
The University Of Sheffield.

# Coaching through Principles of Play.

# A Conceptualisation of the Coaches' Process of Knowledge Generation.

By:

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The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

# ABSTRACT

In recognising the importance of coaches' tactical content knowledge, in this study, I look at ***how coaches generate knowledge to coach through principles of play***.

Coaches are seen as ongoing learners who are able to acquire and generate tactical content knowledge, and then, as teachers, transform that knowledge into pedagogical tactical content knowledge. The concept of coaching through Principles of Play underpins coaches' tactical content knowledge. As early as in the 1960s, literature already referred to Principles of Play. Literature shows that both sports coaches and PE teachers who coach or teach through a tactical or game centred approach, may frame their tactical knowledge within the concept of principles of play.

A theoretical framework was composed of; Shulman's Model of Pedagogical Reasoning and Action, Bruner's A Theory of Instruction and Tactical Periodization. Together with the Categories of Knowledge, this theoretical framework made it possible to initiate **a *conceptualisation of the Coaches' Process of Knowledge Generation for Coaching through Principles of Play***.

Qualitative Content Analysis on the five sources selected to compose the theoretical framework led to the first level conceptualisation. This was further populated with the intervention of ten expert international soccer coaches, who were interviewed and asked to analytically criticise, from their point of view, the first version of this conceptualisation. Qualitative Content Analysis of these interviews led to the second level conceptualization of this process.

The final conceptualisation presented in this study demonstrates how a process of knowledge generation to coach through principles of play needs to be contextualised through ***Scrutiny of the Environment***, ***Conceptualisation, Acquisition of Knowledge, Transformation of Knowledge, Dissemination of Knowledge*** make the five outer components which all interact with the central component ***Regeneration of Knowledge***.

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I dedicate this study to my parents who taught me the meaning of a humble life, to all my students who have pushed my boundaries to want to learn more, to the late Dr Michael Aquilina, who showed me the way into becoming an athlete, a PE teacher, a lecturer, and most importantly how to become a humble, down-to-earth, non-pretentious educator.

I dedicate this study to those who helped me understand that I am just ‘r’, and that my studies are only necessary for the growth of a man towards a more significant existence.

# DEDICATION

This dissertation is dedicated to

My wife Sarah,
first and foremost,

My daughter, Emily,
whom I love without boundaries

My parents, grandparents and parents in law

All those expert and non-expert learners
who participated in my learning community along the years

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# LIST OF ABBREVIATIONS

CK – Content Knowledge

CCK – Curricular Content Knowledge / Curriculum Knowledge

SMCK – Subject Matter Content Knowledge

PCK – Pedagogical Content Knowledge

CPP® – Coach(ing) through Principles of Play®;

PoP – Principle of Play / Principles of Play

MoP – Model of Play / Models of Play

TI – A Theory of Instruction

FIGC – Federazione Italiana Giuoco Calcio

TGfU – Teaching Games for Understanding

# CHAPTER 1
# INTRODUCTION

## 1.1 INTRODUCTION

This thesis grew out of my ongoing thirst for furthering my pedagogical tactical content knowledge as a soccer coach. More specifically, the study reported here will identify and conceptualise a deep understanding of knowledge generation for Coaching through Principles of Play (CPP). It asks:

- How do coaches generate knowledge to coach through Principles of Play?

This chapter will briefly consider a working definition of sports coaching and other concerns central to thesis and before setting out the structure and parameters of the thesis as a whole.

Sports coaching is central to this study, therefore it is important to clear from the onset, that whist the term 'coaching' also refers to executive-coaching (Kilburg, 1996; Thach & Heinselman, 1999), and coaching in educational contexts (Bloom, Castagna, & Betsy, 2003; Cornett et al., 2009), this study focuses on sports coaching (e.g. Cassidy, Jones, & Potrac, 2009; Côté & Gilbert, 2009b; Jones, 2007), and specifically soccer coaching.

Sports coaching is a complex and ambiguous activity (Jones & Thomas, 2016), marked by negotiated interactions, aimed primarily at athletes' learning, which normally takes place at the 'edge of chaos' (Bowes & Jones, 2006). Coaches like pedagogues (Jones, 2006; Jones, Armour, & Potrac, 2004) need to become "good teachers of the game" (The Football Association, 2012, p. 9). Back in 1967 Allen Wade highlighted the importance of coaches teaching the *what* to do, together with the *why, when* and *how* to do it. Côté and Gilbert (2009) explain that coaching effectiveness results from consistent application of coaches' knowledge to improve athletes in their specific contexts. Gearity (2012, p. 90) stresses the importance of *content knowledge* for coaches so that they can "effectively teach what needs to be done" and provide useful coaching instructions, which are crucial if coaches are not to be perceived as poor teachers.

Gray and Hall (2015) claim that half of coaching instructions are tactical in nature, which shows the centrality and importance of ***tactical knowledge*** (Gray & Hall, 2015). They further explain that tactical knowledge "enables the

coach to make sense of the chaotic ebb and flow of tactical action information" (p. 149).

