-step one that considers the game form, tactical awareness, and skill execution (figure 3). Also, as mentioned by Oslin and Mitchell (2006), the TGM varies from TGfU in that "it is proposed as a progression of games along with tactical and skill-based practices (…) to accommodate and assist teachers with lesson planning and instruction" (p.629). Despite presenting this as a distinctive aspect, TGfU was also presented as starting with a game form (game), followed by working on the issues that emerged from that game (practice), and integrating those in the next game as soon as possible (game) (Thorpe, Bunker & Almond, 1986).

An aspect that is clearly a novelty within Griffin and colleagues' (1997) work is the integration of different levels of tactical complexity in order to help player progression. The authors emphasized that although many teachers focus on both tactical and technical aspects, they often have problems linking them (Oslin & Mitchell, 2006). Moreover, according to these authors, it is precisely by combining tactical awareness and skill execution that players' performance can be improved. They emphasized that by linking skills and tactics, the players are more able to learn further about the game and improve their performance, with tactics providing the forum to apply game-related motor skills (Griffin et al., 1997). In order to accomplish

this, the coach would have to successfully manage the appropriate timing of skill application within the tactical context of the game; an ability that Graça and Mesquita (2007) termed 'situated skills'.

The TGM led to the development of the Game Performance Assessment Instrument (GPAI) which aims to assess different components of game performance (see section 2.2.7.).
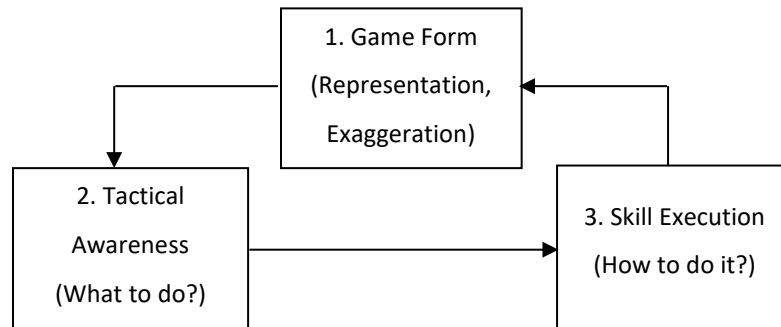
Figure 3 – The Tactical Games Model (Griffin, Mitchell & Oslin, 1997)

2.2.5.3. Game Sense

Game Sense (GS) is often described as the Australian version of TGfU (Stolz & Pill, 2014) since it was mainly developed by Rod Thorpe in collaboration with the Australian Sports Commission in the mid-1990s (Thorpe, 2012). Similar to TGfU, GS is focused on the game and not the technique, contextualizing learning within games or game-like situations (Light, 2004). Learning thus is always allocated within games, with no prior identification of skills to be developed (Light, 2004).

GS advocates claimed that this model, unlike TGfU, has more emphasis on coaching than PE (Light et al., 2014a; Stolz & Pill, 2014). Despite lacking a clear justification for such a claim, it has been mentioned that GS is more open to flexible interpretation since it does not include a structured model (Light, 2004; Light et al., 2014a). Indeed, Light (2013) clarified that the six pedagogical steps presented in the original TGfU model do not have to be followed in GS. Consequently, GS does not strictly demand a focus on game appreciation and tactical awareness before developing technical skills, suggesting that the technical and tactical components of the game can be taught simultaneously (Soltz & Pill, 2014). Additionally, according to

Light (2013), GS sessions should include activities built on the knowledge developed in the previous game, in a logical progression from the simple to the complex.

Moreover, consistent with TGfU, this approach possesses a focus on questioning, in order to stimulate players to think. As mentioned by Hopper and colleagues (2009) "Game Sense promotes questioning and player-centred coaching that challenges the coach to move away from the centre of the learning process" (p.3). Another aspect of commonality with TGfU is the division into four types of games: invasion, striking, net/wall, and target games, although this might seem to contradict the 'greater emphasis on coaching' claimed by GS, as, in the coaching context, the focus is usually in one sport only.

2.2.5.4. Games Concept Approach

The Games Concept Approach (GCA) was instigated by the Singaporean Ministry of Education as part of the PE curriculum review project 'Thinking Schools Learning Nation' in the late 1990s (Goh, 1997; Tan & Wong, 2000). This review included a consideration of how games were being taught in PE, which previously had fitness as its dominant focus (Rossi et al., 2007). Alternatively, GCA was developed as an approach where critical thinking was promoted within a constructivist agenda (Rossi et al., 2007). However, GCA entails a slightly more rigid structure than TGfU by following a pattern of playing modified games, in which there is a focus on the skills relevant to the game before applying them in a game situation (Tan et al., 2002). The approach contains a five-stage lesson structure as illustrated in the following table.

Table 1 – GCA lesson structure (Fry et al., 2010)

Component	Pedagogical emphasis
Situational game 1	Small-sided game in which the teacher sets the conditions, designed to raise students' awareness of a games-related problem. Focus can be technical, conceptual, or tactical.
Questioning	A teacher-facilitated question and answer session ('Q&A').
Developmental focus	Small-group activities in which students explore potential resolutions to the initial problem and the teacher acts as a facilitator.

Situational game 2	A second small-sided game whereby the students revisit the initial problem and are 'forced' to play-out rehearsed resolutions through teacher-set conditions.
Closure	Lesson debriefing, in which the teacher facilitates comparisons between situational games 1 and 2, builds understanding about the enhanced play, and scaffolds to other situations, including lessons which might follow.

The development of the GCA was the first time that the principles of TGfU were explicitly embedded within a PE curriculum, forcing teachers to adapt their practice accordingly. Consequently, a few years after being introduced as a required professional practice within PE teaching, Rossi and colleagues (2007) explored the response of PE teachers to GCA's implementation. The authors concluded that teachers were still largely confused and frustrated about it, but they were also hopeful and enthusiastic about its prospects. In addition, Fry and colleagues (2010) explored students' perspective about the approach and concluded that most perceived the GCA as adding general value to their PE experiences, although some deficiencies were felt in the way that it was being implemented. Particularly, it was felt that the pedagogy should be more explicit, that the adaptation of the game to the needs of the students was not always appropriate, a more progressive implementation of the approach to permit a better adaptation from the students' perspective would have been beneficial, while the whole class questioning was perceived as negative. Such issues corroborate Rossi and colleagues' (2007) findings and suggest the need to further explore the impact of the approach.

2.2.5.5. Inventing Games

Inventing Games (IG) was developed by Butler (2013) again with TGfU principles in mind. It was based on the idea that children often "invent games that are fun, fair, and inclusive" (Butler, 2013, p.48). The purpose was to bring play back into games, to enhance players' learning about and through game structure and to implement 'democracy in action' (Butler, 2005; Butler, 2013). IG entails ten stages that can be adjusted depending on the unit of work, grade level, or other contextual variable. Butler (2013) provided the following description of the ten stages, in which the teacher assumes the role of facilitator.

Table 2 – Inventing Games' Stages (adapted from Butler [2013])

Stage	Description
Stage 1: Creating Democracy in Action and Defining the Game Category	Clarify expectations, roles and systems within the group that will allow members to work together cohesively and ethically.
Stage 2: Inventing the Game	Each group designs a draft of its game, which should include basic rules.
Stage 3: Playing the Game	The group tries out the game, and the teacher determines if it is fair and accessible. The teacher and the student evaluate the game at the end.
Stage 4: Refining the Game	Whilst playing the game, the teacher encourages time-outs to promote reflection and make adjustments accordingly.
Stage 5: Identifying the Role of Coach	Each group elects a coach, defining associated responsibilities.
Stage 6: Establishing the Role of the Official	Establish which students will be officiating. This is also an opportunity to finalise the rules.
Stage 7: Showcasing the Games	Groups demonstrate their game to others, in which the elected coach takes the lead.
Stage 8: Defence	Includes identifying defensive strategies, defining defensive skills, and identifying defensive transitional strategies (defence to offense)
Stage 9: Offense	Includes identifying offensive strategies, refining offensive skills, and identifying offensive transitional strategies
Stage 10: Connecting Students' Invented Games to Established National Invasion Games	Students are challenged to try an invasion game of their choice for two session, in which they use different means of propelling the ball. The aim is to recognise transferable skills/concepts between games.

Similar to TGfU, IG also classifies games into four different categories based on their features; that is, target games, striking games, net/wall games, and invasion games.

2.2.5.6. Tactical Decision Learning Model

Although originating independently, it has been claimed that the 'Tactical Decision Learning Model' (TDLM) (see figure 4) developed by Gréhaigne and Godbout

(1995) has much in common with the TGfU approach (Light et al., 2014b). TDLM thus shares the TGfU constructivist principle that demands an active role for the learner in the creation of models of play and efficient action-rules. However, in the TDLM, the focus is very much on strategies around the game, in which four components are considered: cooperation with teammates, opposition to opponents, attacking opponents' space, and defending a team's own space (Griffin et al., 2005). Following a game, the teacher, in conjunction with the players, develops and applies an action plan, before refining it (Stolz & Pill, 2014). In this process of refinement, the players are encouraged to explore the effects the action plan is having on the game, requiring an evolution of the various concepts involved. For this purpose, Gréhaigne, Caty and Godbout (2010) proposed a switch of emphasis from Teaching Games for Understanding to Learning Games through Understanding.
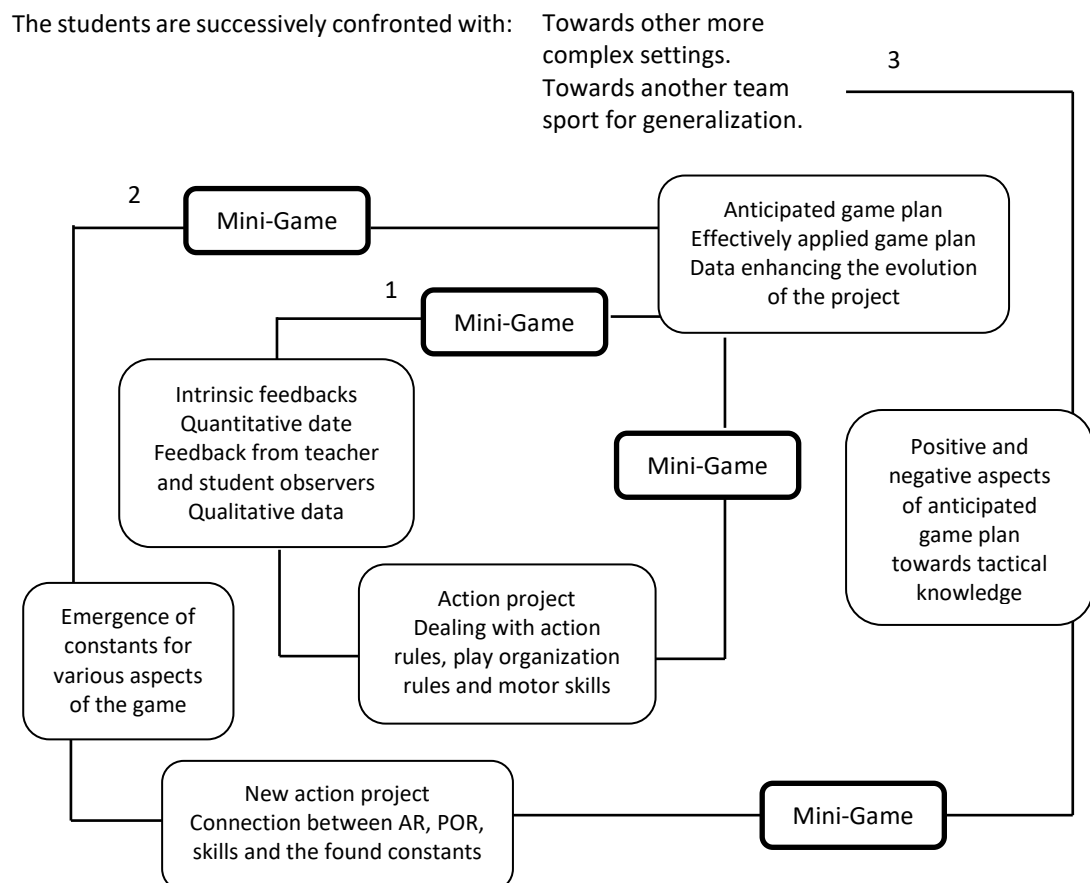
The students are successively confronted with: Towards other more complex settings. Towards another team sport for generalization.

Figure 4 – The Tactical Learning Decision Model (Gréhaigne, Caty & Godbout, 1995, 2010)

2.2.5.7. Play Practice

Launder (2001) stated that Play Practice is not based on TGfU, claiming that it was developed earlier in the late 1950s (Launder & Piltz, 2013). Nevertheless, the similarities to TGfU are obvious, as a principal purpose is the use of mini-games to promote players' understanding of game(s). In order to progress in these mini-games, Launder (2001) emphasized the principles of shaping play, focusing play, and enhancing play (Oslin & Mitchell, 2006). Fostering the enjoyment that playing brings was also a crucial aspect of this approach, with an appreciation that the utilised games only work if participants engage in a playful fashion (Launder, 2001).

In contrast to TGfU where the focus lies on foregrounding the game as the context for learning, the main goal of Play Practice is to find ways to engage and motivate youngsters (Launder & Piltz, 2013). In order to achieve this, Launder and Piltz (2013) suggested that a thorough analysis of the activity should take place before determining which aspects of skilled play are most important for the particular learners in question. It can be argued that this analysis corresponds to the 'appreciation of the game' step in the TGfU original model. Another feature of Play Practice mentioned by Launder and Piltz (2013) that carries clear echoes of TGfU is the need to simplify or shape the learning environment to facilitate learning. However, the authors highlighted that while TGfU presents quite a linear sequence to guide the practice, Play Practice's starting activity, for example, might be an individual challenge, a target game, a sector game, or a mini-game; hence, it is not so structured.

Regarding the pedagogy used by practitioners, Play Practice encourages a wide range of so-called instructional strategies (Stolz & Pill, 2014). However, Stolz and Pill (2014) highlighted that Play Practice, unlike TGfU, GS or TGM, does not have an explicit focus "on the development of 'thinking players' by guided discovery using questioning as a central pedagogical tool" (p.42).

2.2.5.8. Constraints-Led Approach

A pedagogical framework that has often been associated (and confused) with Bunker, Thorpe, and Almond's TGfU approach, is the Constraints-Led Approach (CLA). According to Renshaw et al. (2016), such confusion derives from the holistic

focus that some authors gave to the CLA in the context of team games (e.g., Chow et al., 2009). Specifically, similar to TGfU, the CLA aims to develop the learner holistically, where "player development, movement choices, and learning cannot be considered in isolation from game characteristics and other player abilities" (Storey & Butler, 2013, p.135). To promote this, the CLA advocates adapted (constrained) game-activities framed by the manipulation of constraints surrounding task, performer, and environment (Renshaw et al., 2010). Whilst such manipulation has been described as a key element of the CLA (e.g., Renshaw et al., 2010), Harvey, Pill, and Almond (2018) highlighted that designing adapted games to promote player's development already existed within TGfU prior to the CLA. For instance, TGfU proposes manipulating the aspects of the game by implementing the pedagogical principles of exaggeration, representation, and tactical complexity (see section 2.2.4.).

In addition to such similarities, the coach is considered a facilitator that guides the players' learning in both the TGfU and the CLA approaches (Renshaw et al., 2016). However, these similarities have been described as being at an operational level, whilst the pedagogical principles that underpin both approaches are quite distinct (Renshaw et al., 2016). Indeed, the CLA emerged from a different ontological and epistemological background, having its roots in the theoretical framework of ecological dynamics, specifically Nonlinear Pedagogy (Harvey, et al., 2018). Further, the CLA was developed as a theoretical framework underpinned by skill acquisition and motor leaning theories (Renshaw et al., 2016). In contrast, TGfU has been described as emerging from practice, "developed by practitioners for practitioners, rather than a broad, theoretically oriented teaching approach grounded in research" (Butler, 2014, p.467). However, the lack of theoretical underpinning in the development of TGfU has been refuted from one of its creators (Len Almond) in Harvey et al. (2018). Here, the authors claimed that TGfU was framed around sound theory, particularly Discovery Learning.

The contextualisation of the CLA within the domain of skill acquisition suggests that this approach is applicable to a wider range of sports and exercise activities (outside the realm of games) (Renshaw et al., 2016). However, this can also suggest that its focus is in movement execution, allegedly neglecting other domains. In fact,

the claim that the CLA is a holistic approach, like TGfU, has been challenged by Harvey and colleagues (2018, p.175) based on their "argument on perception-action coupling, which is free of cognition". According to these authors, the explanation presented by CLA theorists is insufficient to provide a clear picture on how the focus on task, performer, and environment promotes the cognitive process.

2.2.6. Theoretical research of the TGfU model

As the TGfU approach became increasingly used, an exploration or clarification of the model's conceptual underpinnings has been sought (Mitchell, 2003). Two prominent studies here relate to the work of Kirk and Macphail (2002), and Holt, Strean and Bengoechea's (2002).

Kirk and MacPhail (2002) did not attempt to create another approach or variation. Instead, they revised the TGfU model in line with more recent advances in educational learning theory. Indeed, despite acknowledgement of the importance of learning theory in the original TGFU model, Kirk and MacPhail (2002) believed this was not clearly developed or made explicit enough. They, therefore, proposed a revised version as illustrated (figure 5) and described below.
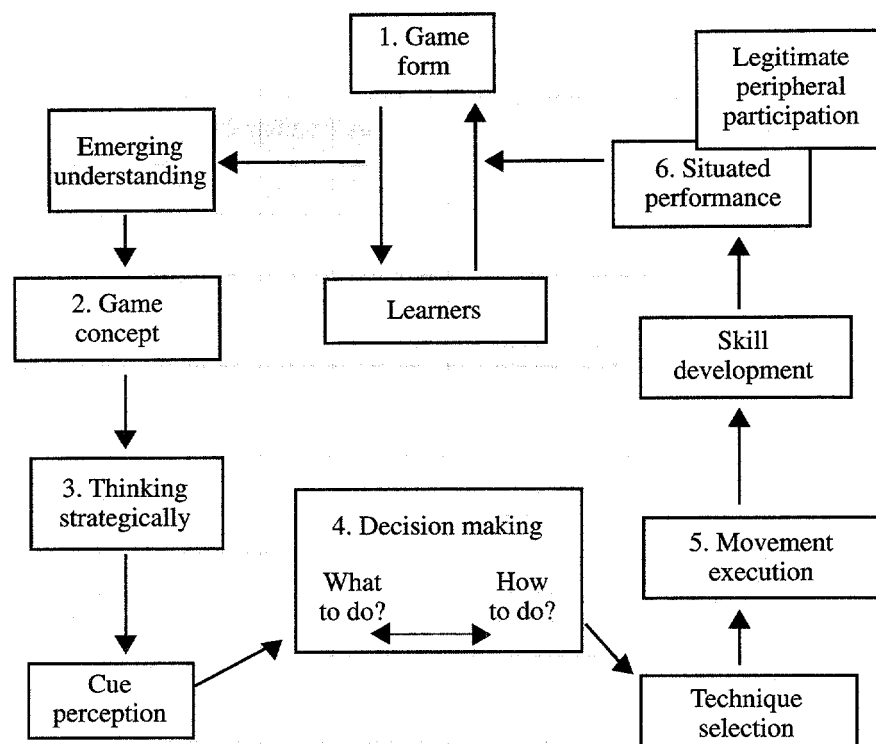
Figure 5 – The Teaching Games for Understanding revised model (Kirk & MacPhail, 2002)

1. Game, or game forms, because sometimes the game needs to be modified to suit the learners' development level. Such 'situated learning perspective' considers a number of factors:

   a) What the learner already knows about the game (e.g., his/her experience as player and spectator), including conceptions the players have about the approach.

   b) The tasks set by the teacher/coach that constitute the game form need to make sense to the learner in terms of his/her emerging understanding of the game.

   c) These connections between the game form and the learner's understanding need to be made explicit.

   d) The tasks set by the teacher need to be seen as being connected to the game from the learner's point of view

   e) It is important to consider all this in relation not only to the group but to the difference between each individual within the group

2. Game appreciation, Tactical awareness, and Emerging Understanding (make appropriate decisions) align with domain-specific and strategic knowledge[8]. Specifically, 'game appreciation' also aligns with declarative knowledge; 'making appropriate decisions' aligns with procedural knowledge; and 'tactical awareness' seems to rest somewhere between these two dimensions of knowledge. Considering the relevance that players' understanding has in the original TGfU model it seems likely that 'game appreciation' and 'tactical awareness' are intended to go beyond the mere acquisition of rules and other information about the game. Therefore, 'game appreciation' "might be more accurately represented as a player's concept of a game and the ways in which it might be played" (Kirk & MacPhail, 2002, p.186). The

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[8] Declarative knowledge is concerned with facts such as the game rules, aims, terminology, and etiquette, or as Blomqvist, Vanttinen and Luhtanen (2005) referred, is focused in 'what to do'. Procedural knowledge is used to generate action (such as knowing how to get past an opponent). Blomqvist et al. (2005) described it as 'doing it'. Strategic knowledge is referred to the strategies used to employ the previous. The knowledge dimensions of game play are interdependente, while cognition and physical performance are independent (Kirk & MacPhail, 2002).

concept 'emerging understanding' in the revised model is intended to provide teachers/coaches with a point of focus for helping learners make the connections between the purpose of the game and the game form.

3. Thinking Strategically replaced the original 'tactical awareness', and was considered fed by players' emerging concept of the game, based on domain-specific declarative and procedural knowledge. Kirk and MacPhail (2002) argued that the term 'tactical awareness' might be imprecise in identifying the assumptions about learning embedded in the model, since players don't need to be simply 'aware' of tactics, but to be able to 'deploy' them appropriately. Therefore, the notion of 'thinking strategically' was considered to offer a more explicit and focused term.

4. Cue Perception. An improvement in a players' ability to discern what information is appropriate in any given set of circumstances is a function of experience (Kirk & MacPhail, 2002). Players thus must be given the opportunity to develop the experience of recognizing appropriate cues in a variety of contexts, such as learning when a teammate is positioned to receive a pass. In fact, the ability to make good decisions in the game is empowered by the ability to 'read' the situation, which depends on the skills of search, anticipation, and knowing what to look for and where to look for it (Graça & Mesquita, 2007).

5. Decision-making and Technique Selection. If making appropriate decisions involves perception interacting with a stock of declarative knowledge, expressed in the revised model as a game concept and thinking strategically, then decisions about how to act interact or merge with the execution of the movement. Kirk and MacPhail (2002) believed that the ability to choose the right action should take into consideration all the possible actions that the participant knows, therefore, they included a mediation between 'decision-making' and 'skill execution' called 'technique selection'. By making this process visible within the model, teachers can address explicitly 'how to do?' as a process of self-reflection and selection from a range of options.

6. Movement Execution, and Skill Development. In the original TGfU model, 'performance' considered the relationship between a learner's progress through cycles of modified games and conventional adult or advanced version of the general game. The notion of 'skill development' in the revised model offers itself as a useful

mediating process between 'movement execution' and performance. This comes close to the notion of a 'learning module' (Bereiter, 1990), which emphasizes related, rather than separate capabilities, which evolve within more complex game situations.

7. Situated performance. The notion of situated performance in the revised model considers the cultural location of sport and its role in young peoples' lives as legitimate peripheral participants in a community of practice (Lave & Wenger, 1991). This notion provides a way of understanding the relationship between the game form and the players prior to introducing alternative conceptions of a game.

Holt et al. (2002) argued that most of the discussion around TGfU has been focused on cognitive and psychomotor learning outcomes (Allison & Thorpe, 1997; Rink, 1996; Turner & Martinek, 1992, 1999), while the affective domain has been neglected. They also claimed that the tension between tactical vs technique approaches in terms of skilful performance was probably not the most important contentious issue with TGfU, suggesting the prevalence of the affective domain. In this sense, Holt and colleagues (2002) warned that most of the research concerning TGfU had been about its theoretical and pedagogical aspects, and its professional context, neglecting the impact that the approach might have on the learner(s). Consequently, in their revised model, besides emphasizing the affective domain, they also linked the different steps of the original TGfU model with the pedagogical principles developed by Thorpe, Bunker and Almond (1986), thereby facilitating the practical application of the principles (figure 6).

Curriculum Model　　　　**Pedagogical Principles**

Learner – [cognitive, behavioral and affective domains]

Game ———————————— Sampling
　　　　　　　　　　　　　　　Modification–representation

Game appreciation ———————— Modification–exaggeration

Tactical awareness ———————— Modification–representation
　　　　　　　　　　　　　　　Modification–exaggeration
　　　　　　　　　　　　　　　Principles of play

　　　　　　　　　　　　　　　What to do / How to do it?
Decision-Making ——————— Modification–representation
　　　　　　　　　　　　　　　Modification–exaggeration

Skill Execution ——————— Modification–representation

　　　　　　　　　　　　　　　　　　　　Increasing
Performance ◄————————————— Tactical
　　　　　　Feedback　　　　　　Complexity
　　　　　　from
　　　　　　Instructor

Figure 6 – The Teaching Games for Understanding revised model (Holt et al., 2002)

Despite their intricacies, the revised models proposed by Kirk and MacPhail (2002) and Holt and colleagues (2002) are merely theoretical, which means that although presenting valid points supported by literature, their possible fragilities were not exposed to the practical context.

2.2.7. Research

Many scholars within the 1990s, tried to explore if the TGfU actually worked (e.g., French et al., 1996; Rink, French & Tjeersdma, 1996; Turner & Martinek, 1999). Indeed, a special edition of the Journal of Physical Education, Recreation & Dance was dedicated to the question (JOPERD, 1996, vol. 67, issue 4). Many of the studies published at that time sought to understand the potential differences between tactical and technical approaches and to decide which approach was more effective. For example, Turner (1996), carried out a comparative study with sixth and seventh-grade students where two PE specialists delivered, what the author called, the "treatment" (Turner, 1996, p.46). These specialists were given lesson plans to deliver, positioning both approaches as teacher-led, contradicting the TGfU principles that

place the learner at the centre of the process. In fact, the teacher was seen as someone delivering the 'treatment', instead of stimulating learning. In a very similar study developed by the same author, it was mentioned that the teachers were instructed what to do in order to "avoid any potential 'teacher' effect" (Turner & Martinek, 1992, p.19). Both studies utilised a quantitative instrument to measure general field hockey skills; the 'Henry-Friedel field hockey test'. While in the 1992 study no significant differences were found in terms of games playing ability, declarative and procedural knowledge, and skill development; the 1996 study showed some statistical differences between the two approaches, demonstrating significant improvement in the categories 'knowledge' and 'game playing ability' when applying a TGfU approach. However, no differences were found in the categories 'skill development' and 'game execution'.

Alison and Thorpe (1997), in another quantitative study, demonstrated statistical differences in some of the measured categories, namely higher levels of 'enjoyment' and 'effort' when using tactical games approaches. Another example of a comparative study was conducted by Mitchell and colleagues (1995) with mid-school students. Their study was conducted over fifteen lessons and demonstrated that that tactical approach improved the students' off-the-ball movement. However, no statistical differences were found in terms of the impact on the students' motivation. More recently, Gray, Sproule, and Morgan (2009) recognised a difference in the motivational climate promoted by game-based lessons when compared to a skill-focused approach. Specifically, the study demonstrated that game-based lessons tended to promote a mastery climate, with the authors suggesting that it could potentially improve the students' motivation. Also using a mixed-method approach, Gray and Sproule (2011) compared a skilled-focused approach with a GBA over 4-5 weeks, concluding the latter had a tendency to improve the players' decision-making and performance. Both studies by Gray and colleagues were conducted within secondary school basketball lessons.

In fact, Butler and colleagues (2003) suggested that some of the aforementioned studies (and others at that time) attempted to confirm the effectiveness of tactical games approaches by examining three common aspects: the use of questionnaire/instrument design, attitude measurement, and the collection

of performance data. However, the results were not confirmatory enough to conclude that tactical approaches were a better approach than the technique based one (Stolz & Pill, 2014). This lack of solid conclusions might be explained by some ontological and methodological concerns. For instance, Hopper (2002) suggested that comparing the TGfU approach with the technique-based approach was oversimplifying the problem, as it does not consider the complexity of the teaching and learning process. As Hopper (2002) highlighted, "too often we seek simple answers to complex questions, we create polarities to show one perspective is better" (p.44).

The methodology employed in many of the previously cited studies followed Gréhaigne and colleagues (1997) conceptualization of data collection. Firstly, the authors suggested standardised tests to measure the number of successful attempts (quantitative) and the use of rating instruments to measure the quality of the performance (qualitative). Secondly, the authors considered statistics derived from competition (quantitative), and the use of rating instruments during the game (qualitative). Consequently, most of the studies developed during this time tended to analyse players' performance using quantitative instruments, regardless of its set up. Indeed, one of the common features here when comparing approaches was to develop (or use already developed) measurement instruments (Gréhaigne et al., 1997). For example, the instrument utilised by Turner and Martinek (1992) mentioned above was developed to measure field hockey skills at the college and high school level, focussing on dribbling, dodging and shooting. Another instrument, the Team Sport Assessment Procedure (TSAP), was developed by Gréhaigne and colleagues (1997) to assess players' specific behaviours during offensive game-play. This way, the teacher/coach would have information about individual performance (Blomqvist et al., 2005). Despite the value that this instrument might have for the teacher/coach, it was an instrument, in fact, developed for peer assessment purposes (Richard et al., 1999). Also, research using this instrument has mainly focused on invasion and net/wall games (Arias & Castéjon, 2012), being adapted to measure game performance in volleyball (Griffin & Richard, 2003; Richard, Godbout & Griffin, 2002).

The instrument that has become most associated with TGfU is the Game Performance Assessment Instrument (GPAI), which considers sets of components and indexes to quantify the assessment. The GPAI also takes into consideration the player that possesses the ball and the players who do not, in both attacking and defensive situations (Arias & Castéjon, 2012; Harvey et al., 2010a). The GPAI then is a multidimensional instrument that was developed and validated by Linda Griffin, Stephen Mitchell, and Judy Oslin, and first published in the text "Teaching sport, concepts and skills: a tactical games approach" (1997) and in the paper "The Game Performance Assessment Instrument (GPAI): development and preliminary validation" (1998). The aim of the instrument is to assess "game performance behaviours that demonstrate tactical understanding, as well as [a] player's ability to solve tactical problems by selecting and applying appropriate skills" (Oslin, Mitchell & Griffin, 1998, p.231). It was claimed that the development of this kind of game-related instrument allowed analysis of the technical and tactical dimensions of the game contextualized to the game situation. This permitted practitioners to have an assessment tool aligned with the teaching approach implemented (Blomqvist et al., 2005; Graça & Mesquita, 2007). Indeed, the GPAI is intrinsically linked to the TGfU model, or to be more specific, to the TGM, one of the TGfU variations mentioned above (Harvey et al., 2010a). Furthermore, the GPAI is an assessment instrument designed to adapt to any particular sport, whilst allowing researchers and practitioners to evaluate both on- and off-the-ball skills (Mitchell et al., 2013).

However, in a thorough review of the instrument, Memmert and Harvey (2008) found some limitations that should not be ignored. They subsequently presented numerous strategies to deal with such weaknesses; such as the calculation of overall game performance indices, the use of game involvement versus game performance index to analyse game performance, the reliability of the observer, and nonlinearity, in which game performance is valued differently depending on the situation. However, there is an issue that, according to Memmert and Harvey (2008), remains unsolved; that is, the usefulness of action. This problem is related to the difficulty to distinguish between an appropriate and inappropriate action, particularly when coding off-the-ball movements. Additionally, despite being claimed as valid and reliable methods for assessing game performance (Oslin et al., 1998; Richard,

Godbout & Gréhaigne, 2000), it has been suggested that the instruments described above still do not truly assess the players' decision-making and performance in game-play (Blomqvist et al., 2005). The general contention made is that the rigid nature of such quantitative instruments disregards the naturalistic, dynamic, and variable nature of decision-making in game-play (Johnson, 2006).

In parallel with this empirical quantitative analysis, some authors explored the TGfU approach through theoretical research (Berkowitz, 1996; Butler, 1997; Gréghaine & Godbout, 1995; Werner & Almond, 1990; Werner, Thorpe & Bunker, 1996). Consequently, if the empirical studies (cited above) were inconclusive as to whether TGfU was actually a more effective approach, the overall theoretical literature suggested that TGfU was indeed an advanced alternative to the traditional technique-based approach (Stolz & Pill, 2014). However, these theoretical publications commonly presented a descriptive framework of the approach rather than a critique of it. Still, it was argued (e.g., Sariscsany, 1996, p.38) that new strategies and practices should be developed on the basis of theory and principle, emphasizing a "move from theoretical to practical". This was exactly the case with TGfU, which was based on Thorpe, Bunker and Almond's (1986) principles and ideas, unsupported by empirical research and practical application. Consequently, according to some (Harvey et al., 2010a; Metzler, 2005), more important than discussing which model is better, was to discuss the best way to integrate technical skills into game-play in order to develop players' understanding. Indeed, many of the papers that emerged in the 90s were examples of teaching units, in which practitioners wrote about their personal experiences in designing sessions framed around the TGFU approach (Curtner-Smith, 1996; Mitchell, 1996; Rovegno & Baudhaeur, 1998; Sarscsany, 1996).

The context of these publications, and the literature in general, was mainly centred in the school-setting (or at least beginner's level), where most of the PE programmes were focused on the teaching of games (Mandigo et al., 2000, in Holt et al., 2002). Nevertheless, Gréhaigne and colleagues (2005) claimed that even in the PE context, there is little research in the area of student decision-making while playing games, at least from a constructivist perspective. However, according to Roberts (2011), in the last 15 years, a number of studies have explored the difficulties

and challenges of learning and implementing new curricula such as TGfU and Sport Education (e.g., Curtner-Smith & Sofo 2004; McCaughtry et al. 2004; McMahon & MacPhail 2007). Also, despite the fact that research in sports coaching has been slower to embrace the TGfU approach, and it is still an underdeveloped research area, this has now started to change (Light, 2004).

Regardless of the similarities between teaching and coaching, "the differences are often perceived as sufficient to exclude anything related to coaching in literature reviews and analysis of published research [to do with] sport pedagogy" (Gilbert & Trudel, 2004, p.388). According to Gilbert and Rangeon (2011), however, the "increased globalization of sport, and, in turn, sports coaching, has resulted in an associated increase in research on [and in] sport coaching" (p.218). Indeed, the number of coaching-related periodicals (e.g., International Journal of Sports Science & Coaching, International Journal of Coaching Science, Journal of Coaching Education and Sports Coaching Review) and books (e.g., Cassidy, Jones & Potrac, 2009; Lyle & Cushion, 2010) has been steadily increasing. For instance, Harvey and colleagues (2010a) explored how two interscholastic soccer coaches incorporated TGfU into their coaching practice with players between 14 to 18 years of age. The study was conducted during a 12-week programme, and the data collection included: participant observation of the coaches and the players using Metzler's benchmarks; semi-structured interviews with coaches and players; and end-of-unit interviews with the two coaches. The authors concluded that both coaches altered their coaching practice to a certain extent, but neither of them totally adopted TGfU, while the approach did not have enough impact to influence their coaching identity. As a result, larger scale and/or longitudinal coaching interventions were called for.