Instead of looking at coaching as an art, one can consider it as scientific and systematic (Jones et al., 2004, p. 37). When coaches conceptualise soccer coaching as a science, they can look at the complexity, systemic nature and internal logic of the game (Gréhaigne, Richard, & Griffin, 2005), and can appreciate that it can be studied in a scientific manner (Delgado-Bordonau & Mendez-Villanueva, 2012; Jankowski, 2016; Pimenta, 2014).

Tactical content knowledge has achieved central importance in both sports coaching and physical education, with the shift from conventional (Clemente & Rocha, 2013) and traditional coaching approaches (Gray & Hall, 2015, p. 163), to Game Based Approaches (e.g. Bunker & Thorpe, 1982; Duyn, 1997; Launder, 2001; Light, 2013). This shift proposes an approach which focuses on teaching in the context of the game as a whole (Light & Harvey, 2017) rather than uncontextualised skills and segregated physical or technical demands as discrete components of the game (Clemente & Rocha, 2013; Light, 2017; Light & Harvey, 2017).

This game based approach has gained international popularity across the whole world in the last twenty years, with the Game Concept Approach (Rossi, Fry, McNeill, & Tan, 2007), Tactical Games Approach (Mitchell, Oslin, & Griffin, 2013) and Tactical-Decision Learning Model (Gréhaigne et al., 2005) being also developed in Singapore, the USA and France respectively (Light, 2013). This shift has also infiltrated soccer coaching through coaching methodologies such as the Global-Analytical-Global (Csabai, Reinkens, Dalla Pace, & Haines, n.d.; FIFA.com, n.d.) and Tactical Periodization (e.g. Delgado-Bordonau & Mendez-Villanueva, 2012; Tamarit, 2015).

It is not the intention of this thesis to show preference to one approach over another, nor to infer the incompatibility of the two approaches. The Global-Analytical-Global, and Tactical Periodization can, to an extent include conventional and/or traditional approaches. A coach may wish to use more than one and integrating tactical coaching knowledge within the more conventionally or traditionally set training exercises or sessions may be appropriate.

The literature, and the same paradigm shift, confirm the importance of tactical content knowledge, yet recent literature reveals a huge concern about insufficient knowledge of the game (Harvey & Jarrett, 2014; Mitchell et al., 2013). Harvey and Jarrett (2014, p. 290) argue for further research to support teachers' and coaches' conceptual and ***pedagogical content knowledge***. Roberts' (2011, p. 43) proclaims that the lack of appropriate Pedagogical Content Knowledge is one of the reasons why teachers may move back to sole use of direct technical approaches.

Harvey and Jarrett (2014) and Roberts (2011) express concern about a vacuum around the level of pedagogical tactical content knowledge, referring to Pedagogical Content Knowledge, as a "form of teacher knowledge" (Wilkes, 1994), which re-strengthens the coaches' pedagogical role.

Côté and Gilbert's (2009) reference to specific contexts as a postulate to coaching effectiveness, highlights an inference to an important philosophical assumption of knowledge contextualisation. I suggest that tactical content knowledge needs to be generated by the coaches for the contexts they work in and the athletes they work with.

This shifts the gaze from coaching knowledge as unproblematic, with coaches as technicians involved in the transfer of knowledge (Cassidy et al., 2009), to coaches as learning expert participants (Sfard, 2008), who do not only repeat what they have learned in one context (for example coaching education), to the next (such as training and planning). Rather, with the focus as pedagogical tactical content knowledge, they need to apply the concept of ***preparation for future learning*** (Bransford & Schwartz, 1999). This resonates with Bruner's (1963) concept of ***productiveness***, and expects that coaches are able to generate new propositions from previously acquired knowledge. Hatano and Greeno (1999) have proposed replacing the term 'transfer' with 'productivity' focussing at the degree to which learning in one kind of activity can be effective in successive different activities. This thesis is not about coaches' knowledge *acquisition*, rather the focus is coaches' knowledge *generation*.

## 1.2 AIM OF THE STUDY

The study reported in this thesis focuses on the importance literature puts on coaches' knowledge (e.g. Côté & Gilbert, 2009b; Gearity, 2012) specifically pedagogical content knowledge (Harvey & Jarrett, 2014; Roberts, 2011) which focuses on the tactical (knowledge) nature of the game (Gray & Hall, 2015; Harvey & Jarrett, 2014).

The pedagogical nature of the study reported here, more specifically the importance of pedagogical content knowledge (Shulman, 1986, p.9) brings us to the work of Shulman, known for his theory of pedagogical content knowledge (Wilkes, 1994) and for his *Model of Pedagogical Reasoning and Action* (Shulman, 1987). These ideas are central to this study.

As Abraham et al., (2015, p. 27) note, to unpack all the 'what' of soccer tactical content knowledge is a large task. This lies beyond the scope of this thesis; as a minimum, tactical content knowledge would include 'tactics', 'strategy', 'Principles of Play' and 'rules', which, although normally used interchangeably, all have different meaning (Gray & Hall, 2015; Gréhaigne et al., 2005).

From the standpoint that pedagogical [tactical] content knowledge is the subject matter which takes the "dimension of subject matter for teaching" (Shulman, 1986, p. 9), we can return to the explanation of coaching effectiveness relying on the consistent application of coaches' knowledge to improve athletes' learning (Côté and Gilbert, 2009).

This thesis places the focus on Principles of Play (PoP) as the ideal pedagogical tactical content knowledge, because as Morales-Belando, Calderón, and Arias-Estero (2018) explain, PoP can be used to assist players [learning] in making the appropriate tactical decisions. Gray and Hall (2015, p. 153) sustain this as they claim that 'PoP' are the rules that, players need to abide by, to [learn and] achieve goals more effectively. It is PoP that players need to learn during training sessions, because they need to apply these PoP during competition (Delgado-Bordonau and Mendez-Villanueva, 2012).

In this under-researched area, studies indicate the usefulness of PoP in Physical Education (Hopper, 1998; Morales-Belando et al., 2018; Ward & Griggs, 2011) and in sports coaching (Crespo, 2011; Ouellette, 2004).

Furthermore, *Tactical Periodization* (DiBernardo, 2015; Tamarit, 2015), is a coaching methodology which proposes training sessions to be organised around the PoP.

In this thesis PoP will frame the pedagogical tactical content knowledge that coaches need to generate, in order to be "good teachers of the game" (The Football Association, 2012, p. 9) who are able to teach the *what* the *why* the *when* and the *how* (Wade, 1967), and this is my rationale for introducing the term 'coaching through Principles of Play' (CPP) in the study reported here which investigates the following research question:

- How do coaches generate knowledge to coach through Principles of Play?

This research question steered the process of this study, which was divided into two phases. In Phase 1, I have theoretically conceptualised the process coaches may engage in. Based on that conceptualisation, in Phase 2, I engaged in lengthy discussions with expert soccer coaches, who were involved in populating the conceptualisation further, to represent their actual practice.

My personal worldview and my academic and practical experiences in teaching and coaching have influenced my curiosities set within the rationale and gaps presented above. They have catalysed this study which will ***conceptualise the coaches' process of knowledge generation for coaching through Principles of Play in soccer***, in a way to provide an initial answer to the research question.

A peripheral and additional part of this study is the presentation of the ***body of tactical content knowledge*** *of two of the participating coaches.* This will be presented in the form of what is for them a Model of Play in Appendix 1.1.

## 1.3 POSITIONALITY, ASSUMPTIONS AND PERSONAL RATIONALE FOR THE STUDY

With transparency and research contextualisation in mind, in this section I will introduce myself, and my world view. My positionality, assumptions and my rationale for the development of this study will be presented next.

### 1.3.1 Positionality

I am a graduate PE teacher, with an MSc in Sports Coaching, a post-graduate diploma in Soccer Physical Training and the UEFA B and UEFA A soccer coaching badges. Season 2018-2019 was my 18th season of soccer coaching. In these eighteen years, I have coached children from 5-11 years of age, 14-19-year-old youths, assisted in the Maltese premier division and have also been employed as the first team coach in the 3rd, 2nd and 1st divisions in Malta.

I have been a full-time sports lecturer since 2011 and involved in coaching education with the University of Malta and with the Malta Football Association since 2013.

Notwithstanding my experience in the field, I have always been concerned about the nature and extent of my tactical content knowledge. Perhaps because I might be influenced by the assumption that "…if you've never been there and done it, and [if] all you've ever done is coached, you can't explain it and you can't effectively teach what needs to be done" (Gearity, 2012, p. 90). My thirst for more knowledge has underpinned my need to assure my coaching credibility.

In 2011, I participated in a coaching clinic led by Arrigo Sacchi and Maurizio Viscidi (Federazione Italiana Giuoco Calcio; FIGC). This is when I learned about the concept of Principles of Play (PoP), "I principi del giocho" for the first time. I was later surprised to realise that the FA introduced the concept of "principles of team play" back in 1967 (Wade, 1967). I was only forty-four years late! Coincidentally, or less, Teaching Games for Understanding (TGfU) had its roots in Alan Wade's works, and later others (Forrest, Webb, & Pearson, 2006)

### 1.3.2 Assumptions

In terms of my position on the Pedagogical dimensions of Coaching, I see teaching, learning, knowledge and the learning environment as core to coaching practice (Jones, Armour & Potrac, 2003, p. 4). Thus coaching of skills, technique and tactics (Jones, 2006, p. 7) are pedagogical in nature (Wikeley & Bullock in Jones, 2006). This pedagogical dimension is argued in various studies of coaching pedagogy (see for example Gearity, 2012; Jones & Thomas, 2016; Light, 2017).

To contextualise sports coaching in its tactics (Gréhaigne, Wallian, & Godbout, 2005; Light, 2013, 2017), it is necessary to adopt a scientific and systematic 'conscious activity…designed to enhance learning in another' individual (Watkins & Mortimore, 1999, p. 3). This pedagogical dimension of the coaching process is a complex and difficult process which is demanding on the coach, who as a pedagogue (Jones, 2006) needs to continuously switch between the roles of teacher and learner, so as to understand and generate her/his necessary knowledge, to be able to communicate this to athletes (Shulman, 1987).