Subsequently, Roberts (2011) studied five coaches for a year, using Windschitl's four-dimensional model of constructivist dilemmas (conceptual dilemmas, pedagogical dilemmas, cultural dilemmas, and political dilemmas). The author wanted to explore the challenges and difficulties experienced by the coaches while implementing TGfU into an annual training programme (UKCC). Most of the findings concerned TGfU as a module, and how it was provided by the governing body, concluding that it lacked depth in terms of the players' perspectives. In this sense, the coaches identified the main pedagogical dilemmas to be (1) the lack of guidance

in the use of questioning strategy, (2) the insufficient pedagogic content knowledge possessed, and (3) the difficulties in gaining access to appropriate support material. Pedagogical difficulties when employing a tactical GS approach were also felt by the rugby coaches in studies by Evans (2006) and Light (2004). Generally, the coaches felt that the approach was attractive in the sense that it promoted a dynamic human interaction between the stakeholders, but also very challenging. Some of the challenges experienced related to the need to focus on some technical aspects more than they wished in a tactical approach, and questioning the players effectively. As in Roberts' (2011) study, these two studies explored the coaches' perspectives regarding the implementation of the approach, missing the players' views on its impact.

Broek and colleagues (2011) investigated the decision-making processes within three groups (i.e., teacher-centred, student-centred with tactical questioning, and student-centred without tactical questioning) of volleyball university students. This was a quantitative study, in which the authors developed a volleyball specific Tactical Awareness Test (TAT), leading to a tactical awareness score. The participants were exposed to only five sessions, but still, the results revealed that tactical awareness and decision-making improved, particularly in the student-centred with tactical questioning group, highlighting the benefits of involving the players in the process. However, an important limitation pointed out by the authors was that the improvement in the decision-making recorded by the TAT did not implicate a transfer to the overall game playing performance. Indeed, in addition to the limitations inherent within quantitative studies, and despite combining this test with an intervention period, this study failed to take adequate account of the practical realities of context.

In a further study, Harrison and colleagues (2004) evaluated the effect of skill teaching and tactical approaches on skill development, game play, knowledge and self-efficacy in 182 university volleyball students. Three instructors taught one tactical and one skill related class two days a week for 16 weeks to the students. The skill teaching lesson included drills for specific volleyball skills (e.g., pass, set, serve, spike, and block), while the tactical lessons were based on TGM (Mitchell et al., 2013). The categories mentioned of skill development, game play, knowledge and

self-efficacy were measured using a quantitative test. The results, however, were inconclusive, thus failing to demonstrate any differences between the approaches, which might suggest a limitation of the quantitative methods employed (the test) in terms of trying to establish causal association between variables by testing hypothesis. In order to do this, of course, the null hypothesis needs to be rejected through recourse to statistical differences (Kerlinger, 1986). By utilising methods aimed to measure final and isolated behaviours and actions, these studies cannot consider the contextual and cognitive aspects that influence the process; a situation not aligned with a constructivist approach like TGfU (Holt et al., 2002). Indeed, despite an attempt to integrate constructivist principles, most of the studies within this body of work are still quantitative in nature and, hence, tied together by a behaviourist strand (Roberts, 2011).

More recently, Mandigo, Lodewyk, and Tredway (2019) suggested that TGfU can have a positive impact in the development of certain components of children's development of physical literacy, entailing fitness, movement, living skills, and active participation. Nevertheless, this quantitative study that explored 22 participants involved in an after-school multisport TGFU informed programme, also recognised that the evidence is still limited to fully support such assumption. Consequently, Mandigo and colleagues (2019) suggested that such study needs to be conducted on a larger scale and with more thorough control of the methodological procedures.

In conclusion, some of the studies into TGfU have suggested that tactical approaches are a useful means to improve the cognitive dimensions of players without detracting from their skill development (McPherson, 1999; Turner & Martinek, 1999). Additionally, they have the potential to increase participants' motivation (Gray et al., 2009) and enjoyment (Thomas, Morgan & Mesquita, 2013). However, many other studies present inconclusive findings (e.g., Hubball, 2007). Consequently, it has not been demonstrated unequivocally that the TGfU approach improves players' learning. Thus "leaving TGfU with only an intuitive and tacit basis" (Harvey et al., 2010a, p.31). As Holt and colleagues (2002) stated, researchers still struggle to provide clear evidence of which approach is better, suggesting that the evidence provided by TGfU proponents (e.g., Booth, 1983; Burrows, 1986; Werner & Almond, 1990) about the benefits of tactics over techniques is mainly anecdotal.

Similarly, Hubball (2007) concluded that neither holistic approaches (like the TGfU), or molecular approaches (like the technique-based approach), have demonstrated superiority in the improvement of players' decision-making and consequent performance (Turner & Martinek, 1992; French et al., 1996; Hubball, 2007). Indeed, Stolz and Pill (2014) mentioned that the nature of 'understanding' remains theoretically blurred within TGfU and its subsequent iterations. Chow and colleagues (2006) suggested that a reason behind this lack of progress is the failure to produce adequate research questions when investigating the efficacy of the approach. According to these authors, the research question should be focused on establishing a strong theoretical foundation for TGfU, instead of searching for performance indicators, i.e., variables that allow a degree of control over performance.

Indeed, it has been suggested that if too much time and energy is invested trying to prove one type of teaching is better than another, the potential learning that one might experience from either is compromised (Rink, 2001). As Rink (2001) highlighted, due to their very distinctive levels of practice and conceptualisation, it does not make sense to compare molecular and more holistic approaches. Also, a closer look allows us to identify additional issues in the studies presented, from the nature of the design, measurement, or sample size (Holt et al., 2002). Furthermore, Cushion (2013) highlighted that in the context of GBAs, "little research has explored the articulations between coaches' experiences, conceptual understanding, pedagogical practices, and the wider cultural and political realities of coaching, and their impact on the learner" (p.62). Additionally, in a review of current studies within GBAs, Harvey and Jarrett (2013) highlighted that, despite the expansion of research in Europe and Southeast Asia, numerous challenges still remain within the field. Principal among these include; to improve GBAs' verification procedures; develop the assessment of tactical awareness; conduct longitudinal research studies; explore GBAs within teacher and coach education; within special populations; and within the coaching context. Furthermore, in a more current review of GBAs in the coaching context, Kinnerk and colleagues (2018) noticed positive advances within the field, highlighting, for instance, the positive impact that appropriate questioning can have in improving the players' tactical awareness and decision-making. However, the authors also pointed out that, despite more GBA research being developed, there is

still very limited exploration of such approaches in competitive coaching settings. Therefore, Kinnerk and colleagues (2018) recommended further research within elite coaching setting to; explore the implementation of different GBAs in different sports; assure validation procedures within the research, and use a variety of methods; promote further longitudinal studies; explore coaches' pedagogical practices outside formal coaching settings such as pre-game meetings; and investigate the impact of GBAs on physical indices and fitness.

Indeed, Griffin and colleagues (2005) suggested that, in order to authentically legitimize TGfU, more data-based development work is needed through applying field-based research in naturalistic settings. Furthermore, the fundamental question asked earlier by Butler and colleagues (2003), 'does TGfU work?', remains unsatisfactorily answered.

CHAPTER III

METHODS

III. Methods

This chapter starts by addressing paradigms and offering an overview of my ontological and epistemological positions. Such notions define the foundations of my research approach, Action Research (AR), which will also be scrutinized. This is followed by a description of the participants, the context of the study, and the procedures employed within it. This chapter then presents the data collection and analysis methods, including discussion of issues related to trustworthiness and representation. Finally, the ethical considerations of the study are deliberated and considered.

3.1. Paradigms, ontology, and epistemology

According to Denzin and Lincoln (2018), a paradigm guides a researcher's beliefs regarding the world that surrounds him/her, his/her relationship with it, and subsequently how such a world should be studied. In essence, paradigm notions equip researchers with lenses to make sense of the world being investigated, guiding them about what is important, legitimate, and reasonable (Sparkes, 2012). Paradigms thus allow an insight into the researcher's ontological, epistemological, and methodological assumptions (Denzin & Lincoln, 2005).

Ontology raises questions about the nature of reality and how we view ourselves in it (Denzin & Lincoln, 1994; Sparkes, 2012). The reality to be investigated can be external to the researcher, "imposing itself on individual consciousness from without"; or constructed by the researcher's mind (Sparkes, 2012, p.13). Epistemology refers to the relationship between the inquirer and the known, and it is intimately linked with ontology (Reason & Bradbury, 2008). In fact, it has been previously suggested that the distinction between ontology and epistemology is somewhat obsolete since what can be known and the subject of the known are intertwined (Guba, 1990; Lee, 2012). Nonetheless, epistemology specifically raises questions such as how can something be known or how do we know we know, establishing if knowledge is acquired or experienced (Trede & Higgs, 2009).

However, the literature to do with such topics is both varied and vast, with not even the term 'paradigm' being widely agreed upon. Indeed, Sparkes (2012) outlined

the lack of consensus here, referring to what has been a paradigm revolution or paradigm war (Gage, 1989; Lincoln, 2010). For example, some authors have termed a paradigm as a 'worldview' (e.g., Heron & Reason, 1997), others a 'philosophy' (Holt & Tamminen, 2010). Burrel and Morgan (1979) meanwhile proposed four different paradigms: radical humanist, radical structuralist, interpretive and functionalist; while Sparkes (1992) and McNiff (2000), suggested three: empirical or positivist, interpretative, and critical. To muddy the waters further, Lincoln, Lynham and Guba (2018) claimed such conceptualisations not as static but as fluid and evolving. While Sparkes (2012) recognised that such a multitude of views may be beneficial for developing knowledge in a particular field of study, he also warned of the possible conceptual confusion that such diversity can lead to. Consequently, regardless of the view adopted in one's work, Reason and Bradbury (2008) claimed that no paradigm is above the other, suggesting that the choice relates to understanding which one better represents the researcher and the research process (to be) undertaken. Despite such debate, the most widely accepted conceptualisation within the academic community is perhaps Guba and Lincoln's (1994), who described positivism, postpositivism, critical theoretical and constructivism as the main research paradigm (note: In the later versions of Denzin and Lincoln's [2005, 2011, 2018] text, Guba and Lincoln's chapter with Lynham included the participatory paradigm based on Heron and Reason's [1997] conceptualisation).

3.2. My paradigm: Participatory

Since paradigms consist of one's beliefs, it becomes relevant to outline my academic and professional journey to better situate and define my paradigmatic position (Sparkes, 2012). Whilst exploring my view of coaching and pedagogical practice, I realised the importance that I place on the new knowledge's (created by research) ability to influence the field of study and the community. This recognition led to some disenchantment with my Masters (MSc) degree; its apparent lack of meaning or applicability to the coaching context. Such accompanying thesis consisted of a quantitative study to improve understanding of the volleyball game by determining indicators with significant impact on elite volleyball performance. This

was done from a positivist viewpoint, which positioned me as an external investigator using notational analysis (for further details, see O'Donoghue [2015]). Whilst the findings added some descriptive indicators, it fell short of creating pragmatic knowledge, with a gap between the knowledge created and the practical coaching context. Subsequently, I felt the study lacked relevance to the field of study in general, and my practice specifically. This was particularly disappointing considering my ambition to improve my coaching practice by making it further research informed. Such practice had been influenced by previous coaches during my twenty year playing career, lessons learned from fellow coaches during coaching courses and conferences, and very importantly, the values of hard-work and commitment transmitted by my parents. This made my practice very much about me, what I enjoyed, and what I felt the players enjoyed; which resulted in coach-led practices using unsystematic game-based activities. This meant that game-based practice played an important part within my coaching sessions, but simply because I enjoyed it and it 'felt right', rather than based on any methodological foundation and not necessarily aligned with the aims of the session. Such background, combined with a degree of critical analysis derived from my involvement with research, sparked curiosity about the value of game-based practice and the exploration of who is the focus of the process (coach or players), which drew my attention to the TGfU approach.

Despite feeling that my practice was developing, empowered by the aforementioned influences, it was mainly based on tacit craft knowledge. According to Day (2011, p.183), this type of knowledge is "the foundation for intuitive coaching behaviour, which included all those skills transmitted through oral culture, trial-and-error, or practice within coaching communities". Without neglecting the importance that such knowledge can play in the coach's practice, it falls short without the complement of explicit scientific knowledge (Day, 2011). Furthermore, when trying to inform my practice with empirical evidence (as in my MSc), the data felt detached from the reality that it intended to impact. As a consequence, I was determined to allow room in the present study for the exploration of coaching 'reality', rejecting the idea of developing prescriptive solutions for practitioners. Therefore, in conjunction with my own coaching lived experience, I developed the desire to include the

difficulties encountered in the problematic social coaching in this current investigation. Importantly, to better understand such coaching reality, I felt the need to explore it but also to experience it. This aligns with Carr and Kemmis' (1986) claims that the "active participation of practitioners in research is an indispensable necessity" (p.126).

This line of thought aligns with Heron and Reason's (1997) participatory paradigm, which entails participative realities and the promotion of practical knowledge. The acceptance that participation is intrinsic to the nature of being (Wicks, Reason & Bradbury, 2008), contrasts with the positivist paradigm in which reality is perceived as independent of the human thought (Reason, 2006). Instead, the participatory paradigm is much more closely aligned with Guba and Lincoln's (2005) constructivist and critical theory paradigms, in that they share a language which encourages mutual learning, critical development, and social change. However, a relevant distinction should be made here, in that the participatory paradigm rejects constructivists' relativist view that reality is a finite subjective experience and nothing exists outside of our thoughts (Guba & Lincoln, 2005). Indeed, despite acknowledging the value of constructivist and critical paradigms, the practical nature of the participatory paradigm is better aligned with my values and beliefs, as well as the aims of my study. Moreover, following this perspective, and considering the disappointment regarding how my MSc work unfolded, the need to proceed with a research study that actually reflected my values and beliefs was imperative; it had to have personal relevance for me. Consequently, the current thesis aimed to implement practice-based research that affected me and the context around me, without ignoring relevant theoretical underpinnings. This implies a potential tension between theoretical studies and practice, often attributed (e.g., McNiff & Whitehead, 2002) to the duality of the academic/practitioner role of the researcher, which again reinforces the need to reflect on the researcher's ontological and epistemological positions.

3.2.1. A participative reality ontology

As described above, it became clear to me that the world being studied is not linear and one-dimensional. Instead, it is co-created by the participation inherent to the sports coaching context, therefore, closely related to the participative ontology reflective of the participatory paradigm (Heron & Reason, 1997). This assumes that an individual's mind actively interacts with the existing world, subsequently co-creating what is understood as reality (Heron & Reason, 1997). In this regard, I am not able to understand reality without my mind, whilst simultaneously, not being able to create understanding without an external stimulus. This is what Heron and Reason (1997) named 'participative reality subjective-objective'. It is objective in the sense that it claims a reality exists regardless of how I see it, and subjective since I process such reality through my mind. From such interpretation and interaction between the self and the existent reality, a new world is created. Heron and Reason (1997) further their case by adding that:

> From all this it follows that what can be known about the given cosmos is that it is always known as a subjectively articulated world, whose objectivity is relative to how it is shaped by the knower. But this is not all: its objectivity is also relative to how it is intersubjectively shaped. For there is the important if obvious point that knowers can only be knowers when known by other knowers: knowing presupposes mutual participative awareness. (p.289)

This suggests that Heron and Reason's (1997) definition of objectivity is aligned with intersubjectivity, in which "any subjective-objective reality articulated by any one person is done so within an intersubjective field, a context of both linguistic-cultural and experiential shared meanings" (p.289). Furthermore, this demonstrates the need for participation and dialogue, in which shared values and beliefs are (re-)created to interpret the world. As expressed by Heron and Reason (1997), the mind and reality engage in a co-creative dance, in which the 'arrival point' becomes the product of the existent reality and the 'way the mind engages with it'. In the present study, the knowledge produced is co-created between the (objective) context and my (subjective) participation and interaction with the context.

3.2.2. A critical subjective epistemology

The epistemological assumptions of the participatory paradigm, as described by Heron and Reason (1997), relate principally to a critical subjectivity. Here, they argued for an extensive epistemology, which considers four forms of knowing; experiential, presentational, propositional, and practical. These are the forms in which the critical subjectivity of the knower (researcher) are represented. *Experiential* implies knowing by establishing a direct and participative encounter with the reality being studied. This requires active participation and engagement with that being investigated, in which knowledge is created by experiencing rather than acquiring. *Propositional* knowing is associated with making sense of conceptual terms within what was experienced and presented, while *presentational* knowing emerges from the experiential in the sense that by experiencing reality, one will become more attuned to it and thus better able to articulate and understand it. Finally, *practical* knowing relates to the ability to act upon, therefore bring together, the three aforementioned forms of knowing (Heron & Reason, 1997). Despite their similarities, these principles introduce an important difference between Heron and Reason's (1997) participatory paradigm and Guba and Lincoln's (2005) constructivism. That is that:

> The constructivism of Guba and Lincoln (1989) holds that standards for determining what is relatively true reside in community consensus. What the participatory paradigm adds to this is the view that any conceptual context is itself set within a wider and deeper experiential context. Propositional truth is not only relative to the linguistic and conceptual context of the community in which it is uttered. It is also relative to the substrate of shared experiential primary meaning which is the contextual ground for the use of language and conceptual exchange within the community. (Heron & Reason, 1997, p.291)

In this sense, the critical subjectivity is extended to critical intersubjectivity (Heron & Reason, 1997). Such epistemological considerations, introduce action into

the world of knowing. Whilst it has been argued that thought can exist without action, it seems to be consensually agreed upon that action cannot ever be totally dissociated from thought (Macmurray, 1957, in Heron & Reason, 1997). Such recognition aligns well with my study's ontology as described above; that is, the knowledge created around the context studied is dependent upon my (inter)action with that context. As both a coach and researcher then, I will be a fully participative and intersubjectivist element of and within the studied reality.

3.2.3. A collaborative action inquiry methodology

The methodology utilised in any study depends on the foregrounded ontology and epistemology, and focuses on how knowledge is gathered (Reason & Bradbury, 2008). Following the participatory paradigm and its extended epistemology, Heron and Reason (1997) characterised the methodology associated with the approach as collaborative action inquiry. This involves a democratic dialogue between all involved in the reality being studied, in which the aims and questions to be explored are co-created (highlighting propositional knowing). In the present study, such collaboration was initially constructed between myself and my supervisors who acted as critical friends (as they did throughout the process), while the study's participants were also involved in shaping the learning process. The precise methodology chosen (expanded upon in the next sections) was done so for its applicability to my practical coaching context; a means which allowed me to act upon (practical knowing), and explore personal knowing and development through participation and engagement (experiential knowing). Such collaborative inquiry is closely aligned with such designs as Action Research (AR) (Heron & Reason, 1997). Indeed, AR has been often associated with critical theory and constructivist paradigms (e.g, McNiff, 2000). However, according to Heron and Reason (1997) and McNiff (2002), these do not consider the researcher's practical and experiential knowledge which is implicit to AR, which justifies aligning this methodological approach with the participatory paradigm.

3.3. Action Research

3.3.1. Definition, Origins, Purpose and Principles

AR is a means that allows the practitioner to engage in research by investigating his or her own practice. It thus provides a framework of and for reflection about the referred practice, working towards improving it (Guba & Lincoln, 2005; McNiff & Whitehead, 2009). Depending on the type of AR employed (see section 3.3.2.), it can also be an opportunity to enhance collaboration between practitioners and researchers, with the dual aim of improving practice whilst contributing new knowledge to the field of study (Carr & Kemmis, 1986). Regardless of the type of AR implemented, elements of reflection and action must be present (Collins, 2009). In this sense, reflection is associated with practitioners thinking about their own practice and the action being implemented (Gilbourne, 1999; McNiff & Whitehead, 2009). It is thus a key characteristic of AR in the sense that it allows practitioners to "self-reflect, self-evaluate, and self-manage the research autonomously and responsibly" (Collins, 2009, p.215). In fact, Carr and Kemmis (1986) considered AR as a form of research which promotes participants' self-reflection in "social situations (…) to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out" (p.162). The same authors further claimed that AR is both personal and social, as it aims to improve the researcher's own learning and, simultaneously, the wider situation.

The purpose or the action towards improving social reality is what largely distinguishes AR from other forms of investigation (Watt & Watt, 1993). While more traditional forms of inquiry aim to find an explanation(s), to discover the reasons why certain situation occurred, and producing theories to be applied in other similar situations; the focus of AR lies in improving practice and knowledge about a given situation for a given purpose (McNiff & Whitehead, 2009). Furthermore, taking action relates to precisely what the action researcher does within the reality that he or she is trying to improve (Conde-Frazier, 2006). For McNiff and Whitehead (2009), the action becomes research when one starts investigating what one is doing and reflecting on it, so that an explanation of how and why the practice has been improved can be arrived at. Hence, within AR the researcher is also often a

practitioner, taking "action grounded in understandings gained from the study, rather than simply documenting the situation" (Watt & Watt, 1993, p.38). The results are, therefore, immediately applicable, allowing this application to become "the focus for the next cycle of the research" (Watt & Watt, 1993, p.38).

AR is generally credited as emanating from the work of Kurt Lewin (1946). Lewin's studies led him to formulate a theory based on the proposition that human behaviour was determined not only by the physical constraints inherent in the surrounding context, but also by psychological ones. Lewin suggested that people change (which means taking action) when they experience the need to change (which they realize through reflection). Therefore, new behaviours and new actions take place according to the new values adopted. Lewin's work was taken to North American schools by Stephen Corey (1953) who believed that, if teachers' decisions in the classroom were based on research, they would make better ones. According to Zeichner (2009), this was the first of five movements of AR in English-speaking countries.

The second movement emerged in the UK during the 1960s aimed at using the "ideas of teacher-as-researcher, teaching as a reflexive practice, and teaching as a form of inquiry" to restructure and reconceptualise the school-based curriculum (Zeichner, 2009, p.27). In this context, a number of major curriculum reforms projects were initiated by John Elliot, Lawrence Stenhouse, and others. This work led to the creation of an international network, the Collaborative Action Research Network (CARN), with the purpose to encourage and support conferences, discussions, and publications in the area. The most important journal associated with this thematic, Educational AR, was created at this time.

The third movement took place in Australia and is mostly attributed to the work of Stephen Kemmis (Grundy, 1997; Zeichner, 2009). The Australian movement developed its own epistemological principles with the introduction of a new concept of 'emancipatory AR' (see section 3.3.2.) developed by Carr and Kemmis (1986). The work was grounded in critical theory, defining other AR perspectives, as interpretive and positivistic.

The fourth movement occurred in North America and was driven by the acknowledgement of qualitative research as an established methodology within the

educational community, the integration of AR as part of higher education teacher training programmes, and the development of teacher research studies (e.g., Atwell, 1987). The catalyst for this movement was the limited lasting professional effect of other programmes, and the difficulty of getting such work published despite its growing integration into emerging teacher training (Tinning, 1992).

Such perspective influenced the last AR movement referred by Zeichner (2009), which was characterised by presenting AR as a method of "self-study within colleges and universities, especially among teacher educators" (p.30), its use of a wide range of qualitative methodologies, and its dissemination through academic publications. This movement reinforced AR as a recognised methodology in which a variety of methods could be employed. Consequently, according to Copobianco and Feldman (2009), AR came to be viewed as a flexible approach, not merely in the sense of employing a wide range of research methods, but reliant on the ability to adapt to personal, professional, and political aspects of practitioners' practice.

Throughout its evolution, agreement exists that AR concerns itself with practical interventions and involves a spiral of reflective cycles that include planning, acting, observing, and reflecting (figure 7). According to Elliot (1991) and Gilbourne (1999, 2000), a reconnaissance phase should be considered in which the researcher can become familiarized and establish an understanding of the research context with a view to identifying subsequent action. Once the 'change strategy' has been identified, a plan of how to implement the strategy should be drawn up. When the action is employed, the process should be monitored culminating in a reflection of the effects, so that adjustments to the new cycle can be made. The cyclical nature provides feedback from each stage of the intervention, to enhance both the researcher's, the practitioner's, and the participant's understanding and practice (McKernan, 1996).
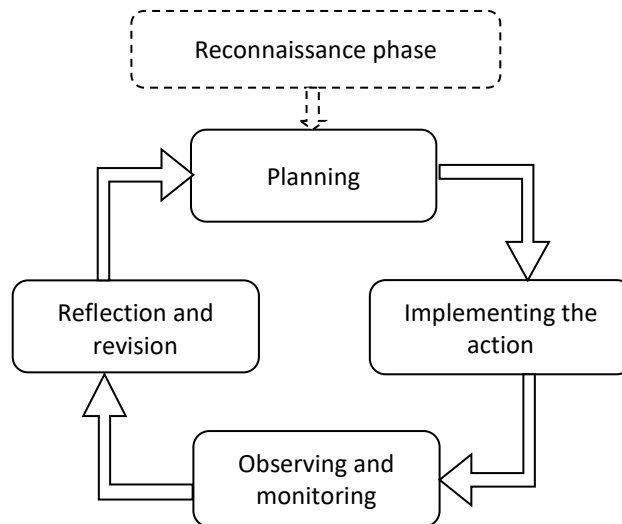
Figure 7 – Action Research Cycle (adapted from Carr and Kemmis [1986, p.186])

3.3.2. Technical, Practical and Emancipatory AR

AR can generally be conceived of in three different ways: technically, practically, and emancipatory. The chosen emphasis is dictated by the aims of the study, the population involved, the social context, and even the researcher's own beliefs and values (Carr & Kemmis, 1986). Having said that, it should be noted that, according to Hanrahan (1998), technical, practical, and emancipatory forms of AR cannot be easily separated in the practical context.

The main purpose of technical AR, also known as empirical AR, relates to determining or improving the efficiency and the efficacy of the social practice, making it largely directed at the outcome (which is known) rather than the process (Carr & Kemmis, 1986; Kemmis, 2009). The aim is to control or amend behaviour usually through implementing a theory in practice (McNiff & Whitehead, 2002). Such behaviour is usually concerned with the practitioner, who is usually the focus of attention in technical AR, whilst the participants are seen as the 'third person' (Kemmis, 2009). Indeed, the researcher thus assumes the lead, establishing "what is to be done, and what is to be changed" (Kemmis, 2009, p.469; McNiff & Whitehead, 2002).Consequently, it has been suggested that this approach provides "less opportunity for the development of teachers' *capacities* for reflection *in* or *on* [personal] practice" (Leitch & Day, 2000, p.183). McNiff and Whitehead (2002) went

further with a contentious suggestion that participants are even "discouraged from acting as agents and are required rather to become skilled technicians who apply received knowledge" (p.31). Consequently, one of the main criticisms aimed at technical AR, as Carr and Kemmis (1986) highlighted, is that it "runs the risk of being inauthentic" (p.202). This means that instead of developing the practitioners' own practices on the basis of collaborative and self-reflective control, it may lead to a disregard of the participants and the context in which action takes place (McNiff & Whitehead, 2002).

Practical AR, which is also known as interpretive AR, comprises the identification of potential problems by the practitioner(s), followed by the planning of a strategic action for change, monitoring the effects of that change, and reflecting on the achievements caused by those changes (Kemmis, 2009). The focus then is on both the process and the end product of inquiry (Leitch & Day, 2000). In this type of AR, a close collaboration between all involved is not uncommon, in which the researcher is often the practitioner. A focus therefore lies on 'how to' and 'how do I' research questions (Elliott, 1991), encouraging participants to monitor their own practice in order to improve personal practical judgements. In fact, according to Carr and Kemmis (1986), practical AR is distinguished from technical AR "because it treats the criteria by which practices are to be judged as problematic and open to development through self-reflection, rather than treating them as given" (p.203). In short, this approach can be called practical because its purpose is to understand the practice and solve immediate practical problems. However, despite the desired cooperative relationship between the researcher/practitioner and the participants, practical AR does not work as a community of reflection where the focus is often on the practitioner's self-reflection, thus limiting the social impact of the approach (Leitch & Day, 2000).

Emancipatory AR, also known as critical AR, aims to liberate the participants in the action from the dictates of "tradition, precedent, habit, coercion [and] self-deception"' (Grundy, 1992, p. 358). Here, the object of transformation is not restricted to "activities and their immediate outcomes (as in technical AR) or the persons and (self-) understandings of the practitioners and others involved in and affected by a practice (as in the case in practical AR)" (Kemmis, 2009, p.471). Instead,

it aims to impact upon the social formation within practice, by transforming the "discourses that orient and inform it [practice], the things that are done, and the patterns of social relationships between those involved and affected" (Kemmis, 2009, p.471). To achieve this, the practitioner assumes an active role in the process of improving his or her own practice in addition to others', the associated knowledge, and the situation in which the practice occurs (Carr & Kemmis, 1986). Here, the practitioner/researcher collaborates with participants to construct action through critical self-reflection to transform practice. Emancipatory AR does not start with theory and end in practice, instead, a dynamic relationship between theory and practice is developed through the process of reflection (Grundy, 1982). Here then, "reflection takes on a social-reconstructionist mantle, as practitioners confront, in their own and others' practice, the oppression inherent in dominant, socially and historically embedded ideologies" (Leitch &Day, 2000, p. 185). Indeed, while the previous types of AR fail to recognize the historical, cultural and social situation of practitioners/researchers, in emancipatory AR, those aspects are taken into consideration (Leitch & Day, 2000).

Emancipatory AR is not at all theoretically insignificant as it is able to recognize a form of critical educational science[9] in specific historical practices (Carr & Kemmis, 1986). Consequently, it is practically significant in the sense that it presents a meaningful approach which explains how an emancipatory human interest finds expression in the field, and how it improves it (Carr & Kemmis, 1986). In this context, Gilbourne (1999) clarified that "emancipation is associated with global issues, the process of awareness rising and the liberation of the individual" (p.248). This was firstly mentioned by the 'Frankfurt School'[10] that argued that people could not comment on their own experiences unless they understood how those experiences

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[9] Critical Education Science is a form of educational research which "is not research *on* or *about* education, it is research *in* and *for* education". This means that "it takes a view of educational research as critical analysis directed at the *transformation* of educational practices, the educational understandings and educational values of those involved in the process, and the social and institutional structures which provide frameworks for their action". It accomplishes this through participatory and collaborative practice (Carr & Kemmis, 1986, p.156).

[10] 'Frankfurt School' refers to a community of philosophers and social scientists that developed a theory labelled 'Critical Theory', which aimed to reassess the interaction between theory and practice in the light of criticisms of the positivist and the interpretive approaches to social science (Farganis, 1975).

are relevant to their own context (McNiff & Whitehead, 2002). This awareness of historical and cultural conditions was enabled by an ideological critique which, according to McNiff and Whitehead (2002), is the main purpose of emancipatory AR. A principal criticism of such a version of AR, however, is that the critical reflection undertaken often remains at the level of rhetoric, thus limiting the resulting 'theories' to "propositional statements rather than embodied in [personal] practices as [participants] engage with issues of social change" (McNiff & Whitehead, 2002, p.34). Nevertheless, Carr and Kemmis (1986) maintained that emancipatory AR explores the strengths and weaknesses of the practice itself, being focussed towards working to improve understandings and situations. They claimed that during this collaborative process, 'facilitators' and action researchers share the responsibility and the outcomes of resultant change(s).

The current study, despite having a theoretical approach (TGfU) as a starting point, intended to be critical from the outset, and based on the symbiotic relationship between theory and practice. Moreover, it would be simplistic to consider the end product of this study as practice only, since new theoretical knowledge was desired and expected to derive from it. Therefore, by exposing players (and myself) to a new pedagogical approach which contrasted with their previous experiences, the goal was to emancipate them (and myself) from the confines of tradition. The study was thus originated in ideas situated within emancipatory AR, although, knowing the adaptive nature of the approach, was open to penetration from other types of AR.

3.3.3. Theory and practice in Action Research

Following from the previous section, practitioners have an active role in AR and may even investigate their own practice as an element of it. Furthermore, they observe, describe, explain, act, and develop their own theory(s) about practice, in collaboration with others. This relates to a key characteristic of AR as pointed out by Lewin (in Carr & Kemmis, 1986), which relates to the simultaneous contribution to social science as in the development new theory in addition to social change. It is in this relationship between academic and applied work, and in its commitment to making changes, that the notion of praxis lies (Blodgett et al., 2010; Bredemeier,

2001; Ryba & Wright 2005). For many AR advocates, praxis deals with issues of social injustice "by pushing the need for theoretical conceptualisations to be distilled into data-informed practices that instigate positive, concrete changes in daily life" (Blodgett et al., 2010, p.58).

Praxis is a form of practice in which individuals' enlightenment is translated in their own transformed social action. This requires an integration of theory and practice as reflective through dialectical moments of reflection for the purpose of personal emancipation (Carr & Kemmis, 1986). As a concept, praxis has its origins in the Greek notion of "doing action", committed and informed action (Carr & Kemmis, 1986). In AR, a distinction exists between practice as habitual and customary action and praxis which refers to informed action by critical reflection where other people's views are taken into consideration (Carr & Kemmis, 1986; Kemmis, 2008). In fact, Kemmis (2008) described AR as being "interested in a critical revival of practice which can transform it into praxis, bringing it under critical control, end enlivening it with a commitment to educational and social values" (p.190). Similarly, Noffke (1995) defined praxis as the "practical implications of critical thought, the continuous interplay between doing something and revising our thought about what ought to be done" (p.1).

AR thus requires a dialectical unity between theory and practice, clarified by three functions; (1) the formation and extension of critical theorems; (2) the organization of the process of enlightenment in which the theorems can be applied and reviewed by the initiation of the reflection processes; (3) the reflection of appropriate strategies, the solution of tactical question, and conduct of political struggle (Carr & Kemmis, 1986). In short, AR possesses the potential to generate pedagogical transformation and theory generation (Elliot, 1994). Research, in general, is "always undertaken to create new knowledge or theory" (Whitehead & McNiff, 2006, p.28), a requisite that AR is not exempt. However, AR generates its own form of theory, characterized as "integrative, critical and political; it is both personal and collective, a synthesis of values and understandings, and a response to the many dimensions of practical action profoundly influenced by external political forces" (Winter, 1998, p.374). This reinforces the idea that AR is (or perhaps should be) more than just good practice where the practitioner acts, reflects on those actions, and

implements changes to improve practice. Indeed, AR is more than problem-solving, as it involves gathering and interpreting data to find the reasons that can explain actions (McNiff et al., 2003). Therefore, for a study to be AR, there must be praxis which embodies practice, which takes into consideration not only the isolated personal actions and behaviours, but also how those practices are related to the social context.