Thus, coaching takes on a dimension of *Pedagogical Reasoning and Action* (Shulman, 1987). As I will explain later, the *Model of Pedagogical Reasoning and Action* is one of the pillars of the theoretical framework of this study.

When seeking '*the actual* knowledge', one may easily fall in the pluralist trap of thinking that there is only one truth (Patterson & Williams, 2002). To the contrary, with a constructivist view, I believe that knowledge, in all its forms, is highly personal and contextual, hence it changes, evolves or 'regenerates', as termed later in this study.

This view of an ongoing regenerated knowledge is underpinned by a focus on the coach, who instead of being looked at as the athletes' teacher, this time, is seen as the learner (Nash, 2015), who, as an expert participant (Sfard, 2008, p. 33) engages in an ongoing learning and knowledge generation process.

Therefore, while I aim at contributing to the development and deeper understanding of coaches' tactical content knowledge, I fully acknowledge that in its fluidity, knowledge, is unique for every coach and every context. An ever-evolving context, like the soccer context, require one's knowledge to be under constant evolution. That is because, sports coaches, like all human beings create meaning from their interaction with their environment (Ertmer & Newby, 2013).

Having said that, I need to clarify from the onset that when talking about the constructivist paradigm, I am here applying it only to the coaches' knowledge generation (learning) process, and not to their direct coaching

interventions, which may take various approaches, not excluding a constructivist approach.

### 1.3.3 Rationale for the study

Literature highlights the importance of the coach's role (Cassidy et al., 2009; Evans, 2007; Lyle & Cushion, 2017) as a "more capable other" (Potrac & Cassidy, 2006, pp. 39-50). However, there remains a gap in terms of the role of the coach in generating tactical content knowledge (Abraham et al., 2015; Harvey & Jarrett, 2014; Mitchell et al., 2013). To sustain the role of 'capable other', technical and tactical content knowledge "is the most important knowledge base…yet is often the knowledge base that coaches lack the most" (Abraham et al., 2015, p. 29). This knowledge base is even more important when one considers a paradigm shift that saw coaching moving towards a Game Based Approach and away from the more "coach-centred, skill-focused" traditional approaches (Gray & Hall, 2015, p. 162).

This study is, to my knowledge, the first to examine the concept of CPP from the perspective of pedagogical tactical content knowledge generation. The aim here is to provide a deeper understanding of how those CPP, may locate their role, as ongoing expert learners who continuously (and contextually) generate knowledge so that their coaching takes a pedagogical dimension.

The thesis aims to develop a conceptualised understanding of how coaches can generate tactical content knowledge and then transform that into pedagogical tactical content knowledge (Roberts, 2011; Shulman, 1986). The Pedagogical Content Knowledge of two participating soccer coaches is presented in Appendix 1.1 as a subjective example. Whilst demonstrating what pedagogical tactical content knowledge might look like, it is not intended as a ready-made-formula.

While it focuses on soccer coaching, this study may also illuminate the issue raised by Ward and Griggs (2011) who proposed the use of PoP as the focus of primary games lessons in physical education, thus addressing the concerns of some PE teachers (Mitchell et al., 2013).

## 1.4 FRAMING THIS STUDY

The conceptualisation of the coaches' process of knowledge generation for CPP, was made possible by the identification of the theoretical framework which was composed of:

- ***Tactical Periodization*** (Delgado-Bordonau & Mendez-Villanueva, 2012; Jankowski, 2016; Oliveira, 2014b, 2014a) which provides the conceptual understanding of CPP.
- ***The Model of Pedagogical Reasoning and Action*** (Shulman, 1987), which assured that the conceptualisation focuses on the coaches who "commute from the status of learner to that of teacher, from being able to comprehend subject matter for themselves, to becoming able to elucidate subject matter in new ways, reorganise and partition it…so that it can be grasped by" athletes (p. 12-13).
- ***A Theory of Instruction*** (Bruner, 1963, p. 523), which assured that this study conceptualises the ideas needed by one (the expert participant) to practically pass on the knowledge to others.

In the following sections, I will be providing the rationale by which I identified the texts, models or theories that I have used to conceptualise the *'Coaches' Process of Knowledge Generation for Coaching through Principles of Play'.*

### 1.4.1 Tactical Periodization

I start by acknowledging the importance of knowledge as one of the postulates for effective coaching (Côté & Gilbert, 2009). Specifically, tactical knowledge which is known for assuring good quality in coaches' instruction and feedback (Boardley, Kavussanu, & Ring, 2016; Gearity, 2012). Decision making is a key aspect of effective soccer coaching; amongst many other things, soccer coaches need to make decisions about tactics, positional play and type of feedback to be given. As Nash (2015, p. 185) explains, whenever a decision needs to be made, "basic elements are identified, and a solution is created from knowledge stored in the memory". She suggests that expert coaches' knowledge is structured in a way that it allows easier recall from memory.

I believe that CPP, both needs (i) a way to generate the tactical knowledge base needed for effective coaching and (ii) an efficient way to structure this tactical knowledge, with a pedagogical approach.

With its focus on tactical content knowledge, this study moves away from the notion of a free and intuitive process so far as the selection and application of content knowledge (Cassidy et al. 2009, p. 126) is concerned, and moves towards an understanding of the systemic nature of the game (Gréhaigne et al., 2005), and how that guides the generation of tactical content knowledge. Coaching soccer through PoP as proposed in ***Tactical Periodization*** (Carvalhal et al., 2014; Delgado-Bordonau & Mendez-Villanueva, 2012; Jankowski, 2016; Oliveira, 2014a, 2014b) frames this knowledge generation process.

The term 'Principles of Play' was for the first time mentioned by Wade in 1967, and subsequent authors have recognised the term, both as a mechanism to further understand games (Gray & Hall, 2015; Gréhaigne et al., 2005) or (particularly in PE lessons) as a framework for tactical [pedagogical] content knowledge (see Hopper, 1998; Ward & Griggs, 2011; Morales-Belando et al., 2018). The same concept is strongly recognised by *Tactical Periodization* (Delgado-Bordonau & Mendez-Villanueva, 2012; DiBernardo, 2015; Tamarit, 2015), a soccer coaching methodology which was created by Victor Frade in 1998, and which follows the idea of organising training through the principles (Carvalhal et al., 2014) of the game. The literature indicates that PoP can support understanding of **'what'** (Abraham et al., 2015) knowledge soccer coaches need to generate.

This has set out the rationale for considering ***Tactical Periodization*** (Delgado-Bordonau & Mendez-Villanueva, 2012; Jankowski, 2016; Oliveira, 2014b, 2014a), as the only coaching methodology that strongly refers to PoP, and therefore is the coaching methodology that underpins this study.

### 1.4.2 The Model of Pedagogical Reasoning and Action

The term Pedagogical Content Knowledge was introduced by Shulman in 1986 (Wilkes, 1994). Whilst I am interested in understanding what other coaches' content knowledge might look like (Appendix 1.1), and the importance of understanding how they generate the content knowledge, crucial to this study is

understanding how that content knowledge takes a new dimension, to become teachable, within its context.

Shulman's (1987) seminal work, conceptualises the knowledge base for teachers in seven categories which include content knowledge and pedagogical content knowledge. Further, he suggests the idea of *Pedagogical Reasoning and Action* (Smart, Sim, & Finger, 2014) seeing pedagogical reasoning "from the point of view of the teacher, who is presented with the challenge of taking what he or she already understands and making it ready for effective instruction" (Shulman, 1987, p. 14). Philosophically, I do not agree with Shulman's interpretation of some terms, yet I suggest that the main aim of the soccer coach who engages in CPP, is to generate PoP which have contextual grounding, and which are then transformed into more teachable PoP.

Therefore, the concept of ***Pedagogical Reasoning and Action*** (Shulman, 1987) was found to be an important second theoretical underpinning of this study, allowing me to consider the coach as a processor of knowledge, who transforms his or her generated knowledge into knowledge that can be understood by the players (Shulman 1987, p. 14).

### 1.4.3 A Theory of Instruction

While the term instruction is not the exact term when considering a learner-centred approach such as GBA's (Light, 2017), Bruner's ***A Theory of Instruction*** (Bruner, 1963, p. 523) will contribute in looking at the coaches' process of knowledge generation "…as practical a thing as one could possibly have, to guide one in the process of passing on the knowledge, the skills, the point of view…". Practically speaking, Bruner's work requires that this study considers how the generated pedagogical content knowledge can be put to practical use within the learning environment. That is to say, one can generate content knowledge, on PoP in defending, *and* transform that into pedagogical content knowledge, hence into PoP that athletes need. However, at what time, and in what form, sequence and method, that knowledge be made available to the learner must be understood. *A Theory of Instruction* can initiate the conceptualisation process from this point of view.

## 1.5 CONCLUSION

This chapter has introduced two shifts that happened in sports coaching in recent decades. It has set out my rationale and my own positionality which give direction to this study. It has also presented the composition of the theoretical framework and the research question which guides this research about the Coaches' Process of Knowledge Generation for CPP.

This study is organised into seven chapters. Following this introductory chapter are the literature review (Chapter 2) and the methodology (Chapter 3) which are followed by Chapter 4 which includes a detailed explanation of process of analysis. The findings, including the three versions of the conceptualised process are presented in Chapter 5, and discussed in Chapter 6, with Chapter 7 concluding this thesis with a reflection on its achievements, limitations and potential for future research.

# CHAPTER 2
# LITERATURE REVIEW

## 2.1 INTRODUCTION

In this literature review, I start by introducing soccer as a complex, chaotic and random game and proceed to examine how an Integrated Tactical Approach acknowledges this complexity. This made me consider the importance of coaches' knowledge, more specifically tactical content knowledge, which is the main focus of this study. This led to a clarification of the main terminology used in the field of tactics in soccer, and to the introduction of PoP. The terminology which is central for CPP was presented thereafter.

Following this first part of the literature review which introduces the main concept needed for one to understand CPP, I introduce how literature covers this field, and what gaps are being left, and tackled by this study.