3.4. Participants

A key feature of qualitative research is that it promotes in-depth and rich analysis of a relatively small-scale sample (Denscombe, 2007). The study took place in an amateur volleyball club, Porto Volleyball Club (pseudonym), with the participants comprising the players from the female adult team (n=13), aged between 18 and 34 years old, and myself as the coach of the team.

3.4.1. The players

All the players from the volleyball team coached by myself (the researcher) were asked (and accepted the invitation) to take part in the study.

Despite the varied age range observed (from 18 to 34 years old), the players' level of playing experience was fairly homogeneous; most of the players had never played at a higher level than National Division 2. However, there were three exceptions to this: 3 players had played at Division 1 in their home countries (some are foreigners) with one of having represented her country in the youth squads. Nonetheless, this was still amateur volleyball, the only level at which any of the players had ever played. Considering the AR nature of this study, I am easily identifiable and, by association, so may the team and club being researched. Therefore, no further details about the players' background will be provided here in order to protect their identities. It is believed that the information provided is sufficient to contextualise the participants within the study, without jeopardising the players' anonymity.

The majority of the players had already been coached by me in the previous sporting season. This means that a relationship already existed between myself and the majority of the players. Nevertheless, the context was new, since the team was

now playing in the National League 1 having been promoted the previous season. There were also some new players in the squad for the upcoming season, while the intended pedagogical approach (i.e., TGfU) was new to all. Also, the fact that I was now researching my own practice, held implications on how I undertook my role as a coach. Indeed, Junker (2004) suggested that when undertaking such a dual role, the individual needs to re-learn how to enter in the social situation and build rapport with the people involved.

3.4.2. The coach (me)

I am a qualified Level 3 volleyball coach, which is the highest national coaching qualification for the sport in question. I first started to coach when I was eighteen years old, and since then have worked in a wide range of contexts with children, adults of both genders at a variety of levels, and national squads, both in Portugal and in Wales. Most of these experiences involved being head coach, although also on occasion I had the opportunity to assist more experienced coaches. This was my second year coaching this team, and the first time implementing a TGfU approach.

My coaching role was voluntary, i.e., I received no remuneration to perform my duties as head coach of the senior women's team. Nevertheless, I had always undertaken my role as a coach as a form of 'serious leisure' (Elkington & Stebbins, 2014; Potrac et al., 2017b). Thus, I had always addressed it as professionally and seriously as possible.

My academic background is in Sport and PE, with a specialisation in High-Performance Coaching. As highlighted earlier, when discussing ontological and epistemological perspectives (see section 3.2.), prior to this study my research experience was essentially quantitative.

3.5. Procedures

The study was conducted during an entire volleyball season, from September to the end of May. Fieldwork thus comprised holding two sessions of two hours per week, and an average of two matches per month (played on weekends) during the

period of study. Exceptions to this schedule included a three-week break over Christmas and a week's break during Easter.

The present study considered two different AR cycles, one micro, the other macro, distinguished in terms of the different moments of data collection and analysis. The former took place session by session, i.e., roughly every two days, and considered the reflective notes taken to review the past and inform future action (i.e., next micro cycle). The macro cycle, on the other hand, considered the process between each round of focus groups, which, in turn, occurred every three months. Also, the input of the supervisors – who worked as critical friends – was also taken into consideration throughout the process. Furthermore, the data collection and analysis process followed the cyclical nature of AR, in which each the data collected from the reflective notes and focus groups were analysed prior to the next session. Such adherence to the AR cycle (or spiral) of 'plan, act, observe, and reflect' (Carr & Kemmis, 1986) allowed me to identify issues and themes that would inform the planning of the next AR cycle.

Despite the anticipated evolutionary changes (Carr & Kemmis, 1986), the starting point of the study included the implementation of the TGfU approach designed by Bunker and Thorpe (1982). Regardless of the changes that eventually occurred, the use of the TGfU approach comprised the inclusion of game-related activities with the aim of promoting the players' tactical understanding. Specifically, every activity had at least one tactical aspect as a principal focus, providing decision-making and problem-solving opportunities for the players. The game thus, wherever possible, remained central to each session, in which the pedagogical principles of representation, exaggeration and tactical complexity were respected (Thorpe, Bunker & Almond, 1986) (see section 2.2.4.).

Structurally, the initial implementation of the approach followed the six-step TGfU model, in which the sessions started with a game format (step 1). Such game was designed based on the players' level of ability and the reflections from the previous session or match. Within this game, the players were challenged to identify the modifications to the rules and how these impacted upon the tactics (step 2). From here, further discussion was promoted to make the players think about which tactics needed to be addressed (step 3), and how, to ensure that appropriate decision-

making takes place (step 4). Here, the execution of the skill that followed the decision was considered (step 5). Lastly, the outcome of the previous stages was assessed (step 6).

Consistent with the TGfU approach then, I encouraged the players to find solutions, verbalize them, discuss them, and explain them, with the objective of reaching a conscious comprehension of deliberated tactical game action. Key here was the use of questioning since it has been described as a pedagogical strategy with great potential to increase the players' knowledge and understanding (Kidman, 2001). Such implementation was done in a critical fashion in which the approach was expected to evolve and adapt to the context with the aim of transforming the practice of all involved.

3.6. Data Collection Methods

The data from a qualitative study usually converge in 'infinite' notes that the researcher joins from interviews, or observations and reflections in the field (Schutt, 2001). Furthermore, this author mentioned that it is very common that a novice researcher gets carried away in the flow and becomes overwhelmed by the amount of information that has been collected, which means that developing a database is not sufficient to conduct a qualitative study (Schutt, 2001). Therefore, it becomes particularly important to define accurately the methods to be used during the data collection process.

3.6.1. Reflective field notes

My written reflective notes were dated logs focused on my observations and reflections during the AR cycles. Consequently, they were completed after each practice session, team meeting, game, and focus group. Because I was fully involved in coaching during the sessions, it was and only after that, when at home, that I could write my reflective notes about the session and store them in my password-protected personal laptop. The reflective field notes were a chronological log of what happened in the practical setting, both to and because of me (Delamont, 2004). More specifically, the reflective field notes were aligned with the aim and objectives of the study and were focused on: (1) the way that the approach challenged the players into

reflection; (2) how the players' decision-making was affected by the approach; (3) how the players engaged with each other; (4) how my questioning was promoted and the consequent players' response; (5) how suitable the activities were according to the established aims; (6) how the players performed; (7) and how I performed (as adapted from Harvey [2009]). In short, this reflective log allowed me to better understand my own practice, and monitor the effects of the approach on the players' learning, consequently shedding light on the adaptations that needed to be made for the next session(s) in order to improve my practice and the players' tactical knowledge and decision-making. Moreover, writing in the form of continuous notes was a means to overcome forgetting (Harvey, 2009).

The field notes followed Harvey's (2009) guidance on what they should entail, namely, running descriptions, recalled events, analytical ideas, personal impressions, and notes for further information. A *running description* consisted of an account of events, people, conversations, things heard, and/or changes that occurred. Running descriptions were concrete and recalled distinctive events. They were concrete in the sense that rather than employing abstract adjectives or adverbs, I attempted to illustrate tangible events and recall distinctions considering if they were a verbatim account or not. *Recalled events* referred to previously forgotten or considered irrelevant occurrences, which were remembered and found relevant later, and consequently then registered in the field notes (often aided by video and audio recording as described in the next section). *Analytical ideas* and inferences referred to the ideas that began to be conceptualised and patterns that were established as observations mounted up (Harvey, 2009). Throughout the process, I started to understand how things worked in the studied social context, and how inferences about it were raised, which were registered into the field notes, and marked as analytical ideas and inferences (comments in Word document were used to distinguish this kind of notes). *Personal impressions* and feelings were also considered and written about, particularly since the implemented changes were made by myself as coach and researcher according to the observed and analysed data. *Notes for further information* were also important since, in reviewing the notes, I would sometimes come across an incomplete incident's description that would make me look to extra information in the field to complete that incident. A well-

described incident can lead the observer to look for further occurrences or events of that kind (Harvey, 2009).

3.6.2. Video and audio recording

This method was essentially used to complement the reflective field notes. All the training sessions and games were video and audio recorded so that I could re-watch them, with the aim of adding detail to the notes, and to "check on the comprehensiveness of the observation and add robustness to their live observations" (Harvey, 2009, p.3). A fixed camera was positioned in the back of the court before commencing each training session and every game, and I also carried a portable microphone to capture the sound accurately. In the morning following the session, I would informally observe the video and audio recording (pausing it and rewind it when appropriate), and add any meaningful information to my reflective notes written the evening before.

3.6.3. Focus groups

Three rounds of focus groups (referred to as 'FG' in the reflective field notes) were conducted during the entire season and fieldwork phase, which implied approximately one round every six weeks. Each round of focus group comprised of three different meetings as the team was separated into groups of 4 to 5 players, so that the 'conversations' could instigate a good level of participation from all the participants (Barbour, 2014). Indeed, Barbour (2014) suggested that a focus group should include a maximum of 6 individuals, as large numbers might lead to alienation of some. Since the present team was made up of 13 players, a decision was made to split the focus groups into three groups (2 groups of 4 and one group of 5), encouraging an environment in which all the participants had sufficient opportunity to contribute. No specific criteria were established to allocate the players into each focus group, apart from their availability to attend the different focus groups' time slots. Each focus group lasted approximately 1h30m and took place prior to a training session in a classroom at the sports campus where the training sessions were held.

A focus group has been defined as a research technique that aims at data collection through group interaction on a topic determined by the researcher (Morgan, 1997). The distinction between focus groups and group interviews refers to the explicit use of the group interaction as research data in the first case, in which dimensions of understanding that usually remain untapped in the more conventional one-to-one interviews or questionnaires, are revealed (Kitzinger, 2004). Indeed, the explicit use of group interaction is seen as the key feature of focus groups, by promoting the production of data and insights only achieved by the interaction within a group (Morgan, 1998). Furthermore, focus groups allow relatively in-depth discussions to be conducted with a small group of people from the targeted population on issues important to a particular study (Kahn & Manderson, 1992) and have the potential to allow a wide range of responses to be collected (Watts & Ebbutt, 1987). Also, because the researcher defines the discussion topics, focus groups are more controlled than participant observation, and because of the participant-defined nature of group interaction, the focus group setting is less controlled than individual interviewing (Morgan, 1997).

Barbour and Kitzinger (1999) mentioned that a focus group considers the interactions between participants, which enables it to reach parts that other methods cannot, highlighting the advantages gained from the group interaction. These include: (1) the ability to stress the participants' attitude, priorities, language, and framework of understanding; (2) encouraging a great variety of communication from participants; (3) allowing for group norms to be identified; (4) providing insight into the operation of group/social processes in the articulation of knowledge; (5) facilitating open conversations, even about embarrassing subjects; (6) exploring differences between participants, reflecting about each other's ideas, making the data organic/interconnected; (7) using conflicts between participants in order to clarify their beliefs; (8) exploring the arguments that participants use against each other; (9) and analysing how particular forms of speech facilitate or inhibit peer communication.

According to Morgan (1997), focus groups can be used in three different research situations. They can be used as a self-contained method in studies where they are the main source of data. They can be used as an auxiliary method in studies

where they rely on the distinct main method. Finally, focus groups can also be used in multimethod studies, which was the case of the present study. In these combined uses of methods, the purpose is that each different method contributes with unique information to the 'researcher's understanding of the phenomenon under study' (Morgan, 1997). Therefore, focus groups can be used in different ways, and as a consequence, they can serve different purposes, so the way a focus group is used depends on the specificities of the study, and the researcher's needs.

The purpose of the focus group method in the present study was twofold. Firstly, it aimed to evaluate the players' response to the TGfU approach, their initial expectations, the changes in those expectations, the crucial moments during the process that impacted on their learning, and to identify the most and least meaningful aspects of the pedagogical approach (Gubacs-Collins, 2007). Secondly, it aimed to evaluate the players' understanding of the game and to gather their perspective on the team's and their individual performance (see the interview guide in Appendix C for further detail). By doing this, the focus group was also an opportunity to encourage the players' reflective skills. Indeed, by promoting the players' reflection and critical thinking, not only about the process but also about their actions as individuals and as a team, permitted the exploration of the utility of the TGfU approach as a coaching approach (through the players' perspective), and the examination of if and how their learning was being developed in relation to the referred approach. As described by Gould and colleagues (1999), focus groups allowed the participants to "reflect on their success and failure, to process their experience and to release emotions. Coaches and athletes can learn a great deal from each other simply by reflecting, processing, and communicating about past performances" (p.392). Indeed, such discussions can encourage animated and spontaneous exchanges between participants with the moderator taking a back seat, approximating naturalistic fieldwork settings (Barbour, 2014). Furthermore, at the end of each focus group, I would write my reflections on it, as this provided an invaluable source of additional contextual information to aid the analysis (Barbour, 2014).

3.7. Data Analysis Methods

One of the key distinguishing factors between qualitative and quantitative research is that the former does not assume that findings would be black or white, tolerating potential grey areas (Denscombe, 2007). Indeed, qualitative research tends to rely on the researcher's justified interpretation, opening up the possibility for different explorations of the results regardless of the methods employed. This dependence on the researcher's interpretation has been considered a disadvantage from positivistic researchers since it brings a subjective dimension to the analysis that arguably weakens the research (Tomic, 1993). However, some more current literature (e.g., Denscombe, 2007) considered this as a false argument, since a degree of bias and subjectivity is extensive to any research (either quantitative or qualitative), and the findings still need to be thoroughly justified in qualitative research. In fact, it has been argued that since qualitative research embraces its interpretative and subjective nature, it tends to use thorough, and even cautious, methods of analysis that are coherent with such a nature (Denscombe, 2007).

Nonetheless, the same author clarified that in quantitative research, the using of computerized statistical procedures can lead to a quicker and more succinct analysis. The situation tends to be different in qualitative research, as the data is generally unstructured, and the strategies to analyse it are usually more time consuming and harder to describe for the reader. Consequently, do to be dealing with complex contexts, the researcher might feel tempted or pressured to oversimplify the explanation. Indeed, as Denscombe (2007) advocated so clearly:

> Inconsistencies, ambiguities and alternative explanations can be frustrating in the way they inhibit a nice clear generalization; but they are an inherent feature of social life. Social phenomena are complex, and the analysis of qualitative data needs to acknowledge this and avoid attempts to oversimplify matters. (p.313)

This is in agreement with Guba and Lincoln's (1994) claim that generalisations are often seen in quantitative research, have no applicability to individual cases, losing somewhat its meaning.

Another distinction between quantitative and qualitative research is that that former tends to entail a clear distinction between the phases of data collection and data analysis (Moghaddam, 2006). In opposition, in some forms of qualitative research, as the present one, the phases of collection and analysis proceed in tandem, repeatedly referring to each other. This way, the researcher is able to identify problems and concepts that appear to be likely to help in the understanding of the situation (Schutt, 2001) and in changing it for the next AR cycle. This means that, in the present study, the analysis started after some of the data had been collected and the implications of that analysis then shaped the next steps of the data collection process (Bryman, 2004). This suggests the engagement in inductive analysis, in which the data is analysed without preconceived hypotheses (Moghaddam, 2006). However, considering that the current study applied a conceptualised approach (TGfU) that framed the analysis, it can also be considered deductive analysis. Such combination of deductive and inductive analysis is what Denzin (1978) called 'abductive analysis'. In this sense, deductive analysis allowed the definition of the main themes of coach's learning and players' learning based on the aim of the study and the approach employed, which was complemented by an inductive analysis that led to unpredictable new themes and sub-themes that emerged from the field.

The value of the inductive analysis regards the view that it is the only way of generating new theory, in contrast to the deductive analysis that tests hypotheses from prior theoretical frameworks (Creswell, 2009). In other words, Dey (2004) clarified that deductive analysis involves starting with theory, making an observation and inferring a result. Inductive analysis is the opposite in the sense that the theory is inferred from observing the result. The author goes further, clarifying that abductive analysis comprises both, in which it:

> Relates an observation to a theory (or vice versa), and results in an interpretation. Unlike induction, theory in the case of abduction is used together with observation, in order to produce an interpretation of something specific, rather than to infer a generalisation. Unlike deduction, the result does not follow

logically from the premise: abduction offers a plausible interpretation rather than producing a logical conclusion. (Dey, 2004, p.91)

This is consistent with some of the principles of the Grounded Theory (GT) approach (Côté et al., 1993; Glaser & Strauss, 1967; Smith & Cushion, 2006), which involves elements of both inductive and deductive analysis (Dey, 2004). In this context, GT consists of developing theory grounded in data systematically collected and analysed during the research process, implying a close relationship between data collection, data analysis, and eventual theory(s) (Corbin & Strauss, 2008). In fact, GT was originally described as a methodology in which the researcher develops theory out of data, without any preconceived ideas (Glaser & Strauss, 1967). For this reason, GT has been often regarded as an inductive approach, since deduction rejects the desire to discover new theory without any prior knowledge (Dey, 2004). However, this has been considered a controversial principle since it implies that every research starts "from scratch, instead of using whatever theoretical and conceptual resources that social inquiry had already in mind" (Dey, 2004, p.90). Additionally, it has been argued that it is impossible for the researcher to be stripped of his/her background, and suspend their awareness of relevant theories or concepts until a quite late stage in the process of analysis (Bryman, 2004). For instance, in the present study, despite analysing the data inductively, previous research around TGfU was inevitably considered. Indeed, such contention led to Glaser's (2002) clarification that when the authors were originally referring to the preconceived ideas, they actually meant any bias, dogmas and mental baggage that the researcher might have. Charmaz (2006) made that distinction by suggesting that GT should be employed with an open mind rather than an empty one.

Regardless of this debate, GT has been considered the most influential approach for conducting qualitative data analysis, being described as a way of informing abductive analysis (Dey, 2004; Bryman, 2004). It is precisely in this sense that GT was used in the present study, accepting Glaser and Strauss's (1967) call to adapt it to the nature of the study as required. In order to do so, I have referred to

some of its flexible yet systematic guidelines (or commonalities) to analyse the data (Bryman, 2004; Weed, 2017) (see Appendix D for an illustration of the process):

(1) An *iterative process* was considered, in which data was collected, analysed and compared with the literature, in order to generate and refine concepts (Weed, 2017). This was an ongoing process (until theoretical saturation was achieved; see below), which implied that data collection and data analysis proceeded simultaneously (as mentioned above);

(2) *Theoretical sensitivity* suggests that key literature and ideas within the field of study (i.e., TGfU) were reviewed, reinforcing the inclusion of a degree of deductive analysis. Indeed, Weed (2017) added that the "the integrity of a GT study is maintained by conducting the detailed and substantive review of the literature as part of the iterative process as concepts and ideas are developed and refined", with the caveat that these 'sensitising concepts' are "a place to start, not a place to end" (p.152);

(3) Despite being described as an ambiguous concept with GT (Dey, 2004), *coding* permitted the organisation of data into component parts, encouraging "ideas, notions and linkages to be noted and included in the iterative analytical process" (Weed, 2017, p.152). Unlike quantitative research in which data is required to fit preconceived standardized codes, within GT coding was done according to the aims of the study and my interpretations along the research process (Charmaz, 2000). Therefore, subsequently to writing down my reflective notes (data collection), the coding process started through the identification of initial codes that allowed organising and making sense of the raw data. For example, excerpts of reflective notes were coded as 'players' response to questioning' or 'tactical issues emerging from the game';

(4) A *constant comparison* was also incorporated allowing a close connection between data and conceptualization. This is particularly relevant in the realm of abductive analysis in the sense that the phenomena being coded under a certain theme could then begin to emerge. Such comparison was promoted between

different sets of data, codes, themes[11], and literature, in which theory or concepts were delimited (Glaser & Strauss, 1967; Weed, 2017). It should be noted that it is common that a GT research does not result in the development of theory, but only some concepts and/or themes (Bryman, 2004). In the present study, these concepts and themes generated from the common threads identified in light of the aims and objectives, and further reflective critical analysis from the researcher. Indeed, consistent with the AR methodology, the present data analysis was a "process of reflection and interpretation", which entailed clarifying the meaning "that [was] felt, intended, and expressed" by the participants, i.e., the players and myself as the coach in this particular study (Stringer, 2007, p.95);

(5) *Theoretical saturation* relates to understand when the analysis is complete. Indeed, this was questioned in each iteration, and it was reached when the "process of constant comparison no longer [brought] fresh theoretical insights or enhanced or extended higher level concepts" (Charmaz, 2006; Weed, 2017, p.152).

Regarding the presentation of the data within this thesis, it was done by exposing the reflective interpretation (i.e., the reflective notes) whilst presenting and exploring the results, which justifies exposing considerable sections taken directly from the raw data. Indeed, it has been suggested that using extensive extracts from field notes is a valuable and systematic way of illustrating the AR process (McNiff et al., 2003). Therefore, the data gathered from the field notes and focus groups will take a leading role in the results and discussion narrative, which will be supported by further interpretations, and explored in the light of emerging theoretical concepts.

3.8. Trustworthiness

One of the key criticisms of qualitative research is the implicit subjectivity and how that can be a limitation in achieving the 'truth' (Barbour, 2014). However, according to Barbour (2014), the role of qualitative research is not to determine which of the participants is 'right' or 'truthful'. Instead, qualitative research uses the participants' "accounts as a resource in order to understand how 'situated accounts'

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[11] Themes are a higher-level of categorisation, usually used to identify a major element of the entire content analysis, i.e., an overarching idea. "Themes are what qualitative researchers call their findings or results" (Averill, 2015, p.8)

are told in a way that allows speakers to achieve a different purpose through emphasising some aspects of their stories and de-emphasising others" (Barbour, 2014, p.22).

Moreover, according to Hammersley (2007), qualitative research has also been criticized by the lack of a clear set of criteria available for judging it. However, the author highlighted two questionable assumptions that are often taken when arguing this point. Firstly, it is assumed that clearly defined criteria of quality are only available for quantitative research. Secondly, it is assumed that such criteria are needed, otherwise, the research will be of poor quality. In response to these assumptions, Hammersley (2007) argued that issues of criteria are extended to both qualitative and quantitative research, and that "developing guidelines may serve a useful function" (p.301) since researchers need means of judging quality and that a set of criteria would meet this need.

This is an issue previously addressed by Guba and Lincoln (1994), who suggested four criteria to consider regarding qualitative data: credibility, transferability, dependability, and confirmability. Consequently, in order to enhance the study's credibility, Lincoln and Guba (1985) highlighted the need for a prolonged engagement and persistent observation, which was consistent with the in-depth and prolonged implementation of the current AR approach. Also, peer-debriefing was put in place, which consisted of regular meetings and sharing of work with my supervisors. The principle of transferability was achieved through rich data descriptions. Dependability implied auditing of the research conditions, and confirmability was achieved through internal consistency of data, findings and interpretations. Furthermore, Glaser and Strauss (1967) proposed the principle of *fit, work, relevance and modifiability* in order to assure the study's quality and credibility in the context of GT. To adhere to this, the concepts or theory generated were representative of (i.e., *fit* to) the phenomena being studied. Also, the practical nature of the study permitted the exploration of the concepts that *worked* in practice, and ensured that the findings had *relevance* to the context in question. Lastly, the concepts and theory that emerged from the present study were "open to development or extension as a result of new insights provided by further future empirical research, that is, it [is] *modifiable*" (Weed, 2019, p.153).

However, despite such criteria and associated techniques being generally accepted in the academic community, Sparkes and Smith (2014) presented a critical view on it. Specifically, these authors challenged the lack of rationale for the choice of certain techniques (e.g., prolonged engagement) over others; they have raised the inconsistent description of different techniques across different studies (e.g., members' checking); they have questioned the appropriateness of some techniques within qualitative research; and importantly, the authors found it philosophically contradictory to have a parallel criteria between quantitative and qualitative research. Clarifying, Sparkes and Smith (2014) suggested that Lincoln and Guba's (1985) criteria of credibility, transferability, dependability, and confirmability corresponds to the quantitative research criteria of validity, generalisation, reliability, and objectivity. Such parallel is, according to Sparkes and Smith (2014), an acceptance of the static and rigid nature of quantitative research, contradictory to the flexible nature of qualitative research. In fact, Guba and Lincoln's position on the proposed aforementioned criteria evolved (Lincoln, 2010), with the notion that different studies demand different interpretive criteria. Sparkes and Smith (2014, p.205), concluded that "criteria are useful pedagogical tools to help us learn, practice and engage with the various traditions within qualitative research". With this understanding in mind, the present study accepts the lack of certainty in this area, leaning on Wolcott's (1995) argument that such discussions need to be understood, but not resolved.

3.9. Ethical considerations

This section outlines the issues surrounding ethics, which includes the conflicts inherent to my dual role of coach and researcher. The first point to clarify is how this study followed Cardiff Metropolitan University's Ethics Committee's guidelines and recommendations. Firstly, in order to be eligible to participate in this study, the participants signed a consent form stating that they understand the nature of the study and that they were willing to voluntarily participate in it. The consent was preceded by an oral explanation about the study, using simple, not technical terms, and a handout highlighting the procedures involved and the potential risks. This was

done in a meeting with the team, prior to the beginning of the season. The participants were then given one week to consider it and raise any queries or concerns.

The participants' confidentiality was respected according to the ethical and legal obligations of the researcher. The data gathered during the research was and will be used solely in the context of the doctoral thesis, in research papers to be published in academic journals, and in academic conferences or seminars. In all these situations, the participants' real names were and will be preserved, as pseudonyms were and will be used to protect their identity. Fictionalised names were also used when referring to the club's name and the opposing teams. No video-footage from the training sessions and games was or will be shared with a third party, as this is only accessible to the participants, the researcher, and the supervisors. Moreover, the fact that all the sessions and games were videotaped meant a potential external distraction, which could lead to the players feeling uncomfortable and perhaps assuming insincere behaviour. However, the fact that this was a common procedure throughout the whole season, present in every single session, meant that potential initial distraction became habituation, and eventually the participants did not even notice it, as it became a natural object in the sessions.

The position of the researcher was also a relevant aspect to raise some potential ethical issues. Firstly, there were the issues related to being an 'insider'. Indeed, often researchers positioned themselves as 'outsiders', i.e., they stand outside the context they want to study with the justification that, by doing so, they are in a better position to achieve an independent critique and interpretation. Carr and Kemmis (1986) sustained that this is "an important and helpful role, but it is not sufficient for educational research of a critical social scientific kind" (p.158). Despite the apparent power of the 'outsider' researcher to interpret or inform the participant's practices, when considering his/her influence in the transformation of those same practices, that power is reduced. Therefore, it has been argued that, in order to transform social practices, the researcher needs to position oneself as an 'insider', actively involved in the field and in mutual collaboration with the participants (Gilbourne, 1999). According to Collins (2004) this can create issues of language, power, authentic participation, and, of course, collaboration, as the four

premises that determine an effective AR. Power is, however, a delicate matter, because action researchers should never exploit the power that derives from their position (Greenbank, 2007). As Gaventa and Cornwall (2008) pointed out, action researchers have, in theory, the knowledge[12] and the power that places them in the position where they are able to control the action. This is an important issue, and in the first instance an ethical one, that can condition the research process, and restrict the dialectal relationship between practitioner and researcher.

However, this can be seen as a false argument, in the sense that the issues resulting from the power relationship between individuals may happen regardless of whether the individuals involved are practitioners, participants, researchers, or any other group of individuals (Rowland, 2000). As referred by the same author, the simple act of conducting research is already a manifestation of power (which makes McTaggart's [1991] suggestion of suspending status and power, impossible). Therefore, it becomes crucial for the action researcher to take those problematic issues of power into consideration during the research process, strategizing the best way to gain the trust and commitment of others. According to Whyte (1991), this can be achieved by demonstrating a genuine interest in their information and ideas, using those contributions in order to achieve the common goal of problem-solving. Thereby, people involved in the research may start to be seen as co-researchers rather than subjects (Watt & Watt, 1993). However, it is naïve to believe that those asymmetries will disappear (Kemmis & McTaggart, 2005), as different values and different levels of influence within the individuals involved in this collaborative process are inevitable, which means that a "continuing process of negotiating and renegotiating power-relations" is necessary (Elliot, 1994, p.135). Collaboration within AR is certainly challenging, as working with other people implies they may share different perspectives and preferences, which can generate conflicts and stressful tensions (Greenbank, 2007; Somekh, 2006). As Moore (2004) identified, the process

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[12] "Knowledge that is produced through action research in collaboration with practitioners is grounded in practice and cannot be dismissed as irrelevant to other practitioners. The important thing is to produce knowledge that has practical implications so that it is open to investigation through action. Knowledge can thus be seen as both a product of research and generative of further research. Others can use it as they wish, either as a prescription for action or as the starting point for further action research in their own local contexts." (Somekh, 2006, p.94).

of AR tends to cause 'disturbances' that can be quite 'disruptive' and even 'painful'. To minimize these problems, and achieve effective and productive research, "AR needs to start with a recognition of the need to be honest about problems, spend time listening to one another and respect cultural difference, in terms of assumptions, relationships, methods and working practices" (Somekh, 2006, p.102). In short, it is necessary that individuals assume a comfortable posture about the diversity of opinions so that conflicts can be managed enabling the cooperation to continue positively (McNiff et al., 2003). The same authors suggested three basic principles that the action researcher should follow to collaborate successfully with others: be optimistic and realistic; be sensitive to the situation and strategic; be flexible and stay focused.

Nevertheless, it is important to mention that, despite the discomfort that this may cause, the lack of the conflicts mentioned above may equally be problematic, as it is in those discussions to negotiate a consensus that "we gain insights into ourselves, each other and the topic of investigation that draws us together" (Sumara & Luce-Kapler, 1993, p. 394). In fact, these disturbing moments have the potential to be excellent opportunities to establish the basis of a collaborative relationship, as they encourage practitioners to be open-minded and to reflect about their practice, developing the strategies to change it. Thinking in a pragmatic perspective, it is integrated into the cycle of evaluating the context to elaborate planning, acting, monitoring that action, and reflecting about the whole process (Gilbourne, 1999; Gilbourne & Richardson, 2005; Lewin, 1946). Like that, practitioners become aware and critical of their practice, and reflect on it considering the possibilities of change and improvement of that practice. Therefore, the relationship established between the individuals in an AR process should be a combination of criticism and support so that the whole process can be managed successfully (Greenbank, 2007).

This is particularly relevant when considering my dual role of coach and researcher, which means that the players saw me as the one with the power to make all the decisions concerning the team selections and management (e.g., which players will be in the game's starting lineup). This might have led to some discomfort from the players and reluctance to express freely their opinions. Therefore, the aforementioned suggestions by McNiff et al. (2003) to minimise the issues of power

were considered. Namely, I have tried to conquer the trust and commitment of others by establishing a relationship based on mutual respect and integrity, and to demonstrate a genuine interest in their information and ideas, using those contributions in order to achieve the common goal of problem-solving (Whyte, 1991).

In addition to the discomfort that this might cause to the players, the personal dilemmas of managing my dual role were also an issue to consider. To provide some context, prior to this research study, I already had 11 years of experience as a coach, namely in planning and delivering training sessions, managing groups of players, and other responsibilities inherent to the coaching role. However, this was the first time implementing a pedagogical approach in a systematic and critical manner. I had previously conducted two main empirical studies (undergraduate dissertation and master thesis), both based on quantitative video-analysis, hence not involving direct human participation. Indeed, the current PhD thesis is not just the first qualitative empirical research study that I have ever conducted, but in addition, the first participatory AR one. Furthermore, considering that I was also the object of the research process, it became important to consider the issues around the concept of reflexivity, since this involved "turning back on oneself in order that processes of knowledge production becomes the subject of investigation" (May & Perry, 2014, p.109). According to the same authors, reflexivity is not "a method, but a way of thinking or critical ethos" (p.111), which means that the researcher reflects on how his/her own role impacts on the data collection process (Jones, 2015). Therefore, my "impressions, irritations, feelings, and so on, become data in their own right, forming part of the interpretation" (Flick, 2018, p.8), and are documented in the reflective notes.

CHAPTER IV

RESULTS AND DISCUSSION

IV. Results and Discussion

4.1. Introduction

As suggested by Zuber-Skerrit and Fletcher (2007), although an AR journey is a 'bumpy ride' with many "side tracks, roadblocks, detours and cul-de-sacs", an expectation exists that the thesis should be "lean, concise, and to the point" (p.427), where the focus should be on telling the research story in a logical and structured way. In this sense, in an AR study, findings are often presented cycle by cycle in a chronological way (Short, 2004). However, Waterman et al. (2001) warned that it is difficult to single out, frame, and describe each cycle and the different steps within it, as the distinction between each one is not always clear. Hence, in the present study, the AR cycles were linked to the generated themes associated with the practical application of the Teaching Games for Understanding (TGfU) approach.

Furthermore, considering the density of data within the current study, presenting it in cycles could lead to a descriptive exploration of (some) redundant events. Therefore, rather than amalgamating the different themes within each AR cycle, this chapter presents and explores key themes and subthemes that emerged during the season within the cycles undertaken. This is done in a progressive way, and consistent with the aims of the present project, which demonstrate the development of coaching practice, players' learning, and the TGfU approach under study.

The first section is concerned with the coach's learning and explores some of the issues that I faced as a coach and researcher whilst applying the TGfU approach through AR. The second section relates to the players' response to the approach, and how their ability to reflect, their learning, tactical understanding, and performance evolved throughout the season in question. Throughout both sections, how the TGfU approach was adapted to the particular coaching context was examined, particularly in relation to the model's structure and content.

As a result of the complex and dynamic nature of this study, some overlapping between themes and subthemes was inevitable. These include the findings that emerged from the focus groups and the reflective notes, which often comprised descriptions and interpretations of the issue in question, an exploration of the action

taken, and consequent implications. Therefore, the data gathered from the focus groups and reflective notes take a leading role in this narrative, although discussion is also developed and promoted in light of relevant literature.

Finally, it should be highlighted that due to the practical nature of the study, the language employed is at times specific to the sport in question. To assist with understanding here, footnotes are included as appropriate. Nevertheless, the main focus of the narrative is on the learning process rather than on the sport itself.

4.2. Coach's Learning

4.2.1. Researching the approach

4.2.1.1. Reflecting on reflection

A key piece of the complex AR puzzle is the ability to reflect systematically and critically to make valuable changes in practice (Carr & Kemmis, 1986; Hall & Gray, 2016). In fact, Carr and Kemmis (1986) characterized AR as a form of self-reflexive research undertaken in social situations. The findings from the current study corroborate the importance of reflection in AR, as well as arguing for the need to reflect on reflection (as in reflecting on my reflection). The discussions held with my supervisors were a trigger for that process, during which they would challenge my practice making me question it both as a coach and a researcher; a questioning process which led me to reflect upon and dispute my own reflections.

> This was a frustrating but also progressive meeting. (…) When discussing some episodes from the last training session, my supervisors asked a few questions (e.g., they asked if I responded that way based on the approach or based on my personal beliefs). This made me question my practice, and the way that I am reflecting on it. (Meeting notes, 1/11/11)

Consequently, I went back to my notes to challenge them, and more importantly, to challenge my ability to effectively and critically reflect on the process of producing them. This is associated with the notion of reflexivity, which has been described as an internal conversation that leads to transformative actions (Archer, 2010). Indeed, according to Feucht (2017), "reflection becomes reflexivity when

informed and intentional internal dialogue leads to changes in educational practices, expectations, and beliefs. Reflexivity can promote deep professional learning and bring sustainable change in education" (p.234).

Subsequently, I was able to identify and deal with issues related to my 'first-order' reflections. In particular, two concerns arose from that analysis; one related to the focus of the reflections, while the other concerned the role that emotions played in the process. Reflecting on my reflections was the first step to address such issues, followed by more specific action such as the exposure to frameworks/models of reflection and the use of video technology (see *focus of reflection* below).

Focus of reflection

In line with the aims and objectives of the study, my reflections focus on the players' responses to the approach, my application of the approach as a coach, and the approach itself. However, when reflecting upon my reflection I noticed a tendency to focus mainly on the players' responses, namely how they reacted to the approach, how they interacted with one another, and how their decision-making and performance evolved (see section 4.3. for further detail on Players' Learning). For example:

> Some of the players still struggle with the quick tempos[13]. This is mainly due to timing the attack approach with the set; and to the control of the ball that comes with more speed from the set. (Reflective notes, 7/2/12)

By focusing solely on the players, my own learning was not particularly considered, which limited the potential for change. Accepting Osterman and Kottkamp's (2004) view that, at its heart, reflection is about behavioural change, it became crucial to reflect on every participant to improve the whole process, which included my own behaviour and development as a coach by critically reflecting on my actions and how I was able to adapt the approach to the context. This would then

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[13] Attack tempos relate to the speed of the set according to the attacker. There are three main types of attack tempos: tempo 1 is a very quick tempo, in which the attacker starts the attack approach before the setter touches the ball; tempo 2 is fairly quick tempo in which the attacker starts the approach the moment the setter is touching the ball; tempo 3 is a slow tempo, in which the attacker starts the approach after the set when the ball reaches its highest point.

allowed me to improve my own coaching performance and consequently the team's playing performance. Indeed, previous research has shown that to become a better coach and researcher through AR, it is essential to reflect on one's own development, which allows for more effective employment of the approach (Luttenberg, Meijer & Oolbekkink-Marchand, 2017; Pill, 2016). This corroborates the generic advocacy around reflection that it can serve to monitor and improve one's practice (Gibbs, 1988; Gilbert & Trudel, 2001; Hall & Gray, 2016; Schön, 1983). Indeed, several studies in the educational context have demonstrated that AR is a valuable approach that helps practitioners to become more reflective, aiding their professional development (Cochran-Smith & Lytle, 2009; Kim, 2013; Rust, 2009; Rust & Meyers, 2006). After a few weeks reflecting on my own practice, I became more aware of what required improvement in my ability to coach through the lenses of TGfU. During this process, the aid of video and audio recording was extremely useful, since it provided me with an opportunity to have a different perspective on what occurred in the session. For instance, I realised that "sometimes I take too long to explain the activity. I repeat without it being necessary. I need to be more concise and assertive in my instruction. To demonstrate while explaining the activity is a good strategy to save time." (Reflective notes, 20/10/11). By attempting to change, however, I occasionally overdid the alteration, as illustrated in the following extract: "Since the warm-up activity is not new, I explained it very briefly expecting the players to understand it straight away. However, to my frustration, they didn't." (Reflective notes, 1/11/11). On reflection, and through revisiting the session's video footage, I concluded that my interaction was superficial and disjointed. Also, rather than getting frustrated with the players, I needed "to start reading their reactions better. Analyse if they are understanding what I'm saying or not." (Reflective notes, 1/11/11). Extending the focus of reflection from the players' performance to my own, provided an opportunity to change practice, which only happened through challenging my own reflections. Despite being imprecise at times, this change was ultimately aimed at improving my ability to employ the TGfU approach, and consequently the players' performance.

Dealing with emotions

As hinted above, my practice and my reflections were occasionally blurred by my emotions. For instance, following a negative performance or result, my reflections tended to focus on negative aspects.

> This was a poor game. We didn't play well at all. Service needs to be more aggressive, the reception was static, the setting was inconsistent, the attack was slow and predictable, the block needs to improve marking, and the defence was hesitant lacking communication. (Reflective notes, 30/10/11)

Although most of these aspects required improvement, my analysis was simply centred on where the team underperformed. For instance, saying that 'we didn't play well in any action of the game' was not only unfair but inaccurate. This was because there were some positive aspects, such as the off-ball movements in defence. This emphasis on the negative aspects was a consequence of my frustration that derived from the feeling that the effort invested by the players and I in the training sessions was not translated into the performance in the game. Indeed, findings suggest that the transfer to the formal league match was not immediate, with the players' performance decreasing during match days at the beginning of the season as illustrated in section 4.3.3. Performance.

Consequently, the players' inconsistent performance made it difficult for me to dismiss that negative sentiment, which limited my ability to critically reflect on what actually occurred. It was only through retrospective reflection (on-action) that I was able to 'cool down' and develop another perspective.

This inability to act 'rationally', and be overpowered by emotions, has been experienced by others. For instance, Hall and Gray (2016) described the paralysing effect of observing and reflecting on one's own performance: "In my case the emotional load was so great that it was paralysing at first, inhibiting the benefits to an accurate recall of events, cognitions and emotions" (p.370). The same authors demonstrated that reflections on coaching practice can potentially have a similar emotional dimension as the coaching practice itself. As highlighted by Potrac and Marshall (2011) and Potrac, Smith, and Nelson (2017a), the emotional nature of

coaching remains very much an underexplored topic in the academic community, despite some prominent exceptions (Jones, 2006; Nelson et al., 2014) with the Sports Coaching Review (2017) editing a special edition on Emotions in Sports Coaching. Indeed, this recent interest in the topic is justified by the case being made that coaching, being social in character, must be emotional in nature (Jones, 2006; Potrac and Marshall, 2011; Purdy, Potrac & Jones, 2008). In fact, it has been claimed that "emotion is what play and sport is about" (Pope, 2005, p.273). Furthermore, by considering that emotions are a natural part of the coaching context, I wondered if I should embrace it rather than counter it. However, by letting emotions control my actions, there was a risk of falling into old habits, what William and Hodges (2005) called common coaching practice "based on intuition, tradition and emulation" (p.637), rather than using empirical evidence to rationally support learning. Indeed, failing to control my emotions had a negative impact on the AR process as demonstrated in my initial behaviour on match days:

> During the training sessions, I feel that I am consciously applying the TGfU approach and rationally managing my dual role as coach and researcher. However, on a matchday, it is much harder to be rational and embrace the researcher's role. Blinded by the will to win and the emotions that derive from that, I clearly suppress my view as a researcher. This negatively impacts on the implementation of the approach since I end up neglecting some key aspects of it, such as challenging the players to think about the game. Instead, I tended to be much more directive in my interactions. (Reflective notes, 10/10/11)

The process of critically reflecting on my own reflections was crucial to realize this and to find strategies to change it. Hochschild's (2000) work on emotional management, and particularly how we as social beings, engage in surface and deep acting, provided a way forward. Here, Hochschild (2000) suggested that we act in order to obey social rules and/or maximise social interaction. We can do so by changing our body language (surface acting) or by consciously working on our feelings to change them (deep acting). Considering the level of personal involvement

in the present study, I felt I had to work on my feelings in order to convince myself that I believed in the emotions being expressed, and the body language would naturally follow. In order to do so, I attempted two strategies suggested by Hochschild (2000). Firstly, exhortations, which consists in making the effort to suppress or change the feeling in a particular situation. For instance, during league games, I would remind myself that developing the players' understanding of the game is more important than winning. The second strategy relates to training memory and imagination. Here, I would often imagine that I was in a training session, which allowed me to discount the outcome and value the process more.

This aligns with Hargreaves (1998) notion of emotional understanding that Potrac and colleagues (2017a) eloquently translated to the coaching context: "emotional understanding refers to a coach seeking to comprehend the intentions, thoughts, feelings, and behaviours of others using empathy and emotional imagination" (p.132). In order to do so, Hargreaves (1998) developed Denzin's (1984) concept of emotional labour, which entails inducing or suppressing feelings in order to create an impact on others. By doing so, in alignment with Hochschild's (2000) strategies, the aim was not to eliminate my emotions, but to better control them. Indeed, it has been suggested in the literature that emotions are indispensable to make pedagogical decisions since, in order to judge, one has to feel (Jones, 2006; Potrac and Marshall, 2011). Crossley (2011) goes further, suggesting that emotions are not something that can be turned on and off according to one's disposition to be emotional or not. According to the author, the intensity and flavour of our affective dimension can fluctuate, but our emotions will never cease to exist. Furthermore, the implementation of Hochschild's (2000) strategies allowed a better control of my emotions, which led to a more efficient interaction with my players. This was evidenced through an improvement in my questioning skills during game situations (see section 4.2.2.3.).

Therefore, in a context in which the aim is to promote change by integrating a novel TGfU approach in a critical manner, it became crucial to challenge every step of the process, starting with my own ability to reflect and control my emotions. Here, I initially researched literature around reflection, and came across numerous forms of frameworks intended to support coaches' reflective practice (Bain et al., 1999;

Gibbs, 1988; Johns, 2000; Kolb, 1984; McDrury & Alterio, 2003; Moon, 1999). Consequently, I adopted Anderson, Knowles and Gilbourne's (2004) revised framework from Johns (1994) in some of my initial reflections, which provided cue questions around five key areas: Description of the Consulting Experience, Reflection, Consequences of Actions, Alternative Tactics, and Learning (see Appendix E). Engaging with this type of framework was beneficial to help systematising my reflective process, and to somewhat control my emotions. By doing so, rather than ignoring my emotions, they were consciously considered, thus not allowing them to overpower the reflective process. Having guidelines that shaped the focus of reflections, enabled a degree of detachment. However, in tandem with the sense of guidance and control that such framework provided, I also felt a sense of limitation whilst employing them. This led me to stop slavishly following any type of framework. Indeed, as Abraham and Collins (2011) argued, the use of reflective frameworks "encourages coaches to be reflective against the standards offered by both other coaches and research" (p.372), rather than operationalising the issues to reflect upon. Here, problem-solving should be naturally "left to the biases of the people involved" (Abraham & Collins, p.372).

Nonetheless, the findings suggest that having been exposed to those frameworks reinforced the focus of reflection, instigating questions that made me think about what to reflect upon; that is, the technical aspects, the tactics, my coaching approach, and the players' response, amongst others. Indeed, it changed the way I reflected from then on, allowing guidelines in the 'back of my head', as cues. This enabled me to write reflections more freely, which led to more informative and meaningful data. In fact:

> As soon as I got home from the training session, I would sit in front
> of the computer and type the 'film' of the session still running in my
> head. These reflections were complemented in the following
> morning, where I would watch and listen to the videotape of the
> session to expand on the thoughts typed the night before.
> (Reflective notes, 1/11/11)

Despite the wide range of reflective frameworks in the literature, it has been suggested that this is still a work in progress. Indeed, Gilbert and Trudel's (2001) initial suggestion of a six-stage cyclical process to promote coaches' reflection (coaching issues, role frame, issue setting, strategy generation, experimentation and evaluation) challenged the academic community to provide further strategies to assist reflective practice. The authors highlighted the importance of promoting systematic behavioural observations and implementing further technological support. Similarly, the reflections in the present study were assisted by both video and audio recording of the session:

> I realised by watching the video that we tend to dig the ball quite
> flat closer to the net, which makes it harder for the setter. This is
> something I should have picked up during the session, but that just
> shows that it's not only the players that need to improve their ability
> to read the process – I have to improve on that as well. (Reflective
> notes, 10/1/12)

The findings here suggest that audio and video recordings are a valuable addition to field notes, providing an additional perspective to assess performance and practice. This corroborates previous studies (e.g., Carson, 2008) that have shown that video can help support the coach's reflections by highlighting strengths and weaknesses in performance.

The issues highlighted above related to the focus of the reflection, managing emotions and the consequent use of frameworks to assist it, and were only identified and addressed due to the process of reflecting on my own reflection. Whilst advocating that reflection is not new in coaching, what appears to have been overlooked is the impact that reflecting upon reflections can have on one's practice. Although similar conclusions have been highlighted in the context of reflective practice (e.g., Hall & Gray, 2016), the present findings demonstrate its relevancy when deeply involved in a process of change as a participatory AR study is. Furthermore, the aforementioned issues haven't been explicitly considered in the TGfU literature. Consequently, the current findings suggest that in addition to focusing on the players' tactical awareness, decision-making, and performance as

highlighted by Thorpe, Bunker and Almond (1986), coaches also need to focus on themselves. Particularly, findings advocate the need to reflect on own reflections, to attend to their focus, by getting exposed to reflective frameworks, and video and audio recordings. In the present study, this raised awareness to the role that emotions played in the coaching process, and how Hochschild's (2000) strategies contributed to better manage the negative impact they were having on my coaching.

4.2.1.2. The loneliness of AR

Consistent with the participatory nature of the study through the implementation of an AR approach, the players were actively involved in the process. This was done through a constant sharing of ideas and promotion of discussions. Here, as suggested in the literature (e.g., Pill, 2016), I constantly applied constructivist coaching styles to facilitate the players' learning and involvement (see section 4.3. for further detail on players' learning). In addition to this collaboration, I had frequent meetings with my supervisors, in which we discussed the application of the approach and its dilemmas. These meetings were a learning opportunity, in which guidance was provided to navigate the research process. As Jones, Harris and Miles (2009) put it, the importance of mentors can play a key role in the learning process by challenging coaches with their expert level of questioning and problem setting.

However, despite this collaboration, I had a recurrent feeling of loneliness throughout the process of applying a TGfU into my coaching practice. This may be interpreted as a contradiction to the collaborative nature of AR and TGfU approaches, which imply working closely with others. However, despite the active involvement of the players in the process, the responsibility and initiative of the decision-making process lay mainly on me as the coach. Also, on a different level, despite the support that I received from my supervisors, they are not volleyball coaches, therefore, had little specific understanding of the practice in question and (naturally) were not physically present at the training sessions.

It has been argued that every coaching context is characterized by uncertainty and messiness (e.g., Jones et al., 2004), in which the coach is confronted with constant crossroads in which he or she must make decisions. These issues are

common to numerous coaches, but arguably exacerbated in the present study due to the consequent vulnerability and uncertainty of trying to change an already uncertain context. Therefore, my loneliness can be interpreted as not simply a consequence of the process, but as a consequence of change (with all the feelings of vulnerability and uncertainty associated with it). Importantly, part of this change included the adoption of a sceptical approach in which everything was questioned through in-depth and systematic reflection. In fact, in the context of education, Dewey (1933) suggested that reflection derives from the feeling of doubt and conflict inherent to the teaching and learning process. Therefore, being constantly introspective and questioning every action (mine and the players'), developed into a personally lonely and insecure place.

This was emphasized during some frustrating moments when I felt the need to have someone to share my dilemmas and responsibilities with, and that could bring another perspective to the process.

> During an activity in which the main focus was serve-receive, the players kept missing serves. Since this is something they can usually do and were not particularly under pressure when serving, I associated their poor performance to a lack of focus. I intervened on an individual basis, challenging the players on their (poor) performance. The majority were apathetic, not engaging in a solution which caused me a great deal of frustration. I felt lonely and slightly lost. This made me wish for an assistant coach, underlining the importance of having a critical friend in the field that can provide a different perspective. (Reflective notes, 31/1/12)

This contradicts Klein's (2012) argument that the solitary aspect of AR is a myth since it tends to be shared between practitioners (usually more than one) and participants. However, more in line with my feelings, Hall and Gray (2016) identified the lack of support from others as one of reflective practice's main barriers. In doing so, they reinforced the social aspect inherent to the coaching process, in which the coach's behaviours are intrinsically linked to their athletes, assistants, and others (Hall & Gray, 2016). Therefore, the literature suggests that opportunities such as

Communities of Practice (Lave & Wenger, 1991) should be promoted so that coaches speak to and learn from each other (Cushion, 2013; Harvey & Jarrett, 2013). Jones and Allison (2014) also explored this idea of support from fellow coaches in light of the security that it provides, introducing the concept of a 'community of security'. The authors explained that the ambiguity and unpredictability of the learning environment within coaching creates insecurity for coaches. Furthermore, the informal interactions amongst coaches, particularly instigated in coach education courses, can work as a 'community of security' for practitioners that operate in an insecure context (Jones & Allison, 2014). Consequently, the present findings suggest that this need for support goes further than sharing knowledge, seeing it also as a potential opportunity to share dilemmas and to ground the coach from his/her introspective mind.

This lack of support was also felt in a logistical manner, where "particularly at the beginning of the session, I was often more concerned with getting the balls, setting up the net, and making sure the camera and microphone were in place, neglecting the observation of the environment and the players' behaviours." (Reflective notes, 22/9/11). With time, I was able to manage these tasks more efficiently, enabling me to focus on more pedagogical issues. Additionally, the lack of support was extended to some practical aspects in training; for example, necessitating my involvement in some activities to make them work (e.g., 'feeding' balls or serving).

> One issue that limits my coaching is the fact that in some activities I am feeding balls. This allows me to control the pace, and the quality of the feeding. However, it takes away the liberty to walk around, to have a wider perspective of what is occurring, and have a closer interaction with the players. (Reflective notes, 3/11/11)

Despite its limitations, I carried on doing this depending on the aim of the activity in question. The reason for this is articulated in the following note:

> The main focus of the activity was to improve players' positioning and communication in passing the serve. As the aim was mainly to focus on the pass rather than the serve, and considering that most

of the players still can't consistently serve to a specific zone, I decided to execute the serve myself. This allowed me to control the pace and the serve direction, such as serving in between two receivers to promote their communication. Despite the limitations of being involved, I think it was quite beneficial to have a good frequency of serves. This meant that all the players received serves, while it also enabled me to interact with all of them while I was serving (both the receivers and the servers). (Reflective notes, 6/12/11)

Notwithstanding the benefits of doing this occasionally, the findings suggest that the presence of an assistant coach to fulfil these tasks has the potential to benefit coaching practice and AR by allowing the principal researcher (me in this context) to observe and intervene at chosen opportune moments. Importantly, more than an assistant coach, the findings suggest the need for a critical yet supportive friend in the field; someone that provides a new and constructive perspective.

4.2.2. Coaching the approach

Regarding the application of the coaching approach, the findings shed light on some new knowledge in relation to applying TGfU in the coaching context. This section, then, will critically explore the content covered, the implementation of the model, and the change of focus from a player-centred to an interaction-centred perspective.

4.2.2.1. Planning and preparation

The initial game format of the TGfU six-step model takes into consideration the learner's level of ability (Bunker & Thorpe, 1982). For that to happen, it implies that coaches have some kind of prior knowledge about the team and the players, which can be interpreted as the AR reconnaissance phase. Here, the practitioner attempts to gain an understanding of the context in order to plan subsequent actions (Gilbourne, 2000). Indeed, as others have argued, coaches' general pedagogical practice should consider the context, the coach and players' background, their knowledge, abilities, and responsibilities (Cushion, 2013). However:

When planning the first session I realised that although the season hadn't officially started, I was already facing a dilemma: I had to plan a session in which the level of ability of the learner is the centre of the process, without knowing that level. (Reflective notes, 8/9/11)

Consequently, I considered two options to deal with this issue:

One is starting with a generic game format with no particular manipulation of it or any particular tactical constraint. This would be like a blank canvas with issues emerging from the game. The second option draws upon the AR cycle and its reconnaissance phase, in which I could glean information about the team to have some understanding of the players' background and level of ability. (Reflective notes, 8/9/11)

The fact that I had coached some of the players in the previous season did not resolve the dilemma but certainly minimized it:

I had coached the team in the previous season, so I had an idea of the main issues. I was just unsure of the level that they would be at after a long summer break…additionally, there were some new players in the team. (Reflective notes, 8/9/11)

Therefore, I made a decision to start with a generic 6v6 game format, which did not include any serves, so as to promote a more dynamic flow to the game and continuity in the players' actions. The session was based on my experience and previous knowledge of the team, foreseeing that some defensive issues would emerge from the game, such as the inability to dive for the ball or read the attacker. Following that initial game, the plan was to have a conversation with the players regarding those potential issues, and then work accordingly, finishing with a 6v6 again. However, what emerged from the game was more basic than expected, related to fundamental defensive positioning (i.e., where to position themselves according to the opponent's attack, drawing upon the defensive system employed). This was particularly noticeable in the new players. Therefore, the discussion focused on the defensive system adopted by our team.

This suggests that, from the four pedagogical principles of TGfU (see section 2.2.4.) introduced by Thorpe, Bunker and Almond (1986), the principle of 'tactical complexity' played a more significant role at this early stage of the season. Indeed, without an understanding of the players' level, it was unfeasible to adapt the approach and the subsequent principles to meet the appropriate level of tactical complexity. Specifically, without this understanding, it can be argued that the principle of 'exaggeration', in which the rules of the game are manipulated to emphasize a particularly relevant tactical issue, cannot be properly applied. Furthermore, the pedagogical principle of 'representation' that states that any game-related activity should somehow represent the formal version of the game, should be present in every game-related situation regardless of the stage of its application. Finally, the principle of 'game sampling' relating to the ability to group different sports with similar tactical principles together, was not considered applicable to the coaching context in which only one sport is covered.

In short, I am not claiming that different pedagogical principles are applied at different stages of the season. Instead, I am simply suggesting that the principle of 'tactical complexity' is particularly relevant at an early stage of the season when the coach is still unaware of the players' level of ability. Indeed, despite theoretical publications of the TGfU model, such as that by Holt and colleagues (2002), that proposed integration of the four pedagogical principles (see section 2.2.4.) within specific steps of the model, my experiences did not relate to such developments. Clarifying, the present findings agree with the literature regarding the importance of the pedagogical principles in framing the implementation of the approach and developing the players' understanding of the game (Bunker & Thorpe, 1982; Serra-Olivares et al., 2015), but suggest a more fluid and flexible implementation of them that should be adapted to the context and moment. Nevertheless, regardless of how these principles are implemented, the current study agrees with Kinnerk and colleagues (2018), who warned practitioners about the misleading expression 'let the game be the teacher', reinforcing the importance of integrating specific principles of GBAs to make sure the players understand the reasoning behind the pedagogical process in use.

The example of the first session above also highlighted that, in the context of TGfU, more important than which content to cover, is the coach's ability to adapt in-action. This relates to the ability to reflect-in-action; what Klein and Hoffman (1993) called 'naturalistic decision-making'. Whilst classical decision-making refers to the stages of planning, implementation of that same plan and its consequent review, it fails to consider the adaptations needed (Abraham & Collins, 2011). On the other hand, naturalistic decision-making implies reading cues from the practice to make appropriate decisions in context; a practice more common amongst experienced coaches (Abraham& Collins, 2011). Indeed, the present findings suggest that those cues are identified based on the coach's knowledge and by keeping a wide scope of analysis, i.e., an open mind to the different issues that can emerge from the context;

> I was able to adapt accordingly (in the session). I kept my mind open, and my scope of analysis was wide enough, which allowed an adaptation of my questioning. Indeed, the fact that TGfU entails issues that emerge from the game, and that takes into consideration the players' input, implies a constant adaptation in and to the training session. (Reflective notes, 8/9/11)

The findings suggest the ability to critically reflect (see section 4.2.1.) but also the level of preparation can have a significant impact on the coach's ability to adapt:

> To improve the ability to adapt in-action, I felt the need to be very well prepared for the session, which meant going beyond simply planning the different activities that constituted the session. Specifically, I would consider different scenarios that could potentially occur in the session, leading to different plans that anticipated distinct issues that can emerge from the game. (Reflective notes, 8/9/11)

It can be argued that this contradicts TGfU's adaptive nature, in the sense that it suggests that a pre-established plan was being implemented regardless of the players' responses. However, these different scenarios and plans were not used restrictively and exclusively, as highlighted in the following reflective notes. Instead,

they were used to provide me with more options when analysing the players'
responses in practice.

> Based on the last session, the main aim of today's session was to
> explore gaps in our defensive system (…) I had three scenarios that
> I thought could potentially emerge from the adapted game. One
> about our block position/marking, another about the exploration of
> a second defensive system, and a third one more focused on our
> (in)ability to dive for the ball.(…) Interestingly, the conversation with
> the players took us in a different direction, and we've decided to
> explore another key aspect that was impacting on our defence - the
> ability to read the opponent (…) The fact that I had considered other
> scenarios, allowed for a richer discussion without restricting the
> direction forward, if something, gave even more meaning to the
> solution explored. (Reflective notes, 20/1/12)

This suggests that despite the flexible nature of the TGfU approach, in which
the decisions should be made in collaboration with the players, a detailed level of
preparation can be beneficial.

Indeed, in order to guide the players to think, I needed guidance myself, which
is translated in the development of multiple and thorough plans that can cover
different scenarios. This is particularly important when applying a new approach.
Indeed, it has been recognised that in order to design meaningful game-related
activities it takes time and patience to overcome the insecurities and frustrations of
implementing a new pedagogical approach such as a GBA (Evans, 2006; Thomas et
al., 2013). This was reinforced by Kinnerk and colleagues (2018), who suggested:

> That coaches need to devote more time to the planning process
> when using GBAs because the act of planning can act as a mental
> model for the upcoming session and help the coach establish an
> explicit connection between practice, behaviour and player
> learning. (p.8)

This argument that a better preparation can allow a more flexible approach in
practice is not highlighted in the TGfU approach, and has not been extensively

explored in the literature. An exception was Mills and Denison's (2013) study in athletics, which corroborated the need to consider adaptations to the session's plan, highlighting how that helped the coach to implement the session more successfully.

4.2.2.2. Making sense of the six-step model

The findings demonstrate that coaches should be critical about the application of the six-step model in the order or sequence that it is presented by Thorpe, Bunker and Almond (1986), and should challenge the steps according to the specific context in which they are being applied. Furthermore, our results illustrate that using a structured approach such as the TGfU model can support the coaching practice by providing ideas about different aspects to consider in practice, whilst stressing the need for the approach to be loose and flexible.

The original TGfU approach includes a six-step model that goes from (1) game format to (2) game appreciation, (3) tactical awareness, (4) decision-making, (5) skill execution and (6) performance (see section 2.2.2.). This implies starting the session with a game format as a point of reference. However, early in the season, I identified two issues that challenged the notion of starting every session with a game format. These issues related to the need to integrate a warm-up at the start of the sessions, and the integration of game performances from previous matches/sessions.

Firstly, the need to integrate a warm-up emerged when planning the first session of the season and realising that Thorpe, Bunker and Almond's (1986) original approach does not clarify how the warm-up should be included within the session, or even if one is needed at all. This concern was illustrated in my reflective notes following the first training session:

> It can be argued that in the PE context, given the lower intensity of the sessions when compared to competitive sport, warming-up might not be seen as a priority or even a necessity. However, in the coaching setting, this is something to be considered, namely when coaching a group of adult players in which some of the players have signs of recurring injuries, and the level of fitness is not always ideal. (Reflective notes, 8/9/11)

I was therefore inclined to integrate some kind of warm-up, but it seemed reasonable to gather further information in order to make a well-supported decision. This gains particular relevance when considering that, despite being a traditional well-accepted practice (Bishop, 2003; Bishop & Maxwell, 2009), studies around warm-up still lack consensus (Takizawa et al., 2012). Indeed, some authors stated that the main aim of the warm-up is to prepare "the body physiologically for vigorous physical activity" (Walter et al., 2011, p.23). As the name suggests, the warm-up can contribute to increased body temperature, as well as improving physical performance and potentially reducing injuries (Bishop, 2003; Tancred, 1995; Temple, 2003). However, others demonstrated that athletes feel the need to warm-up, for reasons other than "simply warming up the muscles, tendons, and ligaments" (Ajemian et al., 2010, p. 387). Indeed, the authors claimed the warm-up is also an opportunity to recalibrate the sensorimotor network, i.e., it is the players' way of getting into an appropriate state of concentration and motor coordination. This has been supported by others who identified the development of movement patterns/coordination, and preparing the mind for the session ahead as additional aims to the physical dimension of the warm-up (Schokman, 1999; Temple, 2003).

Despite the lack of consensus around the rationale for warming-up, there is a vast range of literature supporting the implementation of a warm-up. Therefore, taking into account the basic agreement of the value of warming up, my reflective notes revealed the following:

> I have decided to include a warm-up in my sessions. Considering that no warm-up is suggested in the TGfU approach, I took my interpretation of what such a TGfU related warm-up should look like. In addition to preparing the body and mind for the session, I will be using it as an opportunity to work on aspects that could relate to the tactical side of the game such as communication, peripheral vision, and ball control. This can be potentially integrated into the initial game format. (Reflective notes, 8/9/11)

For instance, the warm-up integrated into the training session on 15/9/11:

Had three main aims: warming-up the body, promoting the collaboration between players, and developing the players' peripheral vision while working on setting[14] and digging[15]. The players had to keep the ball in the air as a group in which after digging or setting they had to move to another position. The level of complexity in the first part of the activity was low so that the players had time to do some dynamic stretches whilst running to positions. Nevertheless, they still had to work together to keep the ball in the air. If one player missed it, all the sequence was ruined, highlighting that their individual actions have consequences that affect the whole team. Indeed, the players were struggling to keep the ball in the air, at which point I asked them about potential solutions to help them work together. It was then suggested by one of the players that they should shout the name of the person they were playing the ball to before they play the ball; which means that when the ball is already coming to them they will have to take their eyes off the ball and see which player is ready to receive the ball in order to be able to shout her name. This stimulates communication and peripheral vision. (Reflective notes, 15/9/11)

Indeed, I added warm-up activities to the TGfU model in order to warm-up the body, the mind, and develop key tactical and technical concepts. These were often progressive and included technical work, which can be misinterpreted as the application of a more traditional technique-based approach. However, that was not the main focus as identified in the following reflective notes:

We started the session with a ball-control warm-up in groups of three, in which the players were using two balls simultaneously with the aim of developing their peripheral vision. After that, we progressed to a game-related defence activity. This is linked to what

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[14] Setting is the volleyball action also known as overhead pass, which entails playing the ball overhead usually used to set up the attack.

[15] Digging is the volleyball action also known as forearm pass, which is usually used when playing the first touch.

was mentioned in the last session about the players' need to fight for the ball. This can be misinterpreted as the traditional technique approach as it is pretty much a progression. But there are some details that differentiate them, such as (1) the fact that we are still working on some aspects that are related to tactical decision-making (e.g., peripheral vision); (2) the content covered emerged from conversations with the players around issues of the game; (3) and it is linked to the game straight away in the following activity. (Reflective notes, 8/12/11)

This emphasises the need to be flexible about the model. Considering that TGfU claims to work on issues that emerged from the game instigated by conversations between the educator and the learner, the outcome is unpredictable. Indeed, since the nature of the game is uncertain, adaptability is needed when employing such an approach.

A second challenge arose a couple of months into the season, which reinforced the need to be flexible in the application of the TGfU approach. This issue concerned the initial game format of the TGfU model (step 1), alluded to in the previous reflective notes. Indeed, the start of the league matches in October stimulated the reflection on how this challenge would impact on the session structure, which is illustrated in the following reflective notes:

One of the main differences I have been noticing from the TGfU initial model and the coaching context in which the present study occurs is that I don't feel that it is necessary to use the structured 'game-activities-game' in every session. I understand Thorpe, Bunker, and Almond's rationale for that to happen in a PE session, in which that initial game (step of 1 of the model) creates an opportunity for students to recognise the problems that arise from it, and work on those problems in the following activities. However, in a coaching context, that opportunity is given by the league game on the previous weekend, or even by the appreciation of the

problems that arose in the last training session. (Reflective notes, 6/12/11)

This suggests that in the coaching context, the TGfU approach endeavours to generate a greater degree of continuity between sessions/matches and the following training sessions. Moreover, this means that step 1 of the model is still being considered, but in a different way than in the original TGfU model. For instance, in the session on 6/12/11, the previous league match (4/12/11) was considered as the initial game form (step 1). This meant that rather than starting the session with a game form as prescribed in the original TGfU model, the session started with a discussion about some of the issues that emerged from that league match (step 3), in which "communication and awareness of the opponent's court while attacking were the main issues identified by the players as being important to improve." (Reflective notes, 6/12/11).

Interpreting the formal league match like the initial game form, where no modifications of the rules are implemented, means that step 2 of the model was also adapted (in this case, disregarded). Indeed, the step 2 of the model relates to developing an understanding of the adaptations made to the rules and its implications to the tactics employed, which does not apply when the game form considered does not entail modifications. Nevertheless, this does not prevent step 3 (tactical awareness) or the following steps from taking place, as it still allows the stimulation of the players' game awareness in which tactical issues should be addressed.

In addition to these two challenges, the distinction between the different steps of the model was far from being clear, as illustrated by the following reflective notes:

At the beginning of the present session, I challenged the players to reflect on the previous session, namely on how the team was playing and what can be improved. One of the issues raised was the importance of creating more 1v1 situations[16] to the attackers, and

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[16] In modern volleyball, the two more common numerical relations between attacker and blockers are 1 attacker versus 2 blockers (1v2), and 1 attacker versus 1 blocker (1v1) (Castro, Souza & Mesquita, 2011). Therefore, we aim to create more 1v1 situations, so that the blockers are not in numerical superiority, as this limits the attacker's chances to score (Castro et al., 2011).

a way to do that is to play with quicker tempos. This was an initial reflection before implementing step 1 of the model (pre-Step 1). We then put in place a 3v3 game situation (Step 1 – Game), in which the players were encouraged to use quick attack tempos (tempo 1 and tempo 2), but I did not explain how to do that. After that, we had a brief conversation about the problems they experienced in trying to attack quicker tempos. The attackers referred the need to run in order to prepare to attack right after digging the ball. They mentioned that this was particularly difficult in a 3v3 as they were involved in every action (Step 2 – Game appreciation); the setter referred the lack of consistency in the set, which led to instability in the link with the attacker (Step 3 – Tactical awareness). This was followed by a simpler activity in which the players would dig the ball to the setter sent from another player, and attacked it over the net using quick tempos. While they were doing this, I was interacting with each player by asking questions about what could be improved in their action (Step 4 – Making appropriate decisions). In particular, I asked about the timing of their approach[17] and the path of the ball from the setter. A couple of the players mentioned some technical aspects such as the inability to contact the ball properly during this quicker tempo, which led my questioning and feedback to focus more on the technical skill (Step 5 – Skill execution). After this, we got back to the game situation, this time a 4v4, in which particular attention was given to the improvement on the quick tempos (Step 6- Performance). (Reflective notes, 18/10/11)

All of the different steps of the model were therefore considered, but it was not particularly easy to distinguish the different moments when one step became another. For instance, it can be argued that tactical awareness (step 3) was already being promoted in the first conversation (step 2), or that the last step of assessing performance (step 6) in reality occurs throughout the whole process. Indeed, step 6

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[17] Attack approach refers to the run up the players do before spiking the ball.

entails observing players' performance, which should relate to the "outcome of previous processes" (as in steps 1 to 5) (Thorpe, Bunker & Almond, 1986, p.10), whilst, in reality, this observation and assessment of players' performance is implicit throughout all the stages of the process. This suggests that the different steps are interrelated and all overlap with each other into one entity.