The theories framing this study, namely the *Model of Pedagogical Reasoning and Action* (Shulman, 1987), *A Theory of Instruction* (Bruner, 1963, 1966), *Tactical Periodization* (Oliveira, 2014b, 2014a), and knowledge categories (Anderson, 1982; Cassidy et al., 2009; Collinson, 1996; Larkin, 2010; Metzler, 2011; Shulman, 1986, 1987), will be covered in the last part of the literature review.

## 2.2 SOCCER IS A COMPLEX GAME

Traditionally, soccer is conceptualised such that game play is broken down into simple elements, with a team's strength being equal to the sum of the individual players. Looking at soccer as a social microsystem in which there exists a reciprocal coordination of individual and collective actions, the structuralist model looks at a team as "more than the sum of the individuals who compose it". In recognising that soccer is played between two opposing teams, the 'systemic model' switches its pedagogical focus by explaining game play within the oppositional relationship that exists between two opposing teams, which together with the environment in which they exist, make soccer a complex system (Gréhaigne et al., 2005, pp. 8-9).

This systemic view of soccer recognises the complexity in the chaotic, random and disorganised nature of soccer (Pimenta, 2014). The complexity of the game is known for its dynamic interactions between two sets of players (Garganta & Grehaigne, 1999). Targeted on an indisputable objective of

winning the game, like any other team sports, soccer is characterised by: (i) *a rapport of strength*, in which two teams confront each other fighting for control of a ball; (ii) *a choice of motor skills*, which players need to master as responses to the various situations in the game; and (iii) *individual and collective strategies*, which lead the implicit or explicit decisions taken by the athletes based on a common frame of reference (Gréhaigne & Godbout, 1995).

As in all team sports, opposition (to opponents), cooperation (with teammates), attack (on the opponent's side) and defence (of own side) are four central notions to the internal logic of soccer. In invasive games, these elements are at play simultaneously. This oppositional relationship that exists during each sequence of play requires ongoing decision making from all parties which contributes to the same oppositional relationship. This ongoing process of problem-solving needs to be informed by the players' interpretation of tactical knowledge (Gréhaigne et al., 2005).

Game tactics have a direct influence on player decision making in games, because "players have to solve problems; problems relating to interpreting tactical information" (Gray & Hall, 2015, p. 152). As Gray and Hall explain, the level of success of a decision is directly related to the player's tactical understanding of the situation. They further clarify that no matter how technically accurate a player's motor-skill is, it is not successful unless it is appropriate for the given tactical problem/situation. It has long been argued that "mistakes commonly observed in young children in various sports may stem from a lack of knowledge about what to do in the context of a given sport situation" (French & Thomas, 2016, p. 17). Based on this tactical knowledge, athletes can make decisions which lead to the use of the appropriate or inappropriate technique. "Not understanding the game impairs the [learner's] ability to identify the correct technique for a situation" (Mitchell et al., 2013, p. 9). This highlights how important tactical understanding is for soccer players.

## 2.3 A TACTICAL COACHING APPROACH

This view of soccer as complex, and the importance of decision making, have surely influenced the way coaching has shifted along the years. Until the last part of the twentieth century, soccer training was highly influenced by the

***conventional training approach*** and dominated by fragmented drills, analytical exercises and physical conditioning. This approach has been criticised as unsuitable for a team sport involving a two-team relationship of opposition and cooperation (Clemente & Rocha, 2013).

With an attempt to contextualise soccer training within its technical and tactical properties, ***the integrated method*** was proposed as an alternative (see. Crespo, 2011; Delgado-Bordonau & Mendez-Villanueva, 2012; Oliveira, 2014b). This method may be seen as equally conventional, as instead of using the highly conditioning approach of the conventional training method, coaches would simply include a ball (above all, as the proverbial carrot in contrast to the stick). When it comes to teaching the game, analytical and individual technical exercises would be central to the training session. Passing drills and technical work in pairs (or any other variation of that) would normally form one part of the session, with physical conditioning forming the other part, and sometimes ending the session with actually playing a soccer (Clemente & Rocha, 2013).

The complexity of team sports leads us to consider the interrelation between space, time, team-mates, ball, and opponents in the context of the objectives of the sport itself. This is what comprises ***tactics***. Soccer players need to apply their ***tactical knowledge***, in action, in ways that enable tactical decision making. The ***tactical ability*** of the player involves a cognitive process which includes a decision-making process initiated by a randomly presented trigger or stimulus, based on previously acquired tactical knowledge. The decision made following this process leads the player to initiate the motor skill necessary to obtain the temporary micro-objective (Clemente & Rocha, 2013). A straight array made of these micro-processes including data processing, decision making and actions - by all players, all the time, in different situations and locations of the pitch - form one single attacking or defending action, until halted by the opposing team's players who would be going through a similar process. This shows the complexity of the game of soccer which is anything but a simple pass, a run or a tussle without a context-based decision (Gréhaigne & Godbout, 1995).