These issues exemplify the limitation of applying a specific pedagogical model in such a complex context as coaching. In fact, although TGfU has been described as a holistic non-linear approach (Stolz & Pill, 2014), the presentation of it as a model can imply the opposite as it assumes following a sequential order. Indeed, in an attempt to distinguish GS from TGfU, Light (2013) highlighted that GS is less structured, which is interpreted by Stolz and Pill (2016) as making GS more "iterative and possibly non-linear" (p.245). The notion of non-linearity emerged from the dynamic systems theory for skill learning (Stolz & Pill, 2016). According to these authors "dynamic systems theory and ecological models of skill learning, capture the complex and sometimes seemingly chaotic nature of movement environments in their explanation of skill learning" (Stolz & Pill, 2016, p.250). The authors added that this concept attempts to capture the teaching and learning complexity through an iterative process rather than simply reproducing a sequence of mechanical steps. Furthermore, GS scholars claimed that this kind of approaches (GBAs) are "better discussed as an approach rather than a model" (Stolz & Pill, 2016, p.241). As the TGfU approach, GS entails teaching/coaching through match-like context, maintaining the game-based inquiry idea (Stolz & Pill, 2016; Zuccolo, Spittle & Pill, 2014). Indeed, what GS, TGfU, and other GBAs have in common is the use of small-sided games and questioning to develop tactical understanding, which is extensive to the current study. However, GS distinguishes itself from TGfU by its lack of structure and does not consider a model of the tactical before the technical, integrating both in a holistic way (Stolz & Pill, 2014, 2016).

Nevertheless, despite the issues encountered when following the six-step model, our findings are not arguing for the absence of structure (as in GS), but for a looser structure applied in a critical manner. Indeed, the present study suggests that the TGfU six-step sequential model should be interpreted as a loose structure to guide practitioners, whilst allowing enough flexibility for adaptation to each

particular context. Moreover, integrating a rigidly structured model in a constructivist approach like the TGfU was experienced as restrictive and even contradictory to its principles. In fact, as previously mentioned, since the nature of the approach is to adapt to the issues that emerge from the game, and the players' perspectives on these, the current findings suggest that it became impossible to apply a rigid structure to such a variable context.

This is congruent with Tinning's (2010) view that there is no 'Holy Grail of PE pedagogies', suggesting that there is no perfect approach, and that flexibility is needed to adapt to one's own context. Furthermore, within the teaching and learning environment, there are aspects that cannot be generalised as they are context-specific, such as the learners' individual needs (Carr, 2003). Indeed, it has been suggested that by generalising, one is actually diminishing the practitioners' professional knowledge to adapt to the different constraints that emerge from his/her own practical context (Nuthall, 2004).

The discussion around the implementation of a model in the coaching context is not limited to GBAs. Indeed, Cushion and colleagues (2006) critically examined conceptualizations of the coaching process and concluded that the set of models employed underrepresented the complexity of coaching. Consequently, practitioners have difficulty in implementing such theories or models into their coaching practice (Jones & Wallace, 2005).

Despite the acknowledgement of coaching's complexity, the search for a model that can somehow explain and simplify the coaching practice remains a topic of interest (Vella, Oades &Crowe, 2010). According to Cushion and colleagues (2006), this has to do with Cross and Ellice's (1997) contention that by controlling the variables that can eventually influence performance, one would be able to be a more effective coach. Additionally, other authors (e.g., Vella et al., 2010, p.426) claimed that coaching models allow "practitioners to base their behaviours and objectives on definitive principles, rather than improvise on the basis of feelings, emotions, intuition, and experience". However, these authors recognised the lack of impact that coaching models tend to have in the real-world coaching practice, due to their inability to represent the complexity of the coaching context. Consequently, Vella and colleagues (2010) suggested the need for a more practitioner-oriented model.

In contrast, the present findings are more aligned with additional empirical work (Cushion et al., 2006; Jones, 2000; Jones, Armour & Potrac, 2002) that demonstrates the worthlessness in employing 'a' model, i.e., a set of predetermined steps/directives, in a complex and dynamic context like sports coaching. This refutes further research (e.g., Casey, 2013), which suggests that models-based practice such as TGfU and professional development courses can be helpful to teachers and coaches. The present study accepts that the implementation of such models can provide some guidance to practitioners, but only if employed in a critical manner. This means that the model needs to be adapted to the context in which it is taking place. For instance, although the present study applied the TGfU principles throughout the season, the structure varied according to the needs of each specific session. Indeed, not every session started with a game format, and the structure 'whole-part-whole' structure was not always followed. Nevertheless, the principle of developing the players' tactical understanding was still being applied, as the initial game form (the initial 'whole') was often replaced by the game on the weekend or the previous training session. Also, the 'part' could entail the same game as the 'whole', but with a slight change of focus, in which the pedagogical principle of 'modifying the game by exaggeration' was being employed. This means that regardless of the structure, the key aims of the approach were still being followed, as the coaching content was linked to the game (modified games), and the players were always encouraged to reflect on the problems that emerged from the game (requiring game appreciation, tactical awareness and decision-making).

4.2.2.3. Developing my interaction with the players

Despite it being suggested that setting up the appropriate activity is perhaps the most important factor in the players' learning (e.g., Light et al., 2014a), my findings revealed that the coach's interaction with the players cannot be neglected.

> According to Sara (…), some of the things that they are learning
> might not come with time, as the coach needs to intervene and
> make it different if it's not working, and introduce new stuff if
> necessary. She suggested that the coach plays a crucial role in

guiding the whole process, namely in intervening in the right moment to amend what is wrong and introducing new stuff to make it better. (Reflective notes, FG, 1/11/11)

Indeed, despite arguments that GBAs are player-centred approaches (Bunker & Thorpe, 1982; Light, 2013; Light et al., 2014a) (e.g., TGfU places the learner in the centre of their six-step model), my findings show that the centre is actually the interaction between the coach and the players, emphasising the importance of the mediation skills of the coach. Indeed, this meant that the players' individual needs were considered, but these had to be framed around the team, the context, and the coach's views.

After the match, Magda approached me to ask about her role in the team. She mentioned that she is really happy with the team, but she aspires to have more court time, and consequently, she was wondering if she should be playing in a different position next season. I mentioned that I wouldn't be a barrier if that's what she really wants to do, but I explained that she would still have to fight for a position, but now in a role where she is not used to playing, which could be extra-challenging. Also, from a collective perspective, the team is more balanced the way it is. The reality is that I rather have her as a backup middle player than as a wing player. (Reflective notes, 18/3/12)

This suggests that despite being sensitive to the players' individual needs, these need be framed around the team, the context, and the coach's views. Importantly, it was in the way that this was communicated and negotiated with the players that the approach gained meaning. Hence, suggesting that TGfU is coach-players interaction-centred. Furthermore, in light of the TGfU approach, this interaction should be promoted in such a way that promotes the players' tactical awareness and understanding of the game (Thorpe, Bunker & Almond, 1986), hence opportunities were created to make the players focus on their tactical decision-making and performance.

This was a collaborative warm-up game activity, in which the players had to set the ball and follow through. Despite the apparent simplicity, since it involved every player, when one player struggled to control the ball or rotate accordingly, the whole sequence broke down. My interaction with the players had 3 different moments. In the first moment, I just explained the basic instructions, checked if they understood, and let them give it go. The ball was constantly on the floor because they kept getting the rotation order wrong, so I felt the need to intervene. This was the second moment, in which I questioned them why the ball was constantly falling. The players mentioned the inability to rotate properly and the lack of communication. Indeed, their answers were positive and they seemed to understand the dynamic, and consequently, they were able to keep the ball in the air for much longer. Nevertheless, some of the players were not contributing much to this dynamic, which made me wonder if they actually got the purpose of the activity or were they just following the others. This led to the third moment, in which I asked individual questions to some specific players, such as what was the point of starting in zone 6 and then moving to the line, and what they needed to do in the game after they set (cover the attack). Following this, the dynamic was impressive. The ball didn't fall once, and all the players were contributing physically and vocally. (Reflective notes, 6/12/11)

This suggests that the coach's interaction and facilitation has a strong impact on the players' understanding of what they have to do, why they have to do it, and consequently on their performance. Moreover, despite the fact that is not clearly stated by Thorpe, Bunker and Almond (1986) which coaching style is the most adequate in coherence with the TGfU approach, the findings suggest that the coach should embrace a constructivist style by considering the learner as playing an active role in their own development and learning. Indeed, this corroborates Pill's (2016) study that clarifies that GBAs move away from more traditional reproductive

coaching styles, suggesting an alignment with productive coaching styles, i.e., more learner-led. Indeed, Stolz and Pill (2016) underlined that in order to truly impact on the players' learning, the teacher/coach needs to go beyond the matter of drill vs GBA, and focus on the use of questioning instead of more directive styles of coaching. Questioning has been highlighted as a "central learning-intervention tool' within GBAs in order to promote the learners" independent thinking during the game (Light, 2004; Harvey et al., 2016, p.30; Pill, 2015)

However, as already emphasized in Chapter II, the way constructivism is presented in the literature varies. Indeed, whilst some authors (e.g., Davies & Sumara) interpreted constructivism as the result of the learner's independent explorations; others (e.g., Light & Wallian, 2008), highlighted the role of the practitioner in facilitating the learner's development. This is what Davies and Sumara (2003, p.125) called the "diversity of discourses" that are clustered under the constructivist banner. In this context, the Vygostkian or sociocultural discourse assumes particularly relevancy, and clearly identifies the role of the practitioner. Indeed, Vygotsky's approach to cognitive learning and development is not "predetermined by heredity, as nativists hold; nor determined by conditioning, as behaviourists hold; nor the result of children's independent explorations, as constructivist hold" (Karpov, 2014, p.9). Instead, Vygostky highlighted the role of a 'more knowledgeable other' that mediates the learning, by setting up suitable activities whilst facilitating the development of their "thinking, problem-solving, and self-regulation" (Karpov, 2014, p.9), which is consistent with my findings. In order to do so, a key strategy employed in the present study was the promotion of discussions through the use of meaningful and challenging questions. The use of questioning primarily aimed to stimulate the players' reflection, and secondly, provided me with cues on how the players' understanding of the game was developing. Coherent with GBA research, this study aimed to promote open-ended questions (also called divergent or high-order), which go beyond the simple recall of information (lower order questioning) and challenges the learner to analyse and evaluate the situation (Cadzen, 2011; Cope et al., 2016).

It is usually beneficial if the setter is able to perform a jump set, as it speeds up the offensive play. However, Sara didn't understand the point of doing it – "I think my set is actually worst when I jump set", she said. Rather than insisting on it, I made her think about the potential benefits of jump setting by asking her questions such as "What happens if you have a higher contact point when you set?". "The ball will get quicker to the attacker", she said. "So? What does that mean to our game?", I challenged her. "That the block will have less time to react?", she asked whilst still thinking about it. Karol (the other setter who is more comfortable jump setting) was also involved in this discussion. Consequently, Sara was able to understand the benefits that could come from work on the jump set. (Reflective notes, 16/2/12)

Indeed, in the context of tactical games approaches' literature, it has been demonstrated that open-ended (or divergent) questioning stimulates the players' thinking in a way that instruction cannot, and tends to engage the learner in the generation of new knowledge (Light, 2013; Light et al., 2014a; Metzler, 2000; Wright & Forrest, 2007). This questioning includes pedagogical behaviours such as presenting a positive body language, allowing time for answers, and encouraging the players' engagement in the discussion (Pedrosa-de-Jesus & Da Silva Lopes, 2011). Indeed, it has been suggested that asking questions has the potential to enhance the 'players' problem-solving, decision-making, and creative thinking skills, as well as their game understanding' (Cope et al., 2016, p.381). However, research has shown that coaches tend to use limited questioning in their sessions (Becker & Wrisberg 2008; Cope et al., 2016; Cushion & Jones 2001; Potrac, jones & Cushion, 2007,), and it has been highlighted by Evans and Light (2008) that this is particularly difficult in a GS approach. Some of the reasons pointed out for this discomfort in using questioning were clearly summarised in Kinnerk and colleagues' (2018) review, who highlighted the lack of experience in doing so (Evans & Light, 2008), the lack of pedagogical content knowledge (Roberts, 2011), the players' negative response to questioning (Pill, 2016), and the inability to manage group questioning (Karagiannis

& Pill, 2017). Furthermore, in this last study, the lack of pre-planned questions was inferred as the reason for the lack of systematic use of questioning in coaching practice (Karagiannis & Pill, 2017).

Equally, I felt that employing meaningful questioning was a new challenge for me that required improvement. By doing so, it was expected the promotion of a better balance between encouraging discussions that would challenge the players cognitively, whilst maintaining a high intensity in training. Namely, this meant rethinking how the questions were phrased, and promoting more individual questions rather than stimulating discussions with the whole group. Therefore, I planned some questions in advance to better consider the 'nuance' in relation to the players' individual characteristics (Figure 8). Indeed, the findings highlight the benefit of doing so, promoting more clearly phrased and challenging questions in order to encourage the players' understanding of the game.

Planning questions served as a guide rather than a compulsory prescription, providing me with a wider range of tools that allowed me to better adapt in-action. In this process, I was very mindful of the need to be flexible and review the questions according to the situation, as this impacted on the dynamics and intensity of the session.

> In order to better prepare for the session, I included potential questions in my planning (see figure 8). These were coherent with the content covered, and served simply as guidance rather than being inflexibly imposed. This provided a more comprehensive planning session which included what to cover, different pathways to follow, and how to address this as a coach, allowing me to anticipate different situations, and act accordingly. (Reflective notes, 15/8/11)
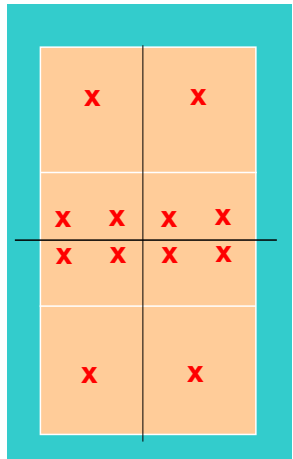
GAME 3V3	
Game 3v3, in which the attacker should tip in case of double block, and attack if individual block. The defender should adapt according to it, moving forward to dig the tip, or stayin in back court to dig the attack.	
QUESTIONS	
When double block? Why?	
When to tip? And when to attack? Why?	
What to do after attacking?	
How to move in the defence? Why?	

Figure 8 – Snapshot of training session planning 1/11/16

Indeed, as suggested in the literature (Jones et al., 2004; Karagiannis & Pill, 2017; Potrac et al., 2002), planning is important, but being overly dependent on planning will lead to a lack of flexibility to adapt to the constraints and opportunities that emerge during the session. Moreover, planning the questions led me to rethink how the questions were phrased and verbalised, in order to encourage the players to think about what was happening, its meaning, and implications. For instance, during a video session, "the initial question 'what do you see there?', was followed by 'why do you think that happens?', and 'what are the consequences to our team?'. These are more specific questions than simply asking 'so what?', which had a positive impact on the players' engagement in the discussion" (Reflective notes, 19/1/12). Indeed, the way that the questions were asked, allowed the players to not only think about what was happening but also to make sense of what that meant and its implications. Indeed, as suggested in the literature, effective questioning should promote the players' reflection regarding their performance and decision-making, by encouraging them to share their perspectives rather than restricting them (Oslin & Mitchell, 2006; Harvey et al., 2016; Wright & Forrest, 2007).

In addition, the present findings argue for the need to promote individualised questioning, since it allowed a more in-depth exploration of each player's issues and aided the balance between cognitive and physical challenge, which was as evident when promoting discussion whilst maintaining the intensity of a training session.

During the second activity, I called some players aside to question them about their blocking, in which I used some of the pre-planned questions focused on their ability to read the opponent (e.g., 'what do you see when they are organizing the attack?'). However, some of the issues were related to their actual movement, which led me to question them about it as well (e.g., 'how many steps do you think need to get to the wing?'). Also, I think these interventions were well-timed, as it allowed the players some time to explore their movement, and did not disrupt the pace of the session. (Reflective notes, 9/2/12)

Indeed, who to ask, and how to individualise the questioning was a very important aspect. As illustrated, "Yasmin mentioned that she needs more individualised feedback. She referred that I provide feedback (…) but usually the feedback is quite general" (Reflective notes, 1/11/11). Furthermore:

During the activity, I called some of the players aside to question them about some of the potential issues of their performance. Namely, I discussed the block with Patricia and Ceri, and the attack with Magda. I asked them if they were experiencing any difficulties in those actions, and if they have identified the ability to read the setter quickly in order to get earlier to the wing to block (Patricia and Ceri), and the ability to adapt to the set and get the ball in front of her when attacking (Magda). After discussing some possibilities to tackle those issues, they got back to the activity in order to put them into practice' (Reflective notes, 9/2/12).

A key aspect of this process was how challenging the questions were, since this encouraged the players' critical reflection, promoting their tactical knowledge and understanding of the game (see section 4.3. for further detail on Players' Learning). Indeed:

As the players' understanding of the game evolved, I started to question myself if the sessions and the level of discussion promoted were equally evolving in order to keep challenging the players.

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However, this has been a progressive and natural process, in which the level of the questions asked evolved naturally side by the side with the complexity of the activities. Today's training is a good example of it, as the complexity of attacking whilst reading the block demanded different question from previous sessions. (Reflective notes, 6/12/11).

If the questions are too easy, or too complex, or out of context, they will lose the intended effect. Moreover, 'what' to ask, 'how' to ask, and 'when' to ask, should be defined according to the level of the players, their ability to learn, and the specific content that is being addressed.

This ability to adapt my interaction to the players in order to promote their development can be explained using Vygotsky's (1978) concepts of 'more knowledgeable other' and 'zone of proximal development' (ZPD). Vygotsky challenged the stages of mental development that stated that specific tasks/skills should only be taught at specific ages depending on the individual's mental age development cycles (Piaget, 1953). In opposition, Vygostky questioned this assumption by proposing that the mediation of a 'more knowledgeable other', such as the coach, can facilitate the players' development. Specifically, Vygotsky explored the ZPD, i.e., the pathway between the actual development level of the learner and his/her potential development through problem-solving under adult mediation. As part of the learner's development, Vygotsky claimed that the aim is to decrease the ZPD by leading the learner from mastering a skill/task assisted by a more knowledgeable other to do it by themselves.

In order to do so, it becomes relevant to highlight the analogy of 'scaffolding' derived from Wood, Bruner, and Ross's (1976) work and further explored by Vygotsky (1978). Here, the 'more knowledgeable other':

Offers guidance on what elements of a problem need to be attended to, what knowledge may be required, strategies that can be used to address the problem, and encouragement for the 'performer' to recognize and use the knowledge and skills they do

have and seek out the knowledge and skills they do not. (Abraham

& Collins, 2011, p.373; Wood, et al., 1976)

Vygotsky (1978) suggested that this mediation should be explicitly promoted through questioning and instructions, and should be differentiated to every player. However, my interaction at the beginning of the season was mainly generic, addressing issues collectively with the whole team rather than individualising. This is justified by my inexperience using such an approach, but also by being in the initial stage of the season implied that general tactical issues needed to be addressed. For instance, when setting up the defensive system, the discussion should involve everyone since it is something common to all the players. As the season evolved, the individual problems emerged more frequently, and subsequently the individual conversations as well.

> Because Lia was in a group of 3, I pulled her away to discuss some
> of her struggles when attacking, followed by a short individual
> phase focusing on the movement of the attack. I think this kind of
> individual 'repair' is important, as it encourages the player's
> understanding of the issue and of what she now needs to do when
> then integrated into a game or game-related activity. (Reflective
> notes, 1/12/11).

Moreover, research has shown that despite being a meaningful way to promote reflection, whole group discussions tend to be less significant in promoting the players' understanding than individual or small group questioning (Light, 2002; McNeil et al., 2008). These authors go even further by highlighting that whole group discussions are an ineffective way of promoting personal decision-making. This can be explained by the lack of attention that the least vocal players within a whole group discussion have, and the fact that it does not meet every individual learner's needs (Cope et al., 2016; McNeill et al., 2008). However, Cope and colleagues (2016) suggested that in the context of their study with academy football coaches, little differences were considered within the questions asked regardless of the individual learner differences. Despite not going in-depth about the reasoning for it, the authors highlighted that the "whole group approach to questioning seems to

contradict athlete centredness, and deny, or minimise, individual difference" (p.390), implying that individual questioning is more effective within GBAs.

Moreover, the present study demonstrates that improving questioning skills had a positive impact on balancing the cognitive and physical challenges, promoting an improved flow of the session. Indeed, halfway through the season, the players started to feel that the balance between questioning moments and intensity of the session was "a lot better now. I wouldn't even notice it anymore" (Amber, FG, 7/2/12). This was shared by the remaining players who agreed that there "are a lot fewer stopping points and I think that's really reflected in how we train" (Lia, FG, 7/2/12). The players felt that they were "probably better prepared for you (me, the coach) to ask us questions" and that "you're approaching people individually, rather than stopping the whole group" (Anna, FG 7/2/12).

In response to the players' habituation to questioning, and their better understanding of the game (see section 4.3. for further detail on Players' Learning), as the season progressed, my interventions and involvement in the activities changed by increasingly stepping back to give the players more autonomy in their decisions. This led to more interaction amongst the players, such as "Amber providing Ceri with directions, and explaining why they should be moving that way" (Reflective notes, 28/2/12). Also, "there was a good moment of discussion among the setters and middle players during a water break. They started discussing what kind of plays they were going to do. This kind of situations didn't happen at the beginning of the season." (Reflective notes, 16/2/12).

Indeed, in agreement with the present findings, it has been suggested that, in order to promote the players' reflection, the coach needs to allow them time to do so, because they need to consider a wide range of different options before selecting one (Daniel & Bergmann-Drewe 1998; McNeill et al., 2008; Wright & Forrest 2007). This can include giving them the opportunity to discuss those options amongst themselves (Cope et al., 2016).

Furthermore, consistent with the literature (Cope et al., 2016; Forrest, 2014; McNeill et al., 2008), the present study suggests that the use of "questioning makes the players think, making it easier to understand what to do on court" (FG, 1/11/11), promoting their ability to critically reflect on their own performance. By the end of

the season the players completely recognised the value of "all those questions", as they "think it helps us remember better and take it in" (Magda, FG, 15/5/12). Moreover, in the last round of focus groups, Amber and Chloe mentioned that they are now more used to being asked questions, and they understand the game better, so they can now answer quicker. Also, Anna said that I ask more individual questions now, and Amber mentioned that I still ask questions but not straight away, I wait a bit to make them think about their mistake (FG, 15/5/12). This suggests that the strategies implemented had a positive impact on the referred dilemma of balancing the discussion moments with the intensity of the session.

However, according to Gréhaigne and colleagues (2005) this kind of strategy takes time and "sometimes the pressure of winning and being successful due to the cultural context in which the coach works may outweigh the coaches' desire or ability to 'step back' and facilitate learning" (Light et al., 2014a, p. 268). Indeed, this pressure of winning has been identified in the literature as a potential restriction for coaches to implement innovative approaches (Light & Evans, 2013; Pill, 2015; Roberts, 2011), which can be seen as a difference between the coaching context and the PE context. Nevertheless, it can be argued the amateur context in which the present study takes place, might reduce the sources of pressure associated with more professional sporting environments that are dependent on the results. Also, the aims of the TGfU approach are more aligned with the learning journey rather than the outcome (winning/success). Despite this, the will to win and the pressure that derives from it was still present in the current context, impacting upon the application of the approach. Indeed, promoting discussion amongst the players and encouraging them to contribute with their own perspectives was not always a smooth ride, as illustrated in the following reflective notes:

> During a game situation, a discussion emerged regarding the combination with the middle players, namely the distance that they should be from the setter in the 'seven' play[18]. I tried to be open and listen to everyone's opinion, but I think I was too open, failing

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[18] A 'seven' play is an offensive play combination in which the middle player attacks a quick ball (tempo 1 or zero) 2 to 3 meters away from the setter.

to clearly establish which distance the attackers should keep from the setter. I didn't guide the discussion very well because I didn't want to give my opinion and settle my position, but I should have been more assertive in bringing their thoughts together and get to a conclusion. (Reflective notes, 16/2/12)

There is a fine balance between guiding the players and letting them reach their own conclusions on the matter. Indeed, despite aiming to promote the players' autonomy "my impact in the session is still evident. I am constantly interacting, providing feedback, asking questions, encouraging them, etc." (Reflective notes, 9/2/12).

In addition to this, despite the literature demonstrating that teachers formulate the majority of questions (e.g. McNeill et al. 2008; Pedrosa-de-Jesus & Da Silva Lopes 2011), the players started to ask me questions themselves: "Amber asked if it was harder to get top spin on the ball when attacking quick balls. This demonstrates a good level of reflection and will to improve. I turned the question to her, and we concluded that it might be harder when learning, because the players have less time to execute, but it's all a matter of getting used to it. This shows their interest in improving, their interest in learning more stuff in order to get better." (Reflective notes, 20/10/11).

Indeed, it has been suggested that creating opportunities that allow players to ask questions themselves, leads to a higher level of learning, in which they are able to reflect more deeply and critically about their performance (Wiersema & Licklider, 2009). This highlights the findings mentioned above regarding interaction as a key component of this approach, in which the coach facilitates the players' learning and the players actively interact with each other and the coach as part of their reflective and learning process.

Furthermore, even when it seemed that I was interacting less, it was a conscious act with a specific aim in mind. For instance, as referred to above, as the players developed their ability to reflect in their own performance, I would often give them space to figure out the issue by themselves with the aim of promoting their autonomy and reflective thinking, which has been demonstrated to have a positive

impact on their decision-making and performance (see section 4.3. for further detail on Players' Learning). It can then be argued that the mediation of this interaction by the coach is, in fact, the centre of the process, playing a vital role in the players' learning. This suggests that more importantly than simply applying constructivist/discovery coaching styles, the coach should adapt his/her interaction to the uniqueness of the situation and the player/team and to act as the mediator of athlete learning as suggested by Vygotsky (1978). This led to the consideration and implementation of a range of coaching styles in my practice.

Using different coaching styles

Coaching or teaching styles have been theorised as a *Spectrum*, in which the coach can select appropriate styles across its range according to the situation and the specific learning outcomes (Mosston & Ashworth, 2002). Indeed, with the specific aim of promoting the players' tactical awareness and understanding of the game, some different Spectrum coaching styles were employed. For instance:

> A game-related activity in which they (the setters) had to jump set,
> and provide each other with feedback related to the accuracy of the
> set and potentially some execution points (e.g., jump balanced).
> This reciprocal coaching style worked very well, as they developed
> their ability to identify the strengths and weaknesses of
> performance. (Reflective notes, 16/2/12)

The original reciprocal style from Mosston and Ashworth's (2002) is actually coach-led in which one learner is given specific guidelines to communicate to another. Indeed, according to the authors, the reciprocal teaching style promotes interaction between learners by encouraging them to provide feedback based on specific criteria pre-prepared by the teacher (Mosston & Ashworth, 2002). However, in the context of the present study, this style was adapted, since rather than providing the players with specific criteria to observe, I encouraged them to freely analyse each other's performances without specific constraints, with the aim of promoting autonomy and their ability to reflect on others' performance. I then interacted with the player that was acting as coach, questioning her about the issues

that she was identifying. This meant that guidance was provided, but no pre-conceived restrictions were imposed on their analysis.

The example above illustrates a situation in which one style from Mosston and Ashworth (2002) was adapted to the present study. However, there were times in which, still following a constructivist perspective, a looser interpretation of the Spectrum was adopted. For instance:

> When serving, I asked the players to count the number of serves they did to the targeted zones, and the number of serves that missed the targeted zones. After the first round, I gathered the players to ask them what they did differently from the missing serves to the accurate ones. Different aspects emerged, from "throwing the ball in front rather than above their head", to simply "focus before serving". Moreover, I asked the players to think about those aspects when executing the serve in the next round. Most of the players improved their efficacy, even the ones that didn't necessarily feel more comfortable whilst executing it. (Reflective notes, 26/3/12)

This can be interpreted as *divergent teaching style* (Mosston & Ashworth, 2002), by encouraging the players to produce multiple responses to a problem. However, in this case, this was done by making them aware of the outcome of their performance and reflect on what happened when they served to the intended zone, and when they missed. Despite using the outcome as a starting point for the discussion, the focus was on exploring the process that led to that outcome: "Am I rotating my body?...I think I am. That's why I keep serving like this (pointing left) isn't it? (...) I will make sure I throw the ball right (in line with hitting arm), and keep my body straight" (Lia, 26/3/12). Indeed, the players were encouraged to reflect on their own performance, critically discuss it with me, and come up with some key points to address it.

Moreover, when deciding which coaching style to employ, our findings underline the need to consider other factors beyond promoting the players' tactical awareness and understanding of the game, which might justify the use of styles from

the reproduction cluster (Mosston & Ashworth, 2002) such as *command*. For instance:

> I started shouting directions, in a dynamic posture in order to increase the enthusiasm and focus in the session. I admit that I was more directive in this part of the training. I think that sometimes, like in this situation, that is also needed. Actually, I think that one of the reasons why sometimes I tend to be a bit directive is to try to make them understand the pace and dynamics that a training session should have. Most of them are used to a much slower pace in training sessions. The players responded well to this. Initially, they were feeling frustrated and confused, and I think I didn't have the necessary patience. But when I started to be more directive in an energetic way, the players became more energetic as well. (Reflective notes, 1/11/11)

As the season progressed, the players were more proactive in setting up the pace themselves without me pushing them. However, halfway through the season, it was evident that "I still take a big role in raising the team's spirit, and improving the dynamics of the team. They are amateur players that often come to train tired from a day's work, and are still learning how to train competitively." (Reflective notes, 24/1/12). Indeed, by the end of the season, there was still a level of directive coaching in training sessions:

> I believe that it is really important to ask them open questions, in order to make them think, challenging them mentally. However, there are moments in the training session where I still tell them things directly. This usually happens regarding something that was already discussed previously, and it's more as a reminder. (Reflective notes, 5/4/12)

This demonstrates that whilst applying a TGfU approach in the coaching context, the coaching style employed needs to consider factors surrounding the players' understanding of the game, but also their mood and motivation, and the dynamic/intensity of the session.

These findings contradict previous research in the field that suggested that coaches should always use constructivist coaching styles, in which questioning is promoted, rather than more direct interactions (e.g., Kidman, 2005). On the contrary, our study corroborates Cushion's (2013) critique of the literature's argument that direct instruction does not have a place in GBA, and that questioning is the only acceptable coaching behaviour in this context. This author defends a place for direct instruction within GBAs, highlighting the deification of questioning: "questioning has transgressed from becoming *an* appropriate strategy (Turner, 2005), to the *most* appropriate (Kidman, 2005), to the *only* strategy (Roberts, 2011)" (Cushion, 2013, p. 66).

Cushion (2013) talked about 'folk pedagogy' which relates to approaches based on anecdotal evidence, based on tradition, circumstances and external authority. However, folk pedagogy can result in what Prawat (1992) called 'naive constructivism', in which the learner is given little or no guidance at all from the coach (Cushion, 2013). This misunderstanding can lead to the misperception that coaches have no role and that the game should be the teacher, in which the activity in itself is sufficient to enhance learning. Corroborating the notion of the 'more knowledgeable other' (Vygotsky, 1978) explored above, Cushion (2013) stated that guidance is required, ideally supported by 'skilful and progressive instruction', otherwise it would be impossible to take into consideration individual differences. Indeed, research has shown that unguided practice does not facilitate learning (Kirschner et al., 2006; Mayer, 2004).

To that end, our findings corroborate the importance of employing constructivist coaching styles in order to guide the players to reflect on the process and promote their understanding of the game, and the potential and occasional integration of more directive coaching styles when justified. It is acknowledged, however, that when employed inappropriately, the direct coaching styles can indeed have a detrimental impact on the process. An example of the misuse of direct style relates to my inability to apply the appropriate style in the first few games of the season (see section 4.2.1.1.). Indeed, whilst in training, despite the constant adaptations, I felt that my interaction with the players was consistent with the TGfU approach, whilst in the first games of the season that was not the case. Here, I was

restricted by the time and spatial conditions of the game, but also by emotional stress adjacent to the competition. To be able to deal with all the game's constraints, namely the will to win and the consequent emotions that derive from that, I have suppressed my views as an action researcher at the beginning of the season. I would often assume a much more directive coaching style during games, telling the players exactly what they needed to do in order to win. The process of critical reflection was crucial to realise this issue and to find strategies in order to change it. Indeed, I had to train myself to be more conscious about my actions and make a real effort in order to improve on this (see section 4.2.1.).

Research in this field has tended to provide strategies for coaches to maximise their intervention time in matches (e.g., Piltz, 2000). However, this is invariably focused on instruction rather than discussion. Indeed, instruction can be very effective as it is a quicker way to pass the message to the players (Piltz, 2000), however, drawing upon the TGfU principles, a deeper level of critical analysis should be promoted. Therefore, my findings suggest that questioning and discussions should also be integrated into match days, in coherence with the approach applied in training sessions, and in a pertinent and relevant fashion. A broad question would potentially encourage the development of different subtopics, the wrong question would lead to a different discussion, and an unclear question would demand rephrasing and consequently wasting time. Therefore, before every 'time out' I would think very carefully about the question that I was going to ask according to the analysis that I had done, or according to the main focus during the week. For example, if during the week we have focused on reading the opponent's blockers, my question might be 'Does your blocker tend to cover line or cross?'.

In conclusion, applying a GBA approach entailed adapting my coaching style with more emphasis on my skills of being a facilitator of knowledge rather than a transmitter of knowledge. This idea of the coach as a facilitator or mediator is something that has been highlighted in related research as beneficial in the successful implementation of TGfU (e.g., Thomas et al., 2013). However, as a consequence of my reflective process, our findings suggest that any Spectrum style (Mosston & Ashworth, 2002) can be adopted and adapted to the specific situation. My findings in relation to the use of questioning and using different coaching styles

opened up a new area of consideration related to how I controlled the coaching situation.

4.2.3. Controlling the process

A key message that runs across the previous findings is the need to be flexible and adapt the model and the coaching practice to the situation in question. Indeed, by encouraging the players to think about the issues that are emerging from the game, TGfU implies flexibility from the coach to adapt in-action. Moreover, being a collaborative process in which the players' autonomy and decision-making are promoted, the degree in which the decisions are shared with the players should be higher than in more traditional technique-based approaches (Light et al., 2014a). This suggests the development of a more liberal and unstructured coaching practice.

However, in the process of guiding the players, valuing their opinions and promoting their understanding, I also felt the need for some sort of guidance myself. This was a retrospective realisation that emerged from my final reflections and from conversations with my supervisors. Therefore, contradictorily, despite acknowledging the need to be flexible I also felt the need to have some sense of control, which is often associated in the literature as having power over someone (e.g., Huang, Raimo & Humfrey, 2016). The notion of power has been associated with a sense of security, and in opposition, a sense of fear and anxiety when that power status is threatened (Hargreaves, 1998). However, Foucault (1980) addressed the notion of power not necessarily as a restricting aspect, but as an enabling aspect of others' actions. In this context, the control identified in the present study aimed to provide me with some sense of guidance, so that I could better facilitate the players' learning. This was illustrated by the need to be exposed to frameworks that would support my reflections; by suggesting the support of a critical friend; by my active involvement in some of the activities; by developing two or three plans for the same session; and by pre-planning questions for the sessions and the games (all mentioned in the previous section). These examples suggest a need to control the context and manage the structure. For example, even though I asked the players for their views on the issues that were emerging from the game, the fact that I had 2 or 3 options

for the same session, suggests that the options given to the players were in some sense limited to my pre-planned views. Furthermore, questioning was also, in a way, a vehicle to develop my relationship with the players in the sense that opened up a line of dialogue between coach and players. Indeed, Flavell's (1979) metacognitive model adds the affective impact of questioning in addition to the cognitive one. In this context, metacognition has been described as the ability to control one's cognitive or affective process through the questions asked (Sternberg, 1984).

Indeed, Johns and Johns (2000) highlighted that sports coaches are the ones setting up workloads, identifying limitations, and acting as the authoritarian figure within the team, thus establishing behavioural standards. According to these authors, this is justified by the coaches' expertise (or sense of it), technical knowledge, and access to resources, which corroborates the present findings regarding the coach's position as the 'more knowledgeable other'. Perhaps contradictorily, despite the expertise and knowledge, coaches often feel insecure in incorporating constructivist approaches with fear of losing their credibility, authority, and control (Roberts, 2011). Moreover, Fox (2006) highlighted that, without control, the qualities that a coach might have will not reach the players, whilst reinforcing that the way a coach achieves that control can vary by assuming the role of a more rigid coach or a more personable one. However, regardless of their style, Fox (2006, p.20) identified an aspect that resonates with any coach that has control over their players as "the emotional investment in team performance, the coach's hunger for excellence and willingness to expend unlimited effort in pursuit of team goals". Fox (2006, p.21) added the coach's organisation, preparation, self-assurance, promotion of team meetings, and setting up of 'an elevated tone for the practices and games' as key strategies to promote control. Further, Denison and Mills (2014) contended that order and control are essential for effective coaching as it allows for a better organisation, prediction, and therefore, management of the athlete's training.

Interestingly, I used not to think about myself as a coach that overly controls the process. Instead, I tended to see myself as a facilitator, or using Wallace's (2001) metaphor, an orchestrator, particularly when applying a collaborative and flexible approach such as the current one. However, looking back to the findings presented above, it can be suggested that control and flexibility can co-exist. This allows the

promotion of organized chaos, or what Santos et al. (2013) called the controlled instability, which according to the authors allows the creation of an optional learning context in the sense that the players are being taken out of their comfort zone.

> The sessions are complex, and a bit overwhelming at times to be honest, as there is a lot going on…tactics, technique, teamwork… But that's good. It's challenging and keeps us focused because it's really engaging. (Ceri, FG, 15/5/12).

This becomes particularly relevant when considering the inherent uncertainty of change in AR. Whilst any coaching practice is uncertain and implies change, AR emphasizes the need to rationalise and justify that same change emphasising my doubts. As highlighted by McMahon (1999), AR involves strategic action, which refers to the process of learning from the practical problems and executing a deliberated and academically justified plan with the aim of improving practice.

Moreover, the level of control in the present study was extended to what was perceived as the players' understanding of the game. This means that the understanding that the players gained about the game was a reflection of my understanding of the game, as I implicitly or explicitly influenced the players' perception about it. Therefore, when promoting the players' understanding, I was, in reality, encouraging them to reach my level of understanding. For instance, when the player made the decision to serve to zone 1 with the justification that this will make the setter receive the ball from behind them, therefore complicating the attack organisation, that is, in fact a justification that was implemented by me at some point beforehand. This does not mean that I directly told the player what to do, but by guiding them through questioning and by setting up activities that emphasised that issue, I was, in fact, controlling their understanding of the game. This suggests that despite it being the players making the decisions in the game, the criterion for a 'good' decision is set up by me, implying that the level of autonomy that players have in training is ultimately controlled by me.

Following the arguments presented in section 4.2.2.3. that place the interaction between the coach and the players at the centre of the process, the present findings add that the interaction is controlled by the coach. Indeed, this study

challenges the interpretation of player-centred approaches as having the players' at the centre of the decision-making process or in control of the process, suggesting that the centre is the interaction which is controlled by the coach.

4.3. Players' learning

This section presents and explores the impact of the TGfU approach through an AR methodology on the players' learning. Namely, it clarifies how the players' reflections, tactical awareness, understanding of the game, and consequent performance evolved throughout the season in question, identifying emerging issues that derived from the process.

4.3.1. Players' reflections

Similar to the coach's necessity to reflect as part of the AR process, the players were also stimulated to do so as a starting point to think about the issues that were emerging from the game(s). Indeed, the cyclical nature of most pedagogical approaches/models invariably includes a stage of reflection, which provides a "continuous sequence for enhancing player learning" (Davies, 2010, p.25). As highlighted by Schön (1983), and reinforced by Mouchet (2014), reflection allows the development of practice as "it allows constant access to knowledge-in-action" (p.155). In order to better understand the players' ability to reflect, their response to questioning and to the activities designed will also be explored, as these were key strategies used to instigate it.

Despite varying from player to player, the present results showed how the players' ability to reflect evolved throughout the season, highlighting its positive impact on their tactical awareness, game understanding, and consequent performance.

4.3.1.1. Superficial and individual reflection on-action

At the beginning of the season, the majority of the players demonstrated a superficial ability to reflect-on-action; something that restricted their own individual performances particularly in terms of ignoring their teammates and the opposition as subjects of reflection. This inability to reflect on their performance in terms of

identifying strengths and areas for improvement was explicit in the following extract from the meeting held to introduce the new approach (and study) to the players:

> The discussion was quite superficial. For instance, the players were unable to expand on the things that individually, and as a team, we needed to improve from last season. Perhaps being so early in the season the players might not be aware of (or remember) the team's strengths and weaknesses. It also seemed that they were reluctant to engage in such an interactive discussion, in which I was challenging them to reflect. (Reflective notes, 8/9/2011)

Further, in the training session of 22/9/11, when asked about the main issue within the game, the players identified some individual issues related to defence, "the majority struggled to extrapolate on it. This difficulty was particularly noticeable when discussing the team and others, as most of the players focused on themselves" (Reflective notes, 22/9/2011). Indeed, when challenged to reflect on their performance during training, they tended to do it superficially, almost as if just presenting a 'gut feeling' about the main aspects of their individual struggles (e.g., "I didn't communicate much"), showing an inability to specify which aspects of communication failed, its consequences, and how it could be improved.

Since questioning was a key strategy implemented to encourage the players to reflect, it became apparent that the unfamiliarity of being challenged in such a way was an important limitation to note.

> Elen was challenged again, as she didn't know where to receive. Rather than telling, I asked her about it, trying to make her understand where and why to position herself in a certain zone. She was clearly uncomfortable, struggling to give answers. This was caused by a mixture of not being used to be put on the spot, being unsure about her tactical knowledge, and her shy personality (the fact that she is new in the team exacerbates this). (Reflective notes, 1/11/11)

There were moments in which questioning appeared fruitless, as the players were unable to provide a response. In fact, illustrated by one of the football coaches

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in Pill's (2016, p.15) study, "some players just seem to want to be told what to do and not think through the problem, where do you want me to be?". However, the present study suggests that the objective here was not simply to obtain answers. Rather, it was a strategy to stimulate the players' cognitive and reflective skills, which (hopefully) occurred even when they were unable to produce a coherent answer or any answer at all.

In addition to the use of questioning, reflection was also facilitated or prompted by designing and delivering activities that got the players in a position that engaged them cognitively as well as technically and physically, as per TGfU approach (see section 4.2.2. for further detail on Coaching the Approach). Furthermore, there was an expectation that the implementation of such strategies would have a positive impact on the players' ability to reflect during and post-training sessions, games, and focus groups. Indeed, the present findings suggest that, as the season wore on, increasing exposure to the aforementioned pedagogical practices resulted in improving the players' ability to reflect. Indeed, the players were able to be more critical about their individual performance and develop a better understanding of it:

> I know where I'm supposed to be now, and I've been playing for so many years and I think for the first time in my life I know where I should be (…) they (past coaches) did tell me but I didn't take it on board. But I do now and I don't know why (…) I've been playing for16 years and it's the first time I know where I should be. (Patricia, FG, 25/10/11)

This quote reinforces the finding previously discussed in section 4.2.2.3., which highlighted the importance of coach-player interaction. Indeed, despite being told how to position in the past, Patricia was oblivious of why she had to assume a certain position on court. However, by promoting a more questioning-based interaction and game-based activities, the player had now developed a better understanding of where and why to position herself on court. Indeed, Magda felt that she was "learning massively", as a consequence of efforts to make them conscious through emphasising the continuous connection to the game (Magda, FG, 25/10/11). As part of the players' improvement, in addition to the more critical reflection, they became

more able to reflect on the team's performance, rather than simply focusing on themselves: "when asked about the team's performance, the players highlighted collective issues such as the confidence to call for the ball and go for it when receiving the serve, and the ability to move and position behind the ball." (Reflective notes, 17/1/12). This shows that after a couple of months of exposure to the TGfU approach, the players developed their ability to reflect more in-depth on their individual performance, and started to shift from a self-centred reflection to a broader focus where the team was also considered. It should be highlighted that this was not a smooth process, and the ability to critically reflect on the game's performance was influenced by the result. Indeed, some players struggled to be critical when we were in a winning streak:

> In this session, we discussed the issues that they (the players) felt
> we didn't do so well at in the last two games. They were quite happy
> with our performance in general, which was strongly influenced by
> the fact that we won. (Reflective notes, 6/12/11)

In contrast, the players were more critical following a 3-0 defeat against Londinium VC (pseudonym) in the Cup, despite the fact that we played well. Here, the players instinctively focussed on the result, as if the criterion was the outcome, i.e., losing a match meant that something must be wrong in the process, and we needed to reflect on it. I challenged this perspective, as it implied that if the team won there was no need to reflect and challenge the process. Conversely, continuous reflection was promoted, encouraging the ongoing development of the players' learning journey regardless of any game related result.

Additionally, a few months into the season, the players' general opinion was that they were better able to read the other team, and understood how they played. This is illustrated in the following reflective notes, which expose another strategy (video sessions) used to encourage their ability to reflect.

> In one of the video sessions where the players were given autonomy
> to analyse the game, it was evident they had improved in terms of
> analysing the opponent, in which they highlighted relevant points.

For example, in a side-out[19] situation the middle players tend to attack where they are positioned, which means that, if they are in zone 4, they will attack in zone 4; and in some rotations, the wing-players will attack in the middle, which means they won't attack quick tempos. (Reflective notes, 19/1/12)

Here, within a video session, each player was given a blank sheet and a pen and asked to write down the characteristics from the opposing team that they can identify, giving them time to reflect on what they had just observed. They were then encouraged to share their views, in which I acted as facilitator, encouraging all the players to be involved. Consequently:

All the players were able to identify some characteristics of the opposition, demonstrating an improvement in their understanding of the game. However, some of them are still unable to provide a meaning for that characteristic, lacking knowledge of how certain weakness can be explored. (Reflective notes, 19/1/12).

Nevertheless, despite the individual differences between the players, overall their understanding of the game was more detailed in comparison to the beginning of the season. In fact, in a video session promoted about six weeks before the one above, the players "were unable to notice that the other team had a different rotation, where the middle players were closer to the setter instead of the wing player. From there, several issues regarding their position in the side-out arose" (Reflective notes, 6/12/11).

This shows that, progressively, the application of the approach led to a more in-depth reflection-on-action, where the players looked beyond themselves and started to analyse their teammates and the opponents' performance as well, which is an important aspect when considering the players' understanding of the game (Thorpe, Bunker & Almond, 1986). As in Knowles and Gilbourne (2010), the sharing of ideas (inherent to the TGfU approach) instigated a reflective dynamic. However, the players emphasised that "they can only do that (reflect on the opposition) from

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[19] Side-out is the attack organization after serve-receive action (Castro et al., 2011).

an 'outside perspective', not in the context of the game, as they are too focused on their own role." (Reflective notes, FG, 1/11/11). At this stage of the season, they were still "uncomfortable analysing opponents within a game situation whilst playing" (Reflective notes, FG, 1/11/11). Here, Lia mentioned "that it's the first time that someone has encouraged her to analyse the opponent, it's a completely new thing for her, so it just takes time to get used to it." (Reflective notes, FG, 1/11/11).

This relates to Mouchet's (2008, in Light et al., 2014b) concept of reflective consciousness or reflection-on-action, and the concept of consciousness at-action or reflection-in-action. The former was described as the achievement of a level of conceptualised knowledge dominant in moments of lesser temporal and physical pressure, such as when the players are not playing, and in which the individual is capable of developing his/her own judgment. The latter refers to a pre-reflective experience, in which the reflection is implicit in moments of high temporal pressure, i.e., is translated in the ability to think about what one is doing while doing it, which can impact on the players' decision-making and consequent performance (Light et al., 2014a).

Furthermore, the notion of consciousness becomes particularly interesting if discussed around the idea of intuition. Clarifying, since team sports have been recognised as dynamic and time-pressured contexts, the athletes' decisions are often described as intuitive, in which the players act and react without consciously weighing the consequences of their actions (Evans & Stanovich, 2013; Plessner, 2016). However, numerous research studies in the field of judgment and decision-making reinforced that the ability to reflect-in-action allows the players to analyse relevant cues empowering them to produce conclusions that can lead to more efficient decisions (Araújo, Davids, & Hristovski, 2006; Plessner, 2016; Plessner et al., 2009). These authors called it the multiple-cue approach.

Moreover, despite being suggested that the TGfU approach promotes "tactical awareness (that) should lead to early recognition of opposition weakness" (Thorpe, Bunker & Almond, 1986, p.9), the present findings suggest that players start by developing that recognition in moments of less temporal pressure 'out of action', progressing to being able to do it within the game.

Halfway through the season, the majority of the players were able to reflect-in-action regarding contextual aspects that influenced their actions directly; such as the attack identifying issues with the movement of the setter, or the setter exploring the receivers' flaws. At this stage, however, very few players were able to take it to the next level; to critically reflect on their own performance and the performance of others (including the opponent's) while involved in the context in which the action occurred. Indeed, despite the general improvement, there were individual differences as illustrated in the following reflective notes:

> Elen and Steph are still behind the others in terms of understanding the game. For instance, they are not able to identify the gaps on the other side when they are serving or attacking. They are more focused on executing the skill rather than thinking about the tactical implications of their decision-making. Sara and Lia, on the other hand, are able to identify gaps in the opponent's side during the game.' (Reflective notes, 19/1/12)

> When discussing the block organisation, the players provided some meaningful points that led to the decision that if the opponent's middle players attack a short tempo in front of the setter, then our zone 4 blocker helps our middle blocker. If the opponent's middle player attacks a 'seven' our zone 2 blocker assists our middle blocker. In this discussion, the different levels of participation and knowledge were evident: Amber and Sara were completely involved, answering most of the questions, and even coming up with relevant questions regarding what we were doing; Lia and Ceri made a clear effort to be involved and timidly asked some questions; Chloe demonstrated a good understanding of all aspects of the discussion, but just answering the questions that I would ask her directly (too shy); Anna tried to be involved and answered some of the questions timidly, clearly making the effort to understand; Elen and Magda made an effort to understand, but they were too

insecure about their knowledge to voluntarily intervene and answer questions. (Reflective notes, 28/1/16)

To address this issue, I began to engage in more individualised discussions with players, utilising high-order questions since these have the potential to challenge the learner to delve deeper into exploring further cognitive solutions (McNeill et al., 2008) (as described in section 4.2.2.). Moreover, by doing so, the players started to "think about it (performance) while I'm doing it"' (Amber, FG, 17/5/12). Amber clarified that the players were now communicating about reception lines, offensive organisation, or about the wing player calling off when they were not blocking, which illustrated that players started to think about the game during the game, i.e., they were reflecting-in-action (Schön, 1983). This was an opinion shared by the remaining players, which suggested a better understanding of the dynamic of the team and of everyone's responsibilities. In this sense, Amber referred that she felt that in previous teams she would understand her individual responsibilities anyway. However, "in our team, everyone understands their own and everyone else's responsibilities, and the level of (tactical) complexity is much higher here", i.e., the tactical issues are more sophisticated (FG, 17/5/12). Moreover, in Amber's previous teams "if things were going wrong, and the ball dropped people would be like 'It was your fault!'. Whereas here, people definitely know and take responsibility, and if it's someone else's responsibility it's ok to acknowledge that because they already know." (Amber, FG, 17/5/12).

This ability to reflect-in-action was an improvement from the beginning of the season, where the players demonstrated a limited ability to do so. In fact, throughout the season, it became common to witness the players analysing their own performance in training, and asking me reassuring questions relevant to the tactical aspect covered (e.g. "I am trying to attack down the line; I can see that the block is open there...but I'm letting the ball drop! ...Right?" [Reflective notes, 26/2/12]). In fact, more than just asking reassuring questions, the more engaged in the process and the more knowledgeable the players became, the more likely they would be to ask relevant questions back. Moreover, even the players that were still struggling slightly to understand some processes, demonstrated improvement. For instance:

> Magda asked how her distance to the setter as a middle player impacted on the backcourt attack; Ceri asked what should the middle players' position be when covering our own attack as they were involved in the quick attack. This demonstrates that they are engaged cognitively and possess a decent knowledge in order to think about these complex issues. It also, means that they were comfortable enough to expose their doubts in front of everyone. (Reflective notes, 24/1/12)

In fact, rather than agreeing with me every single time, like they did at the beginning of the season, the players not only gave their opinion when asked, but also started to question some of the topics discussed, or raise their own topics, which demonstrated a higher ability to critically reflect in the process. For instance, "Amber challenged the block organisation, by questioning if we should block the setter rather double block the middle player." (Reflective notes, 4/2/12). Also, this apparent development of their critical thinking and ability to challenge the situation by asking relevant questions emerged around tactical collective issues, but also individual technical issues:

> Magda brought up the serving technique, asking questions that demonstrated a good level of analysis, such as "If I move my wrist too much, I will make the ball spin rather than serving float[20] right?". This demonstrates that the players are now comfortable with questioning and starting to be more critical. (Reflective notes, 28/1/12)

Indeed, this critical mind was evident in the way that the players initiated meaningful conversations about the game, or challenged each other's actions. Consequently, in the present study, the players developed a better understanding of each other's responsibilities on court, which ultimately, had a positive impact on the team's performance.

This meets Doozan and Bae's (2016, p. 477) claim that the development of critical thinking "is associated with academic qualities and skills such as creativity,

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[20] A float serve implies a trajectory of the ball without any spin.

reasoning, problem-solving, mindfulness, and reflective judgment". This has been corroborated by other authors (Light & Evans, 2010; Light & Robert, 2010; Lodewyk, 2009; McNeill et al., 2008; Memmert, 2010; Pill, 2015; Rovegno, 2010) who added that the previous skills and others such as tactical intelligence and decision-making, encourage the understanding and justification of decisions within practice, potentially improving performance.

This ability to think more critically, at a different level, can be somewhat explained by the concept of metacognition, which is concerned with thinking about one's own thinking (Dail, 2014). This concept was developed by Flavell (1979), "which entails the knowledge of one's capabilities (declarative knowledge), the knowledge of the task in hand (procedural knowledge), and the knowledge to use different strategies to learn (conditional knowledge)". This is complemented by the ability to analyse one's own knowledge, or what Flavell (1979) called metacognition regulation. The author suggested that metacognition knowledge and metacognition regulation promotes an understanding and awareness that enhances learning, allowing the learner to control their own mental processes (Flavell, 1979; van Velzen, 2016). According to Dewey (1902), metacognition entails two phases of reflective thought. Firstly, the learner recognises the doubt and confusion of acquiring the desired knowledge, causing what Dillon (1990, in Hacker, Dunlosky & Graesser, 2009) called a state of perplexity. This was evident in the present study, in which the players were clearly uncomfortable when challenged to reflect. The second phase considers an active involvement of the learner in exploring the answers that will dissolve the doubt and release that state of perplexity. Indeed, this was illustrated in the present study when players took the initiative to ask each other questions and initiated discussions to find solutions to the problems encountered.

The concept of metacognition has been mainly researched in the context of theoretical academic disciplines such as mathematics and literature (e.g., Van Velzen, 2016). Indeed, in a more physical/practical context research has been scarce, perhaps influenced by the outdated view that mind and body are better explained in isolation (MacIntyre et al., 2014). Nevertheless, some research has been developed in a sporting context, but essentially in a motor learning domain (e.g., Dail, 2014), which relates to more linear processes than the ones encountered in the present

study. Indeed, the examples provided in Dail's (2014) paper are concerned with a single skill, but as the author points out, the same principles can be extended to team strategies. Indeed, the key strategies are common to both dimensions (single skill and team) in the sense that there is an aspiration to develop the players' input in the process, and consequent autonomy and understanding (Dail, 2014). The author clarified that, as in the present study, questioning is one of these key strategies implemented, which should be used to instigate their knowledge of the content being taught, but also to reflect on own/team/opponent's performance.

Indeed, a reflective learner has been defined as someone with the ability to analyse their own and others' performance, to identify opportunities and achievements, along with the capability of defining steps to achieve goals, and of engaging and acting accordingly upon in progress review (Webb & Scoular, 2011). It can be argued that this is the definition of an ideal reflective learner, however, as demonstrated in the present study, a learner can be engaging in reflection without being able to achieve some of those steps. For instance, despite making an effort to analyse their own and others' performance, at the beginning of the season, the participants of this study were unable to analyse the opponents' performance. However, the current findings also showed that by challenging the players to reflect, their critical eye was developed, as illustrated in the point made by Lia and agreed by all:

> Lia: We've all got a lot better at identifying and picking out where we're going wrong as a team just as much as we are of ourselves and being quite self-critical as a team now. Yes, I think the majority of us are understanding that playing as a team and our positions and stuff helps us to solve situations where we're making mistakes as a team if that's fair to say?
>
> Everyone: Yes! (FG, 7/2/12)

This clearly illustrates the improved ability to critically reflect on one's own and others' performance, in order to solve problems, reinforcing the ability to do it on- and in-action.

4.3.2. Learning the (tactical) approach

A key aim of TGfU is to develop the players cognitively (Bunker & Thorpe, 1982). In the present study, this cognitive aspect of the approach was promoted essentially in two ways. Firstly, it was through the coaching styles adopted, using questioning to challenge the players to think (see section 4.2.2.3.). Secondly, it was through the activities employed, using modified games that promoted a holistic development of the players (see section 4.2.2.). This means that these game-based activities emphasised not only the tactical and technical aspect of the game, but also the intellectual or cognitive dimension, by promoting further skills such as decision-making and understanding of the game.

For instance, to illustrate how decision-making was developed within game-based activities, in one of the first sessions of the season the focus was:

> On transition defence/attack (i.e., counter-attack) while challenging the setter's concentration and peripheral vision, as they had to set different balls coming from different directions at an intense pace. The attackers were challenged to decide quickly as they had to react to the opposition block, i.e., following the set, the blocker would cover line or cross-court and the attacker had to adapt accordingly. This game-based activity was designed with the intention of avoiding a pre-established decision before reading the opposition. This means that this decision is often made according to the type of attack they feel more comfortable executing rather than considering the opposition or any other aspects such as the quality of the set. (...) the technique was slightly neglected as they were more concerned about deciding properly where to set or where to attack. (Reflective notes, 22/9/11)

Additionally, as stated by Thorpe, Bunker and Almond (1986), the development of these game-based activities should respect the pedagogical principles of exaggeration, representation, and tactical complexity (see section 2.2.4.). Indeed, in the activities above there was an attempt to represent the formal version of the game by interlinking different moments of the game, such as pass, set, attack, and

block. To try to achieve this, the rules were manipulated to emphasise a certain tactical aspect, such as restricting the blockers to mark a specific zone in order to force the attacker to read and attack accordingly. Further, the tactical complexity was adapted to the players' level by working on an aspect of the game that emerged from the players' discussions, and by progressing from a simpler situation to a more complex one, such as using audio cues before visual cues. Indeed, the complexity of the activities employed varied according to the players' level (Thorpe, Bunker & Almond, 1986), but also according to the complexity of the issues covered. For instance, in the example above, the attackers' decision-making is a complex aspect of the game for this group of players, which justified breaking it down to more simplistic game-related activities. However, the complexity of the activities was often higher by promoting small or full-sized games.

> After the warm-up, the players were engaged in a game situation with no restrictions, followed by a conversation about what they need to improve. It was highlighted that the reception needed to be improved, namely the communication between the players. This required a clear definition and communication of the type of serve and how that impacts on the reception lines. Such was already covered in the past, so I just asked some questions to refresh their memory about it (e.g., 'Who takes the middle if the serve is from zone 1 to zone 5' 'Why?'). The players demonstrated a good understanding, answering appropriately. Therefore, we returned to the game situation straight away. Once again, there were no restrictions, but I asked them to focus mainly on the things that we had discussed, i.e., the reception lines. (Reflective notes, 8/11/11)

Despite the positive impact on the players' understanding already mentioned, the players were not quick to realise the benefits of the approach. Indeed, at the beginning of the season, I recognised that "most of the players believe that isolated technical drills are effective, which is a consequence of the type of approach that they are used to." (Reflective notes, 1/11/11). Also, Steph (FG, 31/1/11) mentioned that in a game situation she is often so worried about reading the game that she

neglects the technical skills. Therefore, she believed that "it would be useful to do some isolated technical drills to mechanise the gesture, and then it would be easier to apply it in the game" (FG, 31/1/11). This was a perspective shared by some players in Pill's (2016) study in an Australian football team, which according to the author, was due to its familiarity rather than its benefit. Indeed, this idea of promoting isolated drills to create mechanical actions can be seen as a contradiction of the adaptability needed when playing games.

Indeed, despite pointing out that game-related activities don't always provide the opportunity to repeat some actions as often as others, Sara counter-argued Steph's point above, highlighting that she does not need isolated technical drills, suggesting that "it is not about the activity itself, it is about the focus provided" (FG, 31/1/11). To make her point, she mentioned that in order to improve her 'set' she needs repetition in a game situation, to get consistency when all the constraints are contextualised. Performing consistently in an isolated scenario "is not a problem; the problem is when you add all the game constraints" (Sara, FG, 31/1/11). This was supported by Amber who suggested that "the (game) context is probably more what I need to crack because I guess that's the newer thing and the bit I would really like to see some improvement on" (Amber, FG, 31/1/11), highlighting the importance of repeating things in the context of the game. Amber presented a valid point, and despite agreeing that repetition is important to consolidate the different skills, I was aware that:

> I have to make options about what to train and confine the
> repetition to the players' specific roles. So, when Sara complains
> that she digs less than she used to, it is true; but she also sets more
> than she has ever done – because she is a setter. (Reflective notes,
> 1/11/11)

This notion of repetition can be linked to Ericsson, Krampe and Tesch-Romer' (1993) research that claimed that to become an expert in any field, 10000 hours of deliberate practice are required. However, Daniels (2015) argued that this is a false statement, as skill acquisition is a very complex process that depends on many factors, not only hours. Daniels (2015) added that repetition is crucial to achieve a

change in behaviour, but the conditions that surround practice are what makes the difference. In this process, the delivery/feedback plays a key role, within which providing positive and meaningful reinforcement will enhance performance. This language (e.g., repetition, change behaviour, and reinforcement), despite being typically associated with behaviourism, was explored in a constructivist manner within the present study. For instance, repetition was promoted within every session, but not merely as reproduction or replication of a pre-determined skill over and over again. Instead, drawing upon the TGfU approach, repetition was interpreted as providing frequent opportunities for the players to explore options and have the chance to try different options in context over and over again. Consequently, Steph's perspective in the last round of focus groups changed, underlining the relevancy of game-related situations, as it develops:

> Things about movement and things which are easy enough to relate to the game (…) (for example) the concentration aspect of it helps me. I can translate that to the game. Also, the game makes us mentally more persistent, as the levels of concentration need to be higher…there's way more things happening, more things that we need to focus on, and that's very beneficial. (Steph, FG, 15/5/12)

In this quote, Steph is referring to the higher levels of concentration required in training to cope with the challenges promoted, such as the integration of more complex activities in which technical and tactical aspects were combined and players were encouraged to think about the different issues emerging throughout. Indeed, in the present study, technical skills were developed through game-based activities. This was done through the feedback provided (more focus on the technical ability), or through simplifying the tactical complexity of the activity. For instance, one of the issues identified when implementing the quick attack tempos was the lack of ball control in the attack, which led to a more technical focus.

> However, it should be highlighted that this was not a technique based approach, rather a technical-tactical activity of low tactical complexity in which the technical aspect was emphasised. The discussion was still promoted around some tactical aspects, namely,

how the middle players should adapt their approach according to the position of the setter (closer or further from the net). (Reflective notes, 3/11/11)

Also, technical skills that are identified as issues can potentially be developed as part of the warm-up. For instance, in that same session (3/11/11), following the players' difficulties in actually controlling the ball, and reading the block, it was decided to include more technical attack work in the warm-up. Therefore, as part of the warm-up:

The players paired up doing dig-set-attack, in which the defender needed to move after the set to make the attacker look where the defender is before attacking. This way, we are promoting the players' peripheral vision, which will allow her to see the opponent before she attacks and decide accordingly. Following this, we focused on the gesture of the arm in the attack, by providing more technical feedback. Despite this more technical focus, some tactical issues were also discussed, namely how the middle players should adapt their approach according to the position of the setter (closer or farther from the net). (Reflective notes, 3/11/11)

At this stage, it becomes relevant to remind the reader that TGfU was developed through Bunker and Thorpe's (1982) disagreement with the isolated technical work. Since then, many papers, approaches, and variations were produced, often emphasising the need to contextualise the technical work into the game situation (e.g., Evans & Light, 2008). This means that according to this perspective, tactics should be the main focus of the game and that technical skills should only be used as tools to solve the tactical issues that emerge from it, and only after the players grasp its understanding within the game. Therefore, before the development of TGfU, the tactical aspect of the game was neglected, and the technique overemphasised. However, arguing if the emphasis should be on the technical or tactical skills is perceived as an inaccurate discussion point because TGfU does not neglect the technical work (Light, 2013). According to Roberts (2011), "a common misconception that surrounds the TGfU model is the exclusion of technical and skill-

based instructional approaches" (p.34). There is a myth that in GBAs there is no place for technique or skill practice (Cushion, 2013). Indeed, it has been argued that due to the complex and dynamic nature of games, tactical, technical, and cognitive skills are inseparable, and should be promoted simultaneously (Light, 2013).

The present study corroborates the studies above, highlighting the need to develop technical skills but integrated within game-related activities. This conclusion was particularly underlined following an attempt to work on a specific technical issue in isolation:

> I am aware that isolated technical activities are contradictory to the TGfU approach. However, I wonder if in some specific situations this could not be a valid solution, such in the case of Patricia's attack approach. Patricia is a 34 year-old player that executes the attack approach the other way around and it is very much consolidated, i.e., she doesn't even think about it when she is executing it. As right-handed, she would benefit from finishing the approach with her left foot in front of the other in order to be more balanced in the air and achieve a better angle to attack. However, her approach is 'mechanical' now, she doesn't even think about it. She is able to be efficient anyway, which makes me wonder if trying to change it is the best option? (…) After having a conversation with the player about it, we have decided to give it a go. What I intend to do is try to work on that during warm-up activities and see how the player reacts to it, and slowly introduce it in more complex game-related activities. (Reflective notes, 22/9/11)

As the sessions progressed, the player was able to change her approach in simplified activities during the warm-up. However, in a game situation, she would invariably return to her 'normal' execution. Indeed, in the second round of focus group, the player admitted the unlikelihood of being able to change it (FG, 9/2/12). This suggests that isolated technical drills have little or no impact in changing behaviours in the game, reinforcing the relevancy of contextualising technical skills into the game, as stated in the TGfU approach.