"A coach's work should be translated into some form of change in athletes' outcomes" (Côté & Gilbert, 2009, p. 309). A tactical coaching approach is inherently based on the desire to obtain better tactical decision making by

athletes. In fact, the Tactical Decision Learning Model (Gréhaigne et al., 2005; Gréhaigne, Wallian, & Godbout, 2005) proposes an operational teaching model, intended at enhancing learners' construction of tactical knowledge and the development of their decision-making skills.

The latest applications of sports science and the latest applications of learning conceptualisation to soccer training methods, cannot but accentuate that segregated training, as applied in both the conventional and the integrated training methods, are not the ideal way to prepare soccer players. It is important that players participate in complex training exercises that emulate parts of the game so that the players will be able to act upon their reaction to perceived stimuli (Clemente & Rocha, 2013).

In recent decades, several methods aimed at countering decontextualised training, have suggested an **integrated tactical approach** to coaching. The Teaching Games for Understanding (TGFU; Bunker & Thorpe, 1982), Tactical Games (Griffin, Mitchell and Oslin, 1997), Play Practice (Launder, 2001), Tactical-Decision Learning Model (Gréhaigne, Richard, Griffin, 2005), Game Sense (Light, 2013; Zuccolo, Spittle & Pill, 2014), Games Concept Approach (GCA) (Rossi, Fry, McNeill & Tan, 2007), the GAG method, which stands for Global-Analytical-Global (Bonfanti & Pereni, 1998; Csabai et al., n.d.; "The Grassroots Soccer Session," n.d.) and *Tactical Periodization* (Mendonça, 2013) are all methods intended to promote athletes learning through games (tactics) within a constructivist learner-centred, inquiry-based approach (Light, 2013).

It is this constructivist view, which looks for "knowledge construction within a social context" and which acknowledges that "learning is a process that is complex and cannot be reduced simply to additively learning component parts of the complex whole" (Zuccolo, Spittle and Pill, 2014, p. 21), that has led to the integrated tactical approach.

While I support the idea of coaching through game tactics, as discussed in the introduction, I do not exclude the possibility of tactical learning and decision-making development within a more traditional approach which boasts on the technical and physical development of the game.

## 2.4 COACHES' KNOWLEDGE

The increased advocacy to Game Based Approaches (e.g. Bunker & Thorpe, 1982; Duyn, 1997; Launder, 2001; Light, 2013), and the importance of tactical instructions (Gray & Hall, 2015), which are aimed at improving athletes' knowledge in action, for enhanced decision making (Gréhaigne et al., 2005; Gréhaigne, Wallian, & Godbout, 2005), highlights the importance of tactical content knowledge. Nonetheless there is a huge concern about insufficient knowledge of the game (Harvey & Jarrett, 2014; Mitchell et al., 2013) and limited pedagogical content knowledge targeting game based coaching (Roberts, 2011).

While the topic of teachers' knowledge will be covered in more depth later in this chapter, it might be helpful to consider how the main literature looks at coaches' knowledge. According to coaching literature, coaches' knowledge can be either tacit or explicit (Nash & Collins, 2006). Divided in three sources of knowledge which include sport-specific knowledge, pedagogy and the "sciences" of coaching (-ologies), the Coaching Schematic (Abraham, Collins, & Martindale, 2006) looks at declarative and procedural knowledge. "Declarative knowledge is routine knowledge that may include readily available information about concepts and elements (and relationships between them) relating to particular subjects. Procedural knowledge details steps or activities required to perform a task or job" (Côté & Gilbert, 2009, p. 309). Cassidy, Jones, and Potrac (2009) proposed the idea of coaches' declarative and procedural knowledge that includes subject matter content, pedagogical content and curriculum content. Considering the pedagogical nature of coaching, Cote and Gilbert (2009) consider Shulman (1986, 1987), Berliner (1986, 1991, 1998) and Collinson (1996) as very influential when studying coaches' knowledge. These three authors will be covered later in this chapter.

### 2.4.1 TACTICAL CONTENT KNOWLEDGE – THE MAIN FOCUS

While, like Côté and Gilbert (2009), this study recognises that coaching knowledge goes beyond sports-specific professional knowledge, its focus resonates with the concerns expressed in literature. As already stated, the focus of this study rests on the importance of pedagogical content knowledge (Harvey & Jarrett, 2014; Roberts, 2011) in relation to the tactical (knowledge) nature of the game (Gray & Hall, 2015; Harvey & Jarrett, 2014).

Gréhaigne & Godbout (1995, p. 495, 496) look at tactical knowledge as ‘knowledge in action’ which is made of the interaction between players’ tactical awareness and their performance. The authors have systematically and formally identified three categories that make declarative knowledge in team sport; (i) action rules, (ii) play organization rules, and (iii) motor capacities. While there is no doubt that play organisation, action rules and motor capacities are strongly associated (p. 499), this study will focus on what they would refer to as ‘action rules’ which, as they say, lead to principles of action (Gréhaigne & Godbout, 1995; Gréhaigne et al., 2005; Gréhaigne et al., 2005).