Another important point on this matter is the work of the serve action. Studies have shown that in a volleyball game, one's action is determined by preceding actions, namely the first touch in reception and defence predetermine the setters' actions and, consequently, the attackers' effectiveness (Barzouka, Malousaris & Bergeles, 2005; Barzouka et al., 2006; Papadimitriou et al., 2004). This reinforces the importance of working in a holistic way, interlinking the different action into game-related activities. However, the serve is not like any other action in volleyball, as the player is individually performing the action without the interference from anyone else. Indeed, the serve is the most deterministic action of the game, as the referred predetermination does not occur (Mesquita, 2005). However, there are some tactical issues that the player should take into consideration, such as where to serve to and from according to the opponents' weaknesses. In order to be able to explore those weaknesses, the player needs to read the game and to be able to direct the ball. Whilst a traditional technique-based approach would focus solely on the last aspect, the present study attempted to consider and integrate both aspects. For instance, in the training session on the 8/12/11:

> We have promoted an activity that emerged from the initial game form. One of the issues identified by the players and myself was the serving consistency and inability to decide where to serve. Players were more focused on just serving the ball in, than aiming for a particular zone/player to explore the weaknesses. I then challenged them to think where would it be the best serving zone in their rotation and why. As most of the players were unsure, we returned to the game situation once more. They then got back with some valid answers such as 'I think I should serve to zone 5 as that's where the receiver/attacker is'. This was a good discussion moment, where we clarified some of the reasons where one would serve from and to and why. The players were then encouraged to get a ball each and serve from and to where they think it is appropriate. I went around asking them technical questions (e.g., 'Where are you

contacting the ball?') and tactical questions (e.g. 'Why are you serving from zone 1 to zone 5?'). (Reflective notes, 8/12/11).
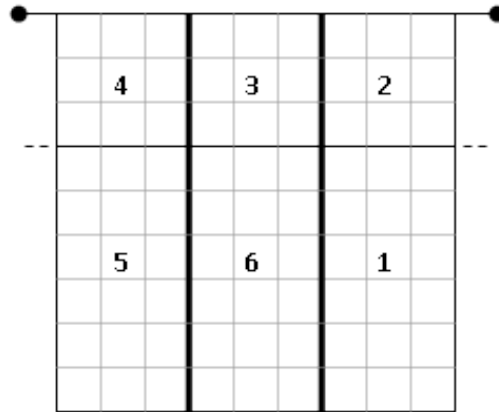
Figure 9 – Volleyball court zones

This emphasised the core tactical focus within the present study, but without neglecting the technical skills. Indeed, it reinforced the argument of integration of both tactical and technical skills within game-related activities, reinforcing the players' understanding of its meaning within the game. Nevertheless, the players' perspective on the use of game-related activities at the end of the season was still divided. Indeed, most of the players argued that a combination of game-based activities and isolated technical skills would be beneficial: "it's good to do isolated skills sometimes to amend some details, but then is very important to be able to put it into a game context" (Amber, FG, 17/5/12). Emphasis was given to game-based activities, though:

"I don't feel that I need to repeat it time and time again, (…) just need to do it once in a game related situation" (Amber, FG, 17/5/12).

"Game situations are more useful because it helps to adapt to different situations that happen in the game" (Chloe, FG, 17/5/12).

Indeed, despite not being completely comfortable with the approach, the players started to see the benefit and enjoy the process more. This was evident in the last round of focus groups in which Ceri admitted that despite not being easy to perform challenging activities after a long day at work, it is very enjoyable to "be pushed". In agreement, Magda highlighted that due to its complexity, those activities

helped to "maintain concentration actually for longer, because it really does engage you" (Magda, FG 15/5/12). Patricia emphasised how different this is from what she was used to, suggesting that in previous seasons they tended to always do the same drills, making them into a routine in which they were not challenged to think, "and that's not the case in our sessions" (Patricia, FG 15/1/12).

By the end of the season, we cannot claim that it was an absolute conversion to game-based activities as expected in light of the TGfU approach and the benefits presented above. However, there was a clear shift in the players' thoughts compared to the beginning of the season. Indeed, whilst at the beginning of the season the importance of isolated technical drills was indisputable, the players now questioned their relevancy and prioritised the value of game-based situations.

4.3.3. Performance

The implementation of game-based situations in training was generally well received by most of the players. For instance, in the second round of focus groups, Chloe said that "because of the game situations, it makes us adapt to certain types of balls, which I think develops more skills" (Chloe, FG, 31/1/12). She added that because it integrates more elements, one is able to better adapt to the game's unpredictability, make better decisions, and "it becomes more fun to play rather than work on defence one hour in a row for example" (Chloe, FG, 31/1/11).

However, similarly to the players' level of reflection discussed in section 4.3.1., the present findings evidenced that the impact of the approach on the players' performance was positive, but was far from being immediate. Indeed, the players mentioned that "when I make them think, sometimes they neglect their action because they are thinking about reading the game for example" (FG, 25/10/11). Following this perspective, Anna highlighted that half-way through the season, she was more aware and conscious of what she needed to do on the court, but that this wasn't always reflected in her performance (FG, 7/2/12). According to her, she needed to think faster and link that thinking to her execution. A similar opinion was shared by Elen (FG, 9/2/12) who highlighted the need to better associate the technical aspect with the tactical aspect, so that she is able to think and execute.

An example of the disparity of their understanding of the game with their actual performance was taken from the following focus group's extract:

Me: But if you don't know who's receiving better or worse, what do you think you can do?

Amber: Serve in between two people.

Me: That's an option. Do you think you have the accuracy to do it?

Amber: No! (FG, 31/1/12)

As Sara suggested in more detail:

I don't feel like I'm better, in terms of improving the set for the team. (…) What I feel better at is thinking as a setter. I think that I have improved a lot, but I don't think that reflects on (…) where I can put the ball for them (the attackers) because what I would like to do is to put it perfectly for each one of them because they all need a different kind of set. My improvement is reflected on where I set to, how I try to move in court, the things I think about. But not really on how accurate the set is. (FG, 31/1/12)

The set was a new skill to Sara, as she used to be a libero/attacker. This means that she was not only adapting to a new coaching approach, but to a new role in the team, which brought an extra challenge and it was reflected on how quickly she adapted to it and performed accordingly.

Indeed, this disjunction between their awareness and understanding of the best decision to make and the actual performance was shared by a few more players even towards the end of the season. For instance, in the last round of focus groups, Magda stated that she felt more comfortable on court and, despite feeling that she didn't always do the right thing, she was now able to understand when and why she is not doing the right thing. By the 'right thing' she refers to an appropriate action that explores the opponent's weaknesses, such as serving for the weaker passer. Magda highlighted that her knowledge was now "more detailed and more sophisticated", as she was thinking about aspects of the game that she used not to, such as analysing who the weaker passer was (Magda, FG 15/5/12). However, she

was unsure if she was performing better, as she feels that she cannot always follow through her analysis with corresponding performance.

These findings complement previous claims that the players' ability to make informed decisions and perform is a reflection of their understanding of the game (McNeill et al., 2008). Additionally, the present findings suggest that the players' understanding of the game, and the ability to analyse it, comes before the ability to perform it. This finding can be associated with the notions of declarative (understand what to do) and procedural knowledge (actually doing it) (Blomqvist et al., 2005). Indeed, this confirms previous (quantitative) studies that demonstrated that the development of declarative knowledge is intrinsically linked to the development of procedural knowledge (Giacomini et al., 2011; Gil et al., 2012). In fact, this was already considered in the TGfU six-step model (Thorpe, Bunker & Almond, 1986), as pointed out by Kirk and MacPhail (2002), declarative knowledge is essentially promoted during step 2 (game appreciation), whilst procedural knowledge during step 4 (making appropriate decisions), with step 3 (tactical awareness) resting "between these two dimensions of knowledge" (p.186).

Furthermore, other studies reinforced how slow this learning process can be. Particularly, in Light (2004) and Evans (2007) studies, coaches reported that implementing GBAs, namely referring to GS, required too much time, taking longer to develop players. However, the employment of such approaches had more desirable long-term player development. Both authors, co-authored another study (Evans & Light, 2008) in the context of GS during a period of 8 weeks, in which the coaches that undertook the approach considered it to be insufficient to promote change in the players' performance in the short term, but it had the potential to do so in the long term. This has been somehow demonstrated in some quantitative studies that showed that the exposure to GBAs improved the players' defensive off-the-ball movements (Harvey et al., 2010a), support play (Miller et al., 2016), and overall decision-making (Miller et al., 2016; Práxedes et al., 2016).

One of the key factors demonstrated in our findings for this slow adaptation, was the complexity that such an approach implies in the training session, for example: "The players are still not comfortable with being challenged in a holistic way (as technical/tactical and cognitively), suggesting that the level of complexity

that they are exposed to has increased side by side with their development." (Reflective Notes, 9/2/12).

This was particularly emphasised when any new content was addressed. For instance, when the use of quick tempos emerged as a relevant aspect to develop:

> The players were a bit frustrated in general because this is not an easy thing to do. The setters were struggling to keep the consistency in the set, and the attackers struggling to execute the approach in the right timing. (Reflective notes, 18/10/11)

However, following this initial struggle, the players were usually able to adapt and improve their performance. For instance, when developing a new defensive system, which emerged from a discussion based on the game that led to a common understanding that we needed an alternative system to respond to the opponent's distinct attack strategies:

> The players adapted well and they were able to swap from one system to the other reasonably well. The only issue that some players felt, namely the middle players (they dig in zone 5 and they are not proficient defenders, namely Ceri and Magda), was that they had too much to cover down the line. (Reflective notes, 12/1/12)

This positive adaptation to new content or activity does not abolish the intricacies of assimilating and putting into practice all the content learned and adapting to the new approach. Reflective notes from 24th January training session illustrate the point:

> In terms of attack, it was not too bad, but they were extremely lazy in defence and covering. This is an issue that happens sometimes – when introducing something new, they tend to neglect something covered previously. We are starting to play quicker through the wings, but not through the middle really – the tempo is still quite high. (Reflective notes, 24/1/12)

Indeed, the learning process was not linear. Instead, it was a 'bumpy ride' in which the players started to feel the benefits, but were not necessarily able to translate it into their performance.

The adaptation to the approach was particularly challenging in game situations. Whilst their development led to "getting more comfortable in applying some new content (e.g., the quick tempos) in training, this was not immediately reflected in the game" (FG, 1/11/11). For instance, in a discussion half-way through the season, some of the players admitted that in match situations they still served to zone 6 because it decreased their chance of missing (zone 6 is the back zone in the middle of the court). According to them:

> They are able to identify some of the relevant spots to serve to, such
> as the weaker passer, but they tend to play safe anyway and serve
> to where they feel more comfortable so that they don't let the team
> down. (Reflective notes, 11/12/11)

This suggests that despite being capable of serving to the targeted zones, other factors got in the way of achieving such performances, which is coherent with Mouchet's (2005) perspective that players' decision-making in matches is complex and shaped by a subjective personal logic. Indeed, only in the second half of the season did the majority of players develop an ability to adapt to the different constraints in the game situation. This happened at an individual level in which some of the players were able to adapt to the opponent more frequently and more effectively, but also at a collective level. An example of the former is how the players adapted their block according to the opponent's attack, or how they changed their attack according to the opponent's defence during a match situation. This was evident in our away match against Anglia VC (pseudonym), in which:

> In one of the time-outs, I asked the players what was going wrong,
> and they were able to identify that the opponent was scoring way
> too many points by attacking cross-court. "How can we overcome
> this then?" I asked. Some suggested adapting our defensive system
> by reinforcing the cross-court area, positioning three players there,
> leaving the line to the zone 1 defender and exposing the area closer

to the net, becoming more vulnerable to tips. Considering the flow

of the game, it made sense to take that risk. (Reflective notes,

15/1/12)

This 'new' defensive system was actually something that we had worked on before in training as this was an issue that arose during our sessions. Despite being the first time that we had implemented it in a match situation, it worked extremely well, and we were able to counteract the opponent's attacks.

This was a significant step forward in the players' development, as the game situation has always been a 'big' moment for the players, due to their inexperience, high increase of contextual complexity, and emotional pressure. Moreover, the findings suggest that this was a consequence of:

The pedagogical approach used. By actively involving the players in

the process, and by contextualizing the issues within the game, their

learning is enhanced. The defensive system example illustrates this

very clearly since it emerged from a shared analysis of the game

from myself and the players. This led to better engagement and

consequent understanding of what they are working on and why.

(Reflective notes, 15/11/12)

Additionally, the application of a GBA such as TGfU implied the inclusion of game-related situations that at times recreated the constraints encountered in the formal match. An example of this was the representation of the pressure felt in the final stages of a set, by promoting a game situation in training in which the score started at 19-19. This meant that the players were not only developing their understanding of the game, they were also developing their ability to reflect in order to then adapt, and improving their ability to deal with aspects such as the pressure to score. Indeed, previous research has demonstrated that the GBAs, namely the GS approach, encouraged players to make a decision in competitive pressure situations (Evans, 2012). Also, Pill (2013) suggested that coaches attributed a GS coaching approach to improving team performance in a match situation. Furthermore, Light and colleagues (2014a) interpreted relevant literature to suggest that the coach needs to take into consideration not only the level of complexity but also the

manipulation of the environment and the degree of pressure in which the players are placed under when they are making decisions. Indeed, designing and manipulating the environment has been suggested to be the most important task of the coach so that players can learn the appropriate 'habits-of-action', adapt to it, and develop their decision-making (Light et al., 2014a; Quennerstedt, 2011). Particularly when promoting game-related activities, which has been demonstrated to promote significantly more decision-making opportunities than isolated activities (Farrow, Pyne & Gabbett, 2008).

Specifically, it promotes the development of naturalistic decision-making, which has been defined as making decisions in realistic environments (Richards, Mascarenhas & Collins, 2009). This was developed in opposition to more classical approaches in which decision-making was explored in more controlled environments (Richards et al., 2009). According to these authors, naturalistic decision-making, on the other hand, is investigated in "environments characterised by ill-structured problems; uncertain dynamic environments; shifting, ill-defined or competing goals; multiple event-feedback loops; time constraints; high stakes; multiple players and organisational norms and goals that must be balanced against the decision maker's personal choice." (Richards et al., 2009, p.359). These are all features common to the context of the present study. Moreover, according to Light et al. (2014a), the activities applied in a training session should recreate the previous characteristics, which are the conditions of competition matches, and need to be designed according to the skills, experience and capacities of the players, meeting the objectives of the coach and the team. Specifically, it has been suggested that the main strength of GBAs is to replicate the conditions and pressure that occur in a match situation (Light, 2004). Indeed, the training session can and should simulate gameplay by replicating some of its features, but it will always be a replica, not the original. This brings:

> Advantages such as having more time to discuss or work on some
> more specific aspects of the game; but it also presents
> disadvantages, namely in terms of developing the players' decision-
> making, as the ability to make decisions in the training session is

shaped differently from the ability to make those decisions in a
game situation. (Reflective notes, 19/4/12)

Indeed, the speed of the game, added to the inherent pressure in competitive
game situations, meant that the players need to develop an ability to adapt to the
dynamic environment "in which there is little, if any, separation between perception,
decision-making and action, between mind and body, or between the player and the
game environment" (Light et al., 2014a, p. 258). Moreover, linking to the autonomy
dimension, the control that the coach has in training is different from the formal
game situation, as due to the game regulations it is hard for the coach to interfere,
even if a pre-determined strategy (or game plan) is put in place. For instance, Light
and colleagues (2014a) highlighted the extreme temporal pressure, the score-line,
the time remaining, the importance of the game within the season, and the
application of agreed strategies, as some aspects that the players need to deal with
when making a decision in the game situation. This reinforced the importance of the
continuous implementation of the 19-19 score strategy mentioned above within the
TGfU approach, which led to a better understanding of the game and tactical
awareness, thereby allowing the players to find different solutions in response to the
problems arising in the game:

> I think whether we play the one-setter system or the two-setter
> system or the defensive system one or two, we can adapt and no-
> one asks "What shall I do?" We have more options, which allows
> adapting if some things are not working. For example, if the
> frontcourt attack is not working, we can now use the backcourt or
> play quicker balls. (Patricia, FG, 15/5/12)

The positive impact that TGfU has on performance has been theoretically
claimed in the literature, but little empirical evidence on how this can be achieved
has been presented until now, particularly in the coaching context (Butler, 2014). For
example, Gray and Sproule's (2011) empirical research concluded that a pupil-
centred GBA enhanced the sophistication of the learners' knowledge/language and
game performance. However, this study was conducted in a school setting and, as
the authors recognised, "it is difficult to make claims about pupil learning after only

five weeks of teaching" (Gray & Sproule, 2011, p.28). Furthermore, in a data-driven review in the context of teaching and coaching, Stolz and Pill (2014) concluded that whilst theoretical literature in the field suggests a more positive impact on the players' learning than more traditional approaches, the empirical-scientific studies are inconclusive.

This lack of expressive empirical research in the coaching context reinforces the relevancy of the current findings that identified pedagogical strategies (like the 19-19 score example highlighted above), and how those impacted on the players' learning. Moreover, these results confirm Thorpe, Bunker and Almond's (1986) vision in terms of the benefits of the TGfU approach. This is particularly significant considering that, despite Thorpe, Bunker and Almond's (1986) request to further investigate the approach in practice, and despite the numerous studies in GBAs, very few were able to corroborate TGfU's benefits within coaching practice.

4.3.4. Psychological and physical dimension

Consistent with the literature within GBAs in general (e.g., Light, 2004), and TGfU in specific (Thorpe, Bunker & Almond, 1986), the present study focused on improving the players' tactical and technical skills whilst developing their cognitive dimension, i.e., their knowledge and understanding of the game. However, the following findings evidenced the need to extend that focus to psychological/emotional and physical dimension as well.

The psychological dimension was highlighted by the players as something that could be addressed. This was briefly mentioned in the first focus group (1/11/11), and strongly reinforced in an informal conversation that the players and I had before the training session on 6/12/11:

> Despite the fact that we won the game this previous weekend, the
> players said that on top of the technical and tactical procedures of
> the game, we should also improve the psychological aspects as we
> occasionally 'crack under pressure'. This has already been referred
> to in the focus groups, but this time, the players were more specific,
> suggesting that the team occasionally feels uncomfortable when

behind on the scoreboard, leading to some anxiety and inability to react to it. It should be highlighted that the players' ability to reflect on previous experiences even when in a positive situation, is something that they struggled to do in the past. This was, in fact, a problem in previous games, particularly in the 1-3 defeat against Old Town VC (pseudonym) (30/10/11). However, in this specific game that was not an issue, as we were, in fact, losing and we came back and managed to win the game. Despite the positive outcome of this specific game, it was agreed that we need to work on the way we manage the score, as some of the players got really stressed and decreased their performance. (Reflective notes, 6/12/11)

An example of a strategy employed to address this issue was already addressed in the previous section, in which I promoted a 6v6 game situation where the scoreboard was set at 19-19, to emphasise the pressure that usually occurs at the end of each set (sets ends at 25). This was followed by a situation in which the scoreboard was set up at 21-19 to encourage the ability to react when behind on the scoreboard at a crucial part of the set. These situations were developed to simulate the inherent pressure that the score imposes in a competitive game context. This was done through creating a situation in training that represented the formal version of the game (modification by representation), and that exaggerated the issue in question (modification by exaggeration) (Thorpe, Bunker & Almond, 1986), i.e., the inability to react to a negative score, attempting to help the players to deal with it.

Additionally, it can be argued that this difficulty in dealing with the inherent pressure of competition is also a consequence of the lack of competitiveness of some players that is important at this level. This was observed both in the competition against the other teams, but also amongst themselves within the training sessions. Indeed:

Many of the players used to play at a lower level, in not very successful teams, in which they were not used to training with high intensity in a demanding context. Consequently, some of the players lack a winning mentality when they are playing, they are not

very demanding with themselves and, consequently, with the others. In fairness, I believe that they try to train hard, but they are incapable of demanding from their teammates, mainly due to their personality (according to them). An example is when one of them is attacking for the other to dig, and if the defender misses a couple of digs the attacker usually apologises and starts to attack slower. By doing this, the defender assumes that the problem is external, that it is probably the attacker that is missing the attacks, and gets used to digging easier balls. Consequently, the players are setting the bar lower by not challenging their partner, and this brings a culture of not taking responsibility for their own mistakes. Therefore, the promotion of a more demanding environment in training needs to be considered when planning and delivering the session. I have promoted this by giving the players further responsibilities during the tasks, such as creating situations in training in which all the players had to perform in order to succeed. This meant that they had to necessarily collaborate, helping each other and be more demanding with others. Another strategy was to give the players specific responsibilities in terms of what to analyse in the game and even in terms of providing feedback. For instance, when doing a 6v6 game situation in training I would suggest that each player would focus on another player from the other team, try to identify flaws that they could potentially explore, but also to then provide feedback and make them accountable for their actions. (Reflective notes, 17/11/11)

Throughout the season, the implementation of such strategies started to shift the way that the players felt on court. This not only promoted the players' ability to read the game but also created an environment in which each player was looking after each other, helping their teammates to push themselves to higher levels of performance. However, their perspective evolved slowly, evidenced by the mixed opinions evidenced in the second round of focus groups:

Anna: (…) I think back to the games that we lost (…) I felt as if the team sort of stopped being a team when it got really tough. Not when it got just a little tough, and then we managed to scrape back and win, but when it got really tough, it kind of felt as if everyone became more isolated, which I think maybe if we could do morale-boosting stuff, we might be able to improve on.

Amber: I think that's partly down to the fact that we're not used to losing.

Anna: Yes, exactly, and I think that was inevitable, the fact that we're going to lose and we do not know how to take it. (FG, 7/2/12)

However, this perspective was not shared by all the players, with some identifying an improvement in the way that the team dealt with a negative score:

On Sunday, in the first set, we did start off really shakily (…) we were behind quite a way and then we managed to claw our way back. (…) I think we managed to change it into more motivation than anything else. (Amber, FG, 7/2/12)

Ceri added that:

We used to feel a bit shaky when we started to lose points, but at the weekend, we had shaky moments but I didn't ever feel like we weren't in control of it. As a team, I thought we were more in control of the situation, more able to get back on track. I guess we have more confidence in each other and more confidence as a team. (Ceri, FG, 9/2/12)

The continuous implementation of the strategies referred to above led to a consensual opinion at the end of the season, as highlighted in the last round of focus groups, following the last game of the season which was the South West Championship final:

Amber: (…) I don't think we could have been any more prepared than any other team in any competition...

Ceri: I agree with that, I wasn't that nervous (…) It just felt good.

Amber: I think there's something about not giving up, actually and just … like the Nets VC (pseudonym) game, the last league game against Nets VC we were behind 18-23 and they thought they had it in the bag; and then – they didn't and I think that broke them and I saw them, they were broken (…) and we might experience that next year, I don't know how resilient we are but we feel resilient for that sort of thing and like just going out and not giving up. (FG, 15/5/12)

These ideas were supported by some other players in another focus group (14/5/12). Indeed, Elen highlighted that the team can manage their emotions better now, and is able to recover when behind on the score. Sara agreed, saying that confidence has definitely improved and that it is related to the winning streak, but the winning streak was a consequence of performing better, with more confidence, without panicking. The players attempted to extrapolate reasons for the above, highlighting that there is:

A good atmosphere in the team and there isn't a blame culture (…) everyone appreciates that everybody goes out and tries to do their best, and therefore supports them.

Lia: And if you make a mistake we move on (…) yes, you feel responsible if you miss a serve (…) but then you just move on.

Anna: Yes, yes definitely. It definitely feels like that; it feels so much more stable (…) and everyone contributes (…)

Sara: I think it's probably about the experience because we've been there before and we know that we can turn things around and go 'Yes, 5 points behind. We've done this before and we can do it.'

Sara: I feel much more confident setting now, much more confidence than at the beginning of the season. I think that's a massive difference, and I'm also more confident about them hitting because I think we're hitting much better, so I'm more relaxed about my setting because I know they're better as well. So if I mess up, they'll compensate more and I think that affects us in terms of confidence. But other than individually, I think that we're digging

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much better; probably we're positioning better, I think. All of those game-based drills and discussion really help on this. (FG, 14/5/12)

Therefore, the management of the players' emotions and state of mind emerged as a key aspect that I needed to consider in order to enhance the players' learning and consequently their performance. Indeed, research has shown (e.g., Kidman, 2005), that player-centred approaches, such as TGfU, increases the players' engagement, competence, and motivation. Indeed, but involving the players in the decision-making process, players tend to feel empowered and more involved in the process (Souza & Oslin, 2008). These authors clarified that, by doing so, players tend to do things with a clear intention and meaningfulness, which potentiates their competence, and consequent motivation (Souza & Oslin, 2008). The current findings add that the players' state of mind needs to be considered in the planning and in the delivery of the sessions:

> When planning the session, I started considering how to challenge the players' emotionally. I would ask myself questions such as 'do I need to be harsh here?', 'am I taking the players out of their comfort zone?', 'will they be frustrated here?', 'am I giving them opportunities to succeed?'. The aim was to try to find the balance between challenging them whilst keeping them confident in their ability to perform. Moreover, this balance would vary from player to player, and this management of the players' emotional state has been one of the main challenges felt during this process. (Reflective notes, 3/4/12)

Indeed, in the context of GBAs, little research has been developed to date, which means that coaches have limited support on how to deal with these psychological issues. One of the few empirical studies in this topic area was developed by Gil-Arias and colleagues (2017), in which an eight-week intervention of a hybrid TGfU/Sport Education model was implemented. The authors demonstrated increased autonomy, relatedness, competence, autonomous motivation, enjoyment, and intention to be physically active. However, this study was conducted in the school setting and using quantitative methods. Additionally, Thomas and colleagues

(2013) conducted a qualitative study with after-school clubs in which coaches highlighted that the implementation of small-sided games promoted excitement, interest, and enjoyment. Similar findings emerged from a collaborative AR study with elite coaches by Evans and Light (2008), who identified increased enjoyment and motivation as a result of more realistic game situations in training.

An important paper in the area was Holt and colleagues' (2002) theoretical review of the TGfU approach, in which they were adamant that TGfU should not be limited to tactical and cognitive competence. Pope (2005, p.273) added that "while the cognitive aspects of understanding in games instruction have enjoyed privileged status among the growing tide of research, affect has been largely ignored". According to this author, one of the key reasons for this is that affect is a subjective and fairly ambiguous term, and consequently, very difficult to measure.

Nevertheless, Holt and colleagues (2002) highlighted the need to consider the affective domain, challenging researchers to further explore the learners' behavioural, cognitive and affective response. The authors reinforced the positive pedagogical practice of better understand the learners' motivation and the relevancy of affective outcomes. However, the authors were mainly referring to the potential implications that this could have for "children's physical activity experiences, future motivation to participate, and, in turn, psychological and physical health" (Holt et al., 2002, p.164). Additionally, Thorpe (1992) explored the sense of achievement and social interaction that can emerge from playing games through a TGfU approach, highlighting the importance of creating a positive learning experience. As pointed out by Pope (2005), TGfU advocates often use affective terms, such as 'enjoyable', to characterise the approach. The author goes further, suggesting that the affective domain was the phantom ignite of Thorpe, Bunker and Almond's (1986) so-called revolution against traditional technique-based approaches. Indeed, Gray and colleagues (2009), suggested that GBAs encourage the creation of mastery climate in PE context, which has the potential to increase learners' motivation and enjoyment. Indeed, Holt and colleagues (2002) claimed that by promoting a positive experience, the learner will be more motivated and engaged. However, the authors failed to clarify how that positive experience can be promoted in practice, which reinforces

the importance of the present findings that identify some potential strategies that can help dealing with the players' emotional, psychological and affective domains.

In addition to the emotional aspect, at the beginning of the season, many of the players often perceived the physical dimension as one of the main contributing factors to enhance performance, as illustrated in the following conversation which occurred in the first half of the season:

> Lia: Coach, I want to jump higher."
>
> Me: Why?
>
> Lia: to improve my attack. I want to attack better.
>
> Me: and do you think that's what you need to improve your attack?
>
> Lia: Hum...Yes...(thinking)...Well, obviously my technique needs to get better as well.
>
> Me: I'm assuming that you want to jump higher and improve your technique to score more points when attacking, am I right?
>
> Lia: Yes!
>
> Me: and do you think that's enough to score points?
>
> Lia: With a better technique I will be able to control the ball to the right spots, and explore the gaps better.
>
> Me: and how would you know where are the gaps? Are you able to identify them now?
>
> Lia: Hum...kind of...well, to be honest, not really no...I'm usually just focusing on what I have to do, on my technique. (Reflective notes, 20/10/11)

This demonstrates that players recognised the physical and technical aspects as very important to enhance performance, but it also illustrated their lack of awareness of the value that the tactical knowledge can have in increasing performance. Indeed, since the majority of the players have been mainly exposed to technique-based approaches in the past, they tended to analyse and discuss their performance with those lenses, reinforcing preferentially the technical and physical components of performance.

This contradicts the tactical focus of TGfU (Thorpe, Bunker & Almond, 1986), which still considers the technical skill in context, but ignores the physical aspect. However, similar to previous research in elite and non-elite coaching (Light, 2004; Harvey, 2009), the present findings argue that it is important to replicate in training the intensity of conditions experienced in formal competition. Therefore, the physical aspect was implicitly embedded within the activities, and occasionally explicitly in some of the warm-ups. For instance, the training session 6/3/12:

> Started with a high level of physical intensity, in the middle of the session the physical intensity dropped and the mental intensity increased with a good level of discussion being promoted; then the physical and mental intensity increased with a complex game situation. (Reflective notes, 6/3/12)

Promoting a physically intense session and challenging the players with questioning and discussions was a dilemma faced in the present study, as highlighted by Amber:

> I think we talked quite a lot about how you make us think in the training sessions and I think that's fantastic and that's the big compliment, really, because I think it really does help and it helps us on the court and it will help us develop as even stronger individuals and then as a team, so I think that's absolutely fantastic, but I do think that sometimes on rare occasions it slows down the pace, perhaps. (…) sometimes it pauses for a bit longer than it needs to pause, because if you just told us the answer we could carry straight on. (Amber, FG, 25/10/11)

Indeed, finding the balance between stimulating the players to talk and discuss the tactical problems that arise in the training sessions, while maintaining a high level of intensity that allows repetition of practice, was one considerable challenge that I faced while applying the TGfU approach. Moreover, this dilemma is not addressed in Thorpe, Bunker and Almond's (1986) approach, which demanded the production of strategies that could potentially ease this issue. Some solutions to this problem were reflected upon in my notes:

Some strategies that could potentially facilitate a better balance between discussion and intensity in the training sessions are the promotion of pre-training meetings and the improvement of my questioning skills. The former entails arranging meetings before the training session in order to discuss some tactical issues that arose from previous training sessions or games. Like that, we are saving 'conversation' time in training that will inevitably occur. (Reflective notes, 1/11/11).

The decision to promote these pre-training meetings emerged from my reflection and experience, since no research was found to support it.

The improvement of my questioning skills was another issue that I tried to address through the implementation of:

More individual questioning so that the rest of the players do not stop practising just because of one player. Of course, in this last situation, it would depend on the kind of issue addressed, if it is something general common to everyone, or if it is something that is concerned with that player in particular. (Reflective notes, 1/11/11)

The decision about the implementation of different questioning techniques was based on research around pedagogical strategies, and its positive impact has already been discussed (see section 4.2.2.).The implementation of such strategies facilitated the integration of the physical dimension within the TGfU approach. This is particularly relevant considering that the importance of the physical dimension in the athletes' performance has been largely studied in the context of sports science (e.g., Parmenter, Raymond & Singh, 2013), but research is still limited in the coaching context, particularly within GBAs. Indeed, in the context of GBAs, the physical dimension has been very superficially covered, with just a couple of studies highlighting that coaches and players perceived GBA sessions as physically demanding (Evans & Light, 2007; Thomas et al., 2013). This was corroborated by two quantitative studies that demonstrated an increase of physical activity (Miller et al., 2016) and heart rate (Nathan, 2017) when implementing GBAs. However, Kinnerk and colleagues (2018) highlighted that most of these investigations do not consider

the approach as a whole, disregarding the interaction between the coach and the players. This emphasises the importance of considering the physical component and managing the intensity of the sessions whilst still challenging the players' cognitively. The integration of different components in the context of the game in team sports was highlighted by Launder (2001), who suggested a model of competencies that a coach should consider when analysing the nature of the game. According to the Launder (2001), the key elements of effective play considered in the model are athleticism, knowledge of rules, understanding of tactics, communication to promote teamwork, fitness, technique, mental toughness and resilience. In addition to these, players must be able to read the game, anticipate, make an appropriate decision, and demonstrate sense for the game. This corroborates the present findings, which underline the need to explicitly consider further dimensions within game play that are not only technical, tactical and cognitive. In fact, TGfU is often described in the literature as an approach that develops the learner holistically (Webb, Pearson & Forrest, 2009). However, the present findings suggest that it fails to consider, in an explicit and pragmatic way, the players' physical and psychological/emotional/ affective dimension.

CHAPTER V

CONCLUSIONS

V. Conclusions

5.1. Introduction

The purpose of this chapter is to bring the findings together thus demonstrating the new knowledge developed from this doctoral thesis. Considering the practical nature of the work, some implications for practice have already been discussed in the results and discussion chapters. This final chapter will expand on those and on what they might mean for the coaching community. This will include a section on future research directions. Finally, the chapter includes reflections on my personal journey through this developmental PhD. This comprises considerations of how the research experience has impacted upon my own learning both as an academic and practitioner.

I start by revisiting the guiding light of the study, i.e., its aims and objectives. In this respect, the work sought to improve my coaching practice and the players' subsequent game understanding through implementation of the TGfU approach. From this main aim, derived the following objectives:

a) To explore the utility of TGfU as a coaching approach with a competitive volleyball team;

b) To reflect and analyse how a TGfU framework, used through an AR approach, can contribute to personal coaching development;

c) To examine if and how players' learning is developed through critical reflection, as embedded in an AR approach, in relation to the TGfU approach;

d) To improve players' tactical knowledge, understanding of the game, decision-making in the game, and consequently their performance.

Following these, I argue that the present study offers depth to some of the already existing findings, as well as introduces new points into the discussion around the complex nature of the coaching context. Additionally, the study's contribution to the area revolves around the appreciation of the impact that the TGfU approach had on the players' performance, the coach's learning, as well as its reflections on how the process shaped the approach itself within a competitive coaching context.

5.2. Summary of findings and contribution to knowledge

5.2.1. The importance of 'reflecting on my own reflections'

The implementation of an AR approach was a key instigator of the systematic process of reflection (in- and on-action) which, in turn, informed my practice. Such reflection was manifested in the form of notes, and soon (early in the season) it became apparent the need to 'reflect on my own reflections' in order to improve my coaching practice. Firstly, such 'reflection on reflections' allowed me to progress from simply describing the events occurred to making sense of them, i.e., becoming more interpretative of my surroundings. Secondly, it encouraged a critical exploration of different reflective frameworks (e.g., Anderson et al., 2004) highlighting the need to be flexible in its implementation so as not to restrict the scope of reflection. This study, therefore, claims that simply researching and trying out a variety of frameworks, even if subsequently using them flexibly or not at all, may have a positive impact on the coach's ability to reflect within GBAs. In fact, such exposure stimulated my awareness of the reflective process, therefore challenging the way I engaged in it, and encouraged me to consider and adapt the process to my own needs and preferences. Thirdly, 'reflecting on my own reflections' shed some light onto their focus. Particularly, it led to the realisation that the players were invariably the centre of attention, to the detriment of my own behaviour and performance, therefore neglecting the original aim of improving my practice. Fourthly and finally, it made me aware of the role that emotions can play in the reflective process. Indeed, the findings agreed with previous literature which accepts emotions as part of the coaching process (e.g., Jones, 2006), but adds that coaches need to rationalise them. Indeed, in this study I argue that being conscious of one's emotions allows for better management of them, otherwise there is a risk of falling into old habits which might mean poor pedagogical practice (for example, frustration may lead into more autocratic coaching methods).

The four aforementioned issues only emerged by becoming critical of my own reflections. As a consequence, I was able to act upon such critical thoughts, improve as a researcher, and, in turn, improve my coaching practice, and positively impact on the players' learning.

5.2.2. The impact of implementing an Action Research approach

The implementation of an AR approach was essential to promote such a level of reflection and its consequent impact in practice. Indeed, AR was described as an approach that brings action and theory together through reflection, with the aim of producing practical knowledge meaningful to practitioners and the academic community (Kim, 2013; Reason & Bradbury, 2008). The present study subsequently makes the case for the implementation of emancipatory AR, in which both practitioner and participants have an active role in the process with the aim of emancipating from tradition by challenging and improving one's own practice. Aware of the potential benefits that other types of AR can have in other contexts, the advocacy towards emancipatory AR derives from the positive experience lived in the present research study. Furthermore, this led to a transformation beyond the present study, that has changed particular aspects of my practice (as highlighted in this section) such as my ability to ask meaningful questions; but, importantly, it also affected the way that I analyse and perceive my practice as a whole. This means that my practice is now informed by systematic and empirical data, rather than simply relying on past anecdotal experiences and tacit knowledge as I did before the implementation of the present study. The development of this AR study made me particularly conscious of how meaningful it is to use theory to inform practice, and to create new theoretical knowledge from practice that can inform the field of study and impact on other contexts outside mine. Also, whilst traditionally the aim of my coaching practice was solely focused on player development, particularly of their technical, tactical, and physical skills; now it is extensive to the development of the players' understanding of the game and decision-making. Additionally, it now also aims to develop my coaching skills, thriving to improve my ability to better adapt to the context, and influence the players' learning.

However, the implementation of the AR approach should come with a warning regarding how lonely the process can be. Indeed, the introspective nature of the approach led to endless questions and doubts that were often overwhelming. To address it, the findings reinforced the importance of surrounding oneself with

'critical friends'. In the current study, my PhD supervisors took this role from an academic standpoint, although a gap occurred regarding the existence of critical friends within the coaching context. Indeed, the results suggested a need for critical friends in different positions within the practitioner/researcher's circle, so that reflective experiences are instigated at coaching, academic, and even personal levels. For that to happen, this study advocates Jones and Allison (2014)'s idea of creating a 'community of security', in which coaches feel safe to share, confide, and learn from that interaction, despite their potential professional insecurities. Consequently, and regardless of the type of AR employed, the present study recommends its integration within coach education courses. Coaches would then be formally exposed to this methodology, adding to the potential development of the aforementioned 'community of security'.

5.2.3. The critical application of the TGfU six-step model

The findings also shed light into the everyday realities of applying TGfU within the coaching practice, arguing for the TGfU approach to be critically applied considering the particularities of each specific context and going beyond the six-step model. Importantly, I make the case for coaches to be critical about the rigid application of the six-step model, since segregation of the different steps does not serve well the fluid and complex nature of everyday coaching. For instance, step 6 (game performance) in fact occurs throughout the whole process rather than simply emerging at the end of it to assess the outcome. Otherwise, the coach would not be able to promote discussion during steps 2 (game appreciation) and 3 (tactical awareness), as these are based on issues emerging from the game. Therefore, I recommend that the steps of the original TGfU model should be considered, but also challenged and adapted to the specific coaching context. Whilst other variations of the TGfU approach proposed a simplified model (e.g., Tactical Games Model), or no model at all (e.g., Game Sense), the present study argues for a looser structure rather than a lack of structure (see section 4.2.2.2. for more detail on this).

Previous studies have shown that coaches do tend to adapt the implementation of GBAs (see Kinnerk et al. [2018]), but do so invariably 'safely'

rather than 'critically'. While the latter implies a sound knowledge of the approach being employed, and a continuous reflection that leads to duly justified adaptations; the former entails a superficial implementation as a result of misunderstanding the approach and subsequent feelings of lack of confidence. For example, Karagiannis and Pill's (2017), and Light and Evans' (2010) studies concluded that football and rugby coaches lacked an understanding of the principles of the GS approach. Here, the coaches were seen to go back to their usual coaching practice, or interpreted GBAs as 'just playing games'. Indeed, Stolz and Pill (2013) discussed that while TGfU has reached academia, it has not truly reached practitioners, who seem to be resistant to such change. Kinnerk and colleagues (2018) advocated for coach education to move "coaches from 'just playing games' to using GBA-focused pedagogy to impact player learning" (p.9). The present study furthers this point by suggesting that coach education courses should focus on the coaches' ability to critically reflect on their coaching practice and on adapting the pedagogical approach employed to the specificities of the context. Pope (2005) stated that "like any model, TGfU is a tool for thought, an invitation to try new ideas, propose new arguments, offer alternative dimensions" (p.271). The present study agrees with the essence of this statement, but suggests coach education programmes to support coaches in using TGfU as a flexible approach rather than a model or a tool.

5.2.4. The utility of TGfU as a coaching approach

The current study also exposes the need for further detail within the TGfU approach. Firstly, the findings argued for the integration, or at least consideration, of a warm-up as part of the approach, something that has not been explicitly explored in previous GBAs research. The warm-up should go beyond the physiological preparation of the body for the activity, and be interpreted as another opportunity to develop the players' tactical understanding of the game, such as peripheral vision, communication, and ownership. It can also be an opportunity to consolidate some technical skills in a contextualised environment (referring to the principles of 'when' and 'how' to develop the technical skills; mentioned below).

Secondly, this study agrees with Thorpe, Bunker and Almond (1986) regarding the need for a game-form stage (step 1), from which the tactical issues emerge. However, whilst the traditional TGfU approach proposes to start the session with a game form, the findings suggest extending this to the competitive league game, or even the final game form of the previous session. In essence, I argue that the coach should have the flexibility to choose the adequate game form for his/her own context in time, whilst considering that the players are still challenged to think about the tactical issues that emerge from the game. This means that each session should not be perceived in isolation, but considered in light of previous sessions and/or games.

This study also suggests means to adapt the approach to the players' level, namely in the first few sessions in which my knowledge about the players' level of ability was still limited. At this stage, it becomes particularly relevant to consider the pedagogical principle of 'tactical complexity' and the AR reconnaissance phase (Elliot, 1991), allowing me to get information about the context, the team's background, and the players' level of ability. This provided me valuable information to plan appropriately based on the players' level of ability. Moreover, due to the unpredictable nature of the coaching process, it is even suggested that considering different scenarios within the planning can be beneficial for its implementation. Such consideration can be perceived as contradictory to the reactive nature of TGfU. However, I refute this point, since as touched upon in the emotions section (see section 4.2.1.1.), the ability to consciously rationalise action – in this case, with a greater degree of knowledge – has the potential to avoid following the so-called folk pedagogy, i.e., approaches based on anecdotal evidence and tradition (Cushion, 2013) (see section 4.2.2.3. for further detail on this). Additionally, the findings suggested that thorough planning enhances the ability to reflect-in-action and adapt accordingly, since it provides cues to focus on whilst coaching.

Moreover, when discussing the analogy raised by Launder (2001) 'Is TGfU a model only test pilots can fly?', Kirk (2016) argued that TGfU will never be appropriately implemented by practitioners until the "root sources that impede its progress" (p.S5) as a pedagogical approach are identified and addressed. In this line of thought, a key conclusion from the present thesis is that the 'root source' that can unlock the implementation of TGfU, is to see it as a flexible approach rather than a

rigid model. Indeed, this aligns with previous research (e.g., Jones & Wallace, 2005) which argues that a rigid structure of 'a' model is not coherent with the dynamic and 'messy' nature of the coaching context. Furthermore, the aims and principles of the approach should be applied in a critical fashion, and adapted to the needs of the coach, the players (individually and collectively), and the context. My findings showed that a decisive aspect in this adaptability is the ability to critically reflect in and on the process, and adjust accordingly.

5.2.5. TGfU as an interaction-centred approach

Another important finding is the interpretation of TGfU as an interaction-centred approach rather than a player-centred one. Indeed, the present study disputes the argument that all the decisions made by the coach must have the player as the central focus, suggesting that this is not representative of the reality of coaching. In fact, when making a decision, I have weighed (and I presume other coaches do) numerous factors, such as individual players, the team (or group), the coach's beliefs, the approach implemented, the stage of the season, the opposition, amongst others. Players' needs were certainly considered, but it is misleading to claim that they always took priority within the decision-making process. Such an issue becomes particularly relevant when considering that the interests of the team took priority over the interests of each individual player. This study then suggests that the coach needs to weigh up all these factors before arriving at a decision that is beneficial to the club, team, and own interests, whilst balancing the impact on each individual player. In order for this to work, the present study claims that the coach needs to orchestrate the process with the players (Jones & Ronglan, 2017), i.e., the centre of the approach lies in the interaction between the coach and the players, in which the decision-making process is a constant negotiation between both parties. In this sense, attention needs to be paid to the communication employed. In the context of TGfU, this study argues that the activities implemented (see below) and the use of questioning act as mediators in the interaction between the coach and the player. Indeed, in agreement with core literature in the field (e.g., Pill, 2016), the findings suggested that the use of constructivist coaching styles, with emphasis on

questioning, should be prioritized when employing a TGfU approach. This allowed a better engagement of the learner in the process, promoting further opportunities for cognitive development.

5.2.5.1. Questioning

The present study argues for the need to constantly improve the coach's questioning skills in order to meaningfully impact on the players' learning. According to the findings, this improvement entailed the inclusion of questioning as part of the planning process, i.e., in addition to plan 'what' to do in the sessions (activities), I have also planned 'how' to do it (interaction/questioning). These planned questions should be interpreted simply as guidance, and always complemented by inductive questions that emerge in the session. Planning the questions led me to rethink the type of questions used and how they were worded. Particularly, the present study suggests the use of open questions in order to challenge the learner to explore numerous solutions for one problem. In addition, starting the sentence with 'what', 'why', 'how' seemed clearer for the players to understand the intended query. Moreover, as an additional strategy to improve questioning, the findings reinforced the ability to reflect in- and on-action, which allowed the identification of areas for improvement. For instance, as the season progressed, it became apparent that group questioning was not always the most adequate approach. In contrast, individual questioning was demonstrated to be a very efficient strategy, as it allowed me to deal with each player's issues in a more in-depth and specific way. Additionally, it permitted me to maintain the intensity of the training session whilst promoting the players' cognitive development. Furthermore, balancing group with individual questioning, allowed a better consideration of when to address the players and when to give them time and space to think about the problems autonomously. This relates to the promotion of challenging and adequately timed questions. Indeed, the findings highlighted the need to pose the right type of question (preferably open-ended) in the right moment, to the right player, and making sure it was adapted to their (the players') level. This was done by personalising the interaction based on the individual player and specific situation, which could only be achieved by improving my reflection in- and on-action.

Despite arguing for the importance of constructive coaching styles, particularly to the use of questioning, the present study advocates that due to the complex nature of the coaching context, directive coaching styles can also have a place in the coaching process. These can be applied in isolation or in combination with constructive coaching styles, but always applied critically and consciously within each specific context and situation. For example, using Mosston and Ashworth's (2002) teaching styles Spectrum as a framework, it could be the case of combining the reciprocal style (reproduction cluster) with guided discovery (production cluster), in which the players are challenged to provide each other feedback, but the coach goes around asking questions rather than giving specific instructions to the player that is acting as a coach.

5.2.5.2. Activities

In addition to questioning, another mediator in the interaction between the coach and the players is the activities employed which, in agreement with the TGfU approach, were invariably game-related. Considering the infinite range of variables existent in a game, certain technical or tactical aspects might only occur sporadically. Therefore, the present study argues that the coach needs to manipulate the game-related activities to prioritise and frequently expose the players to the key technical and tactical issues that might be limiting their performance. This implies promoting repetition, which is often associated with more traditional technical approaches or the motor-learning field of study. However, I am referring to the repetition of opportunities rather than mechanical actions. This means that rather than instructing the players to repeat movements, the activities within this study were manipulated to provide repeated game-related opportunities in which the players were responsible to make their own decisions and explore different options.

The present study also reinforces Thorpe, Bunker and Almond's (1986) claims that technical skills should not be worked in isolation, but contextualised into game-based activities. The findings highlighted the 'when' and 'how' the technical skills should be integrated. Clarifying, the 'when' relates to focusing on the technical skill only after its meaning emerges from the game. The 'how' includes manipulating the pedagogical principles in the form of game-based activities. By promoting the

technical skills in such a way, the players were able to better understand their contextual meaning.

Another relevant aspect that emerged from the findings regarding the activities employed, was the replication of game context in training sessions, including the inherent pressure of competition. Since formal competition is not part of the PE context in which TGfU was originally developed, this is a distinct feature of the coaching context and my contention is that it should be embraced. Indeed, whilst the integration of competition in educational settings is a controversial discussion, with numerous authors pointing out its negative impact on the learner (e.g., Bernstein, Phillips & Silverman, 2011); it is a fundamental part of the coaching context. So, I argue that it should be emulated as much as possible in the training sessions, by creatively exploring the TGfU pedagogical principle of 'modification by representation'. Thorpe, Bunker and Almond (1986) defined this principle as the ability to modify the activities in the session in a way that the tactical principles of the formal game are represented. Agreeing with this, the present study adds that other aspects should also be represented, such as the pressure of dealing with the score. In essence, replicating the tactical principles of the game but also the emotional element as much as possible. For that to happen, the present study argues that the coach needs to have a very clear understanding of the aim(s) of the session(s), the principles of the approach, and of the particularities of the context.

5.2.6. Controlling the process

An underlying aspect of all the points so far relates to the need I felt for some sense of control. Such finding gains particular interest when considering the democratic nature of the TGfU approach. During the present study, the exploration of numerous reflective frameworks can be perceived as pursuing some control in the reflective process; but it was also reflected in the investment in the planning process, and importantly, in the way that questions were posed. Indeed, the latter influenced not only the players' answers, but also their interpretation of what defines a 'right' or 'wrong' decision. Clarifying, the players' decision-making, tactical awareness, knowledge and understanding of the game, were a product of my own

understanding. Even when giving the players more space to think and act (i.e., less coach intervention), it was my decision to give them that space, as well as when and for how long. However, this is not to advocate such an autocratic process, in which the coach dominates the decision-making process. This would be the antithesis of this study, and would clash with the reason why TGfU was originally developed. Instead, I still argue for the flexible application of a democratic approach like TGfU, but being aware of the control that the coach possesses in distinct layers of the process. In essence, the application of such an approach in a complex context as the coaching context led to a controlled instability (Santos et al., 2013) managed by me with the aims of the approach, and the players' and team's best interests in mind.

5.2.7. The players' response to the TGfU approach

Regarding the players' ability to reflect, the current study demonstrates a clear improvement from not being able to reflect on one's own performance, to be able to reflect on themselves, the team, and to some extent on the opposition as well. This was achieved on-action initially, and in-action as well towards the end of the season, in particular from moments of less temporal pressure (e.g., pre-training meetings) to more temporal pressure (in games). Indeed, this distinction between the players' behaviour in these different moments, reinforces the need for the coach to stimulate critical thinking through meaningful and challenging questions, regardless of the environmental constraints.

Despite recognising the benefits of TGfU, specifically the use of game-based activities, by the end of the season most of the players still believed that a combination of game-based and isolated technical activities was the most beneficial approach for them. Indeed, since the vast majority of the players had only been exposed to more technique-based approaches in their past experiences, they perceived isolated technical drills as necessary to improve technique and consequent performance. However, the findings demonstrated that throughout the season, by working under the TGfU approach, the players realised that they could still develop their technical ability within the context of the game, since this allowed them to improve their technical skill in context, which is consistent with the principles of the

approach. Indeed, the players' perspective on isolated technical skills was merely one of emotional attachment, since they were not able to pragmatically justify it.

This shows a shift in the players' views on TGfU, but also demonstrates how difficult it is to change people's perspectives. In fact, despite the overall development noticed in the players' understanding of the game and consequent performance, it can be deduced that being exposed to the approach for the first time in their adult life affected the depth and speed of their development. For instance, the findings demonstrated that, in the initial stage of the season, most of the players were uncomfortable with being asked questions or being challenged to think about the different issues that were emerging throughout the session. This was particularly the case within group discussions, in which some players would shy away, avoiding the potential embarrassment due to their lack of knowledge. Nevertheless, as the season progressed, they became increasingly more used to it and embraced the challenge inherent to those discussion moments. Consequently, the present study suggests implementing TGfU at early stages of the players' development in their youth. In fact, as a TGfU advocate, I suggest that a critical application of the approach should be promoted from the moment the player starts learning the game, regardless of their age and the game in question.

5.2.7.1. Players' performance

In accordance with the present study's findings, the players' performance decreased before improving. This was seen to be linked to the discomfort caused by being exposed to a new approach, and the additional challenge of pushing the players in a more holistic fashion. Clarifying, TGfU is not a simplistic approach, and most players were unable to perform to the best of their ability when initially challenged from a tactical, technical, physical, and cognitive perspective. Even when their understanding of the game started to improve, their performance did not accompany it straight away. In time, however, the players' performance increased to a higher level than it initially was. Their understanding of the game improved, they became more tactically aware, technically more capable, and more efficient decision-makers. This positive impact of TGfU in competitive coaching practice has not been explicitly claimed in empirical literature to date yet. Consequently, the present study

warns coaches to prepare for a 'bumpy ride' ahead when implementing such an approach, reiterating the importance of being persistent and patient, since immediate positive results are unlikely to happen. The learning process was not linear, and the players' performance went up and down at different stages of the season due to different factors. For instance, the stress and pressure inherent to the formal game context often led to a poorer performer in these situations when compared to the training sessions. Indeed, the findings suggested that the game pressure would often push the players back to their comfort zone, often neglecting the tactical aspect in order to simply focus on the technical execution of the action. In order to address this, the findings demonstrated that coherently aligning my behaviour with the principles of the approach both in training and games, had a positive impact on the way that players behaved (and consequently performed) in games.

5.2.8. Psychological and Physical dimensions

The findings also reinforced the need to expand the TGfU approach to more than technical and tactical aspects, that is, to also contextualise the development of the psychological and physical dimensions. The players' ability to deal with the inherent pressure of competitive sport was highlighted as an important issue. To address this, the present study suggests promoting game-related activities that recreate the pressure of the game (e.g., set up games in which the scoreboard reflects the end of a set). Additionally, the coaching style employed can also be a way of challenging the players' psychological dimension. For instance, the coach can be more or less supportive, more or less demanding, which can impact on the resilience developed by the players.

In terms of the physical dimension, I came across one particular dilemma early in the season, which regarded the balance of promoting discussions that enhance the players' cognitive engagement whilst keeping a high level of physical intensity. Promoting physically challenging sessions that replicate the intensity of the league game, whilst promoting moments of questioning and discussion, was a very important issue to consider when applying the TGfU approach in a competitive

coaching context. To address this, the current study suggests setting up pre-training meetings to discuss potential issues from previous training session or matches, and improving the coach's questioning skills. Indeed, the findings demonstrated that planning questions, wording them effectively, using individual questioning, and progressively intervening less, had a positive impact on the referred dilemma. The explicit consideration of these dimensions is a new contribution to the field of study.

5.2.9. Final thoughts

Finally, addressing the all-important question 'Does TGfU work?' (Butler et al., 2003), the present study's answer is 'Yes'. However, this is an extremely simple answer for a very complex question. It is important to reinforce that its success or usefulness depends on whether or not it is approached critically, and it is my hope that the aforementioned conclusions can assist in such an implementation. This becomes particularly relevant when considering that earlier research highlighted a lack of guidance for the employment of TGfU, and GBAs in general (e.g., Roberts, 2011). As a consequence of such conclusions, there is an ambition that studies like the present one can inform future coach education curricula.

Finally, the considerations made in the present study to the original TGfU approach have been summarised in the following diagram (see figure 10), which is perhaps better worded as 'Coaching for Understanding'. Importantly, this is not intended to be a new model or a modified version of the TGfU framework. Instead, this is simply a visual representation of the key aspects considered whilst implementing the approach in the present study, with the intention of instigating coaches' curiosity on the matter. With that, this study is not trying to minimise or underestimate the TGfU original approach in any way, but to further explore and advance it. After all, one would only dedicate such time to researching an approach that one feels inspired by. The significant number of studies and variations that have emerged from the TGfU are a sign of Thorpe, Bunker and Almond's (1986) legacy, which should be preserved and celebrated.

Reconnaissance phase (Elliot, 1991)

When first implementing the approach, prioritise the pedagogical principle
of 'tactical complexity' (Bunker et al., 1986).
Allow fluid implementation of pedagogical principles throughout.

Warm-up

The interaction between player + coach informs the whole process. This is mediated by:
- Activities
  - Planning and preparation are crucial
  - Apply repetition of opportunities
  - Replicate pressure of competition. Prioritise the pedagogical principle 'modification by representation' (Bunker et al., 1986)
  - Consider 'when' and 'how' to cover technical skills
- Questioning
  - Inductive and deductive
  - Balance group with individual questioning
  - Emphasise open-ended questions appropriately worded
  - Manage the time of discussion vs intensity of the session

This game form can also be:
- The previous session
- The previous formal match

(1) Game

(2) Game Appreciation

(6) Performance

Learner + Coach

(3) Tactical Awareness

(4) Making appropriate decisions

What to do?   **How to do?**

(5) Skill Execution

Players
- Develop ability to reflect on- and in-action (Mouchet, 2008), instigated by questioning and activities
- Deal with overwhelming exposure to the new approach (tactical/technical/cognitive skills)
- Players' understanding improves before being able to act on it (performance)
- Performance may decrease before increasing
- Consider psychological and physical dimensions

Critical application of the approach. Loose structure, in which the steps should be challenged. **TGfU as a flexible approach, rather than a rigid model**

Coach
- Develop ability to reflect on- and in-action (Mouchet, 2008)
  - Reflect on own reflection
  - Get exposed to reflective frameworks (e.g., Anderson et al., 2004) (even if not using them systematically)
  - Both players and coach should be the focus of reflection (avoid focusing solely on the players)
  - Informed by video/audio recordings from the sessions
- Deal with emotions. Acknowledge they are part of the process, but be conscious of them so they can be managed (see Hochschild [2000])
- Be aware of how lonely the process can be. Consider the development of a 'community of security' (Jones & Alison, 2014) + 'critical friend' in the field
- Manage own sense of control
- Improve questioning skills
- Favour player-led coaching styles, but do not ignore coach-led ones (Mosston & Ashworth, 2002)

Figure 10 – Visual representation of the considerations made (in dashed blue) to the original TGfU model (in bold)

5.3. Limitations and Recommendations for future research

Some of the limitations presented in this section may also be seen as strengths, as they relate to specific features of the study. For example, despite the benefits previously highlighted, my dual role as coach and researcher also carried challenges. Specifically, it meant that I had to manage the duties and responsibilities associated with two roles, and balance the power relationship with the players. Despite being aware of it and putting measures in place to minimise the issue (see section 3.9.), it is not possible to fully understand the extent to which this dual role impacted on the players, as they might have felt, for example, somewhat intimidated, compromising the honesty of their responses and behaviour.

Secondly, the personal nature of the study can potentiate empathy and relatedness from the reader, mirroring some of the dilemmas that coaches face in their everyday coaching. However, this also means that some of the conclusions need to be interpreted with caution, as the intention is not to generalise the findings but rather to express localised experiences that can hopefully help the practice of others. In fact, this work celebrates the uniqueness and subjectivity of the present findings, urging the reader to also embrace the criticality encouraged by this study and carefully make sense of results, conclusions, and recommendations as context-specific.

Another limitation is associated with the exploratory nature of the study. Whilst it promotes a critical implementation which, in turn, encourages continuous learning; it may also be perceived as exacerbating the subjective nature of the study and potentially impacting on the rigour of the methodological procedures.

The findings of this study contributed to the body of research within the coaching context, particularly by creating empirical evidence on the impact that TGfU had on my learning as a coach and the players' learning, as well as by developing detailed means by which such an approach may be applied into a competitive coaching setting. However, this was done in a very context-specific manner and, consequently, a key recommendation revolves around the idea of exploring similar aims in a variety of other coaching settings. For instance, it would be interesting to

investigate such an approach in a professional coaching setting, as its adaptation to different sports. In essence, this would allow for further exploration into its transferability to different contexts with the aim of revealing additional insights into the applicability of the TGfU approach.

As suggested by some of the aforementioned conclusions, it would also be pertinent to add TGfU to coach education curricula and subsequently investigate its impact into coaches' knowledge and understanding of their practice. A similar case may be made about including and implementing AR as a methodological approach within coach education programmes. These may include National Governing Body-based courses, but also higher education degrees within the field of study.

5.4. My PhD journey

Undertaking this doctoral work has been the hardest but also the most enjoyable process of my academic journey so far. Whilst I felt that completing my MSc was down to carrying out a piece of research and publishing it, completing this PhD went beyond the materialisation of the thesis. Indeed, undertaking a PhD shaped me at both an academic and personal level.

Such a difference between the MSc and the PhD experiences can perhaps be explained by the distinct ontological, epistemological, and methodological strands of both pieces of research. Whilst the former was a positivist piece of research conducted in the discipline of Performance Analysis, the former is situated in the participatory paradigm (see section 3.2.). Indeed, the complexity and intimacy of the methodological procedures employed in my doctoral work meant that the production of the thesis was inherently associated with my own development as a coach and a researcher. Whilst it exposed some of my abilities and strengths, it also shed light on my debilities and doubts within both roles, as illustrated in some of the findings. Further, it gave me the introspection and human connectedness in coaching as I had never experienced before. I had been a coach for some years before starting this research, and I pride myself for having impacted positively on my players' performance. However, during the studied season, I experienced such an impact at a different level. Firstly, I believe my impact on the players went beyond their

performance and was extended to the way they experienced the game, and how they connected with each other. They became better players, with a greater understanding of the game, to the extent that I can see some of these players becoming coaches if they wish to do so one day. Secondly, it changed my coaching 'lenses' by creating a need in me for critical reflection, questioning, and constantly deconstructing my thoughts, ideas and practices. That is, this journey has made me more introspective and more critical, and taught me to notice nuances in the players' behaviours as well as my own. My hope is that such growth has transpired throughout the thesis, and will perhaps inspire the readers' appetite to challenge their own learning and the learning of others around them.

Since the nature of this study is inherently associated with my pedagogical (as a coach) and academic (as a researcher) development, I have not perceived this as being a finite process but instead one that will continue beyond the submission of this work. Perhaps due to such a perception of a continuous and endless product, it became particularly difficult to conclude and let go of the thesis. In fact, being able to better deconstruct different arguments, identify their weaknesses, and pinpoint areas for improvement has not helped in such an endeavour. In this sense, there is a perception that there is always room for improvement and that the PhD is not an end product. In essence, the thesis is finite, but the learning journey is infinite.

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Appendices

APPENDIX A – PARTICIPANT INFORMATION SHEET

Project reference number:

Title of Project: A CRITICAL APPLICATION OF THE 'TEACHING GAMES FOR UNDERSTANDING' APPROACH IN THE COACHING CONTEXT. AN ACTION RESEARCH STUDY.

This research is part of a doctoral study (PhD) which aims to explore the impact of a pedagogical coaching approach based on the tactical understanding of the game by the players (the "Teaching Games for Understanding" model). With this, we seek to improve my coaching practice and your (the players) subsequent game understanding. We believe that an approach in which the players have an active voice in the process, in which they understand the "why" instead of only telling them "how" to do, will facilitate the players' learning, and consequently their performance.

Therefore, consistent with an "action research" methodology, the process will be based in collaboration between the researcher (the coach) and the participants (the players).

If you necessitate further details about the project, please don't hesitate to contact me (in person or using the details in this end of this form).

Your Participation in the Research Project

Why you have been asked

The nature of this study implies that the researcher and the coach are the same person. Therefore, since you belong to the team that I coach, it is coherent with the study's characteristics that you take part of the study.

What would happen if you join the study?

If you agree to join the study, you will take part of the training sessions that will be planned according to an approach based on the tactical understanding of the game; and to make presence in team meetings to discuss video-footages about the game. The training sessions and the games will be video-taped, but

the only persons that will have access to those videos will be the ones involved in this study. You will be asked to do one focus group every 2 months (aprox.), which will mean a total of three throughout the season.

What happens if you want to change your mind?

If you decide to join the study you can change your mind and stop at any time. We will completely respect your decision. There are absolutely no penalties for stopping.

Are there any risks?

We do not think there are any significant risks due to the study. However, if you are feeling uncomfortable in any way about the research please let us know about it, and feel free to withdraw at any time.

Your rights

Joining the study does not mean you have to give up any legal rights. The rights we have are the same ones that you had before, as a person, and as a player registered in the 'Volleyball England Association'.

What happens with the data collected?

The data gathered in this study will be used in three ways:

1. To write my doctoral thesis (PhD)

2. To write research papers to publish in academic journals

3. To be presented in academic congresses or seminars

How we protect your privacy:

In all the situations referred above, your name and other personal information will be preserved; if necessary, pseudonyms will be used to protect your identity. Your confidences will be respected according to my ethical and legal obligations as a researcher. No video-footages from the training sessions and games will be shared with a third party. The only persons to access them will be the persons involved in this study: myself and my supervisors, you, and your teammates.

PLEASE NOTE: *YOU WILL BE GIVEN A COPY OF THIS SHEET TO KEEP, TOGETHER WITH A COPY OF YOUR CONSENT FORM*

Contact Details:

José Castro

Tel: 07983548282

Email: jonevesdecastro@uwic.ac.uk

APPENDIX B – PARTICIPANT CONSENT FORM

UWIC Ethics Reference Number:

Participant name or Study ID Number:

Title of Project: A CRITICAL APPLICATION OF THE 'TEACHING GAMES FOR UNDERSTANDING' APPROACH IN THE COACHING CONTEXT. AN ACTION RESEARCH STUDY.

Name of Researcher: José Castro

_____

Please initial each box with Y for Yes and N for No.

1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that I am free to withdraw from the project at any time, without giving reason. ☐

3. I agree that I might be observed, videotaped and interviewed, both informally and formally. ☐

4. I understand that data from the study may be used for publishing purposes. ☐

5. I agree to take part in the above study. ☐

_____   _____

Name of participant   Signature of participant

  _____

Date

_____   _____

Name of person taking consent   Signature of person taking consent

_____

Date

* When completed, 1 copy for participant & 1 copy for researcher site file

APPENDIX C – FOCUS GROUP GUIDE

FOCUS GROUP Guide

NOTE: the aim is common to all the FGs, but the structure and direction of the interview is flexible depending on the flow of the conversation.

AIM: to promote the players' reflection and critical thinking about the process, their actions (as individuals and as a team), which will allow the exploration of the utility of the TGfU approach as a coaching strategy. In addition, the aim is to examine if and how their learning is being developed in relation to the referred approach.

PRE-FG: book a room at Cyncoed campus; set up the room; set up the Dictaphone.

FG:

1- Evaluate the players' understanding of the process
   o Their initial expectations regarding a tactical approach
Remember when in the beginning of the season I told you about my study, and that the training sessions were going to be structured based on a tactical approach. Did you have any expectations about it?

   o The changes in those expectations
Did those expectations changed?

   o Some crucial moments during the process
Until now, what were the crucial moments during the process of training?

   o Identifying the most and least meaningful aspects of the approach
What do you consider to have been the most and least meaningful aspects of the approach?

2- Evaluate the players understanding of the game
   o How do you feel about the way you are playing?
   o Which points to improve individually and has a team?
   o And how to do that?
   o Refer to learning.

POST-FG: thank the players for their participation; transfer the recording to my password-protected laptop; write reflective notes on the session; transcribe and start data analysis.

APPENDIX D – ILLUSTRATION OF THE DATA ANALYSIS PROCESS
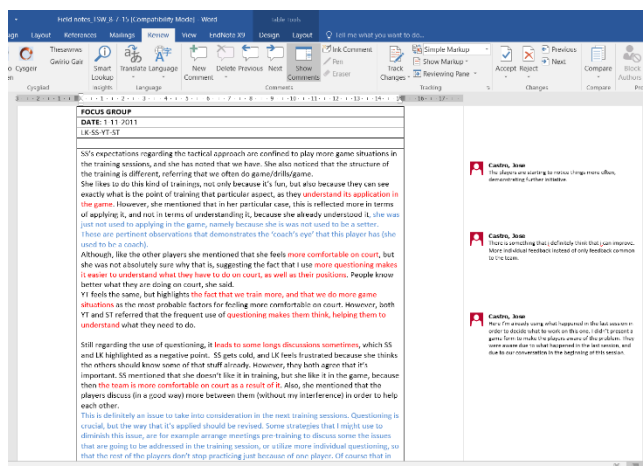
(1) Data from the reflective notes and focus groups was collected, analysed and compared with the literature to start refining concepts (*iterative process and theoretical sensitivity*).

(2) Data was then organised into component parts that help making sense of the raw data (*coding*). This was done according to the aims of the study and my interpretations along the research process.

(3) A *constant comparison* was also incorporated allowing a close connection between data and conceptualization. Such comparison was promoted between different sets of data, codes, themes, and literature, in which theory or concepts were delimited. In the present study, these concepts and themes generated from the common threads identified in light of the aims and objectives, and further reflective critical analysis from the researcher.

APPENDIX E – ANDERSON, KNOWLES & GILBOURNE'S (2004) REFLECTIVE FRAMEWORK

Cue questions:

1.0 Description of the consulting experience
1.1: Phenomenon: Describe the 'here and now' of the experience (where, when and what)
1.2: Causal: What essential factors contributed to the experience? (why)
1.3: Context: Who are the significant background actors in this experience? (who)
1.4: Clarifying: Put it back together and establish what the key issues are in this experience that I need to pay attention to.

2.0 Reflection
2.1: What was I trying to achieve?
2.2: Why did I intervene as I did?
2.3: What internal factors influenced my actions? (thoughts, feelings, previous experience)
2.4: What external factors influence my actions? (other people, organisational factors, time)
2.5: What sources of knowledge did/should have influenced my decision making?

3.0 Consequences of actions
3.1: What were the consequences of my actions for (what did I learn/realise – cognitive component):
Myself?
The athlete?
The people I work with?
3.2: How did I feel about this experience when it was happening (affective)?
3.3: How did the athlete feel?
3.4: How did I know what the athlete felt like?

4.0 Alternative tactics
4.1: Could I have dealt better with the situation?
4.2: What other choices did I have?
4.3: What would be the consequences of these choices?

5.0 Learning
5.1: How do I now feel about this experience?
5.2: How have I made sense of this experience in light of past experiences and future practice?
5.3: Action: Write down the key lessons in your notebook.