Gréhaigne & Godbout (1995) clarify that action rules constitute one of the principal sources of tactical knowledge. They explain that action rules “define conditions to be enforced and elements to be taken into account if one wants to insure efficient action”. In laymen terms, **they provide answers to given problems** (Gréhaigne & Godbout, 1995, p. 496). As the authors explain, action rules are didactically very important, as they make it possible for team mates and coaches (or teachers) to exchange ideas (Gréhaigne et al., 2005, p. 50). Action rules lead to the principles of action, as they permit players to generate actions based on certain situational variables. The authors provide a non-exhaustive list of action rules that lead to a selection of principles of action (Gréhaigne & Godbout, 1995; Gréhaigne et al., 2005). In simpler terms, I would say that they provided a list of ‘what to do’s’ (behaviours) for a list of objectives they wanted to achieve (Table 2.1).

Similar to Gréhaigne et al. (2005), Ouellette, (2004, p. 26) says that “soccer coaches need to understand PoP…they must understand the rules of action that support the basic objectives of soccer, because the [action] rules are the foundation of any coaching strategy”. Borges, Guilherme, Rechenchosky, Da Costa, and Rinadi (2017) sustain that the fundamental tactical principles of soccer represent a set of action rules that guide behaviours.

| Action Rules – what to do | Principles of action – to achieve… |
|---|---|
| Increase possibilities of exchange<br>Protect the ball<br>Keep the ball away from opponent<br>Pass into space, behind defender and in front of attacker | To keep the ball |

Table 2.1: An example of action rules that lead to a principle of action (Gréhaigne et al., 2005).

While there seems to be a consensus in concept, there can sometimes be confusion over how and what terminology is being used in this field (Ward & Griggs, 2011).

Evident across literature, however, is the theme of a layering structure, a hierarchy of tactical knowledge that needs to be uncovered by the coach and his/her athletes to make sense of the game at its deepest level (see Borges et al., 2017; Garganta & Grehaigne, 1999; Gréhaigne & Godbout, 1995; Gréhaigne et al., 2005; Gréhaigne et al., 2005; Ouellette, 2004; Ward & Griggs, 2011). This literature also clarifies that through tactical knowledge, coaches need to be able to provide athletes with rules of action (what to do), which shall guide their behaviour, in view of the predetermined strategy or random situational variables presented during the game.

### 2.4.2 TACTICAL TERMINOLOGY

Ward & Griggs (2011) discuss existing confusion around terminology, with terms such as tactics, strategy, principles and rules. These terms are often used interchangeably (Gray & Hall, 2015) and sometimes carry a different meaning. While these terms all refer to the way players or teams are organised to outwit opponents, it is fruitful for this study to underline the differences.

**Tactics** are represented by the player in his or her actions. Hence, they are directly related to the player's competency. While there is often a relationship between one's tactical application and the strategic game plan, it is also possible that due to the ever-changing nature of the game, a player makes a tactical decision which does not fit the strategy (Gray & Hall, 2015; Gréhaigne et al., 2005).

This brings us to a clearer definition of the term **strategy** which as Bouthier (1989) explains, “refers to all the plans, PoP and action guidelines decided upon, before a match, to organise the activity of the team and the players during the game” (Gréhaigne et al., 2005, p. 27).

The **rules** of the game give the game its basic shape as they govern how the game can be played (Gray & Hall, 2015).

**Principles of Play (PoP)** are general game playing rules (not relating to boundaries/net/scoring) which players need to abide by, to achieve goals more effectively. Ward and Griggs (2011) refer to the ‘PoP’ as the overarching strategies which are employed to attack or defend, irrespective of the strengths and weaknesses of an opponent”.

**Action rules** are defined as “the rules that permit a player to generate actions based on certain situational variables”. Action rules make connections between game conditions and possible actions. A set of action rules lead to what they call ***principles of action*** (Gréhaigne & Godbout, 1995; Gréhaigne et al., 2005), or as Gray and Hall (2015, p. 158) call them, ”possible options for action”. An example is presented in table 2.1.

### 2.4.3 PRINCIPLES OF PLAY

To develop an improved pedagogical practice for those who wish to use a game centred approach Forrest, Webb, and Pearson (2006) have suggested the idea of teaching [or coaching] through ‘Principles of Play’. This they argue, allows teachers to observe players’ responses and provide them (teachers) with a foundation of pedagogical content tactical knowledge from which they can develop productive questioning and dialogue.

This suggestion highlights how important it is for soccer coaches to understand PoP as the foundation of any coaching strategy (Ouellette, 2004). PoP are the overarching strategies which are employed to attack or defend (Ward & Griggs, 2011). They represent a set of action rules that guide athletes’ behaviours (Borges et al., 2017). By Coaching through Principles of Play, coaches may assist their players in obtaining a template for their positioning throughout a game and a structure for their decision making (Forrest et al., 2006).

PoP have been defined as “a conception of the game…complex concepts” (Delgado-Bordonau and Mendez-Villanueva, 2012, p. 1), or “a set of match-play patterns” (Oliveira, 2014, p. 26), which serve as “practical guidelines that will conduct us into building up the soccer style” (Oliveira, 2014, p. 31). These guidelines “coordinate tactical behaviours and attitudes of the players in game situations” (p. 38). Clemente and Rocha (2013) define PoP as “the references to action, or behavioural references that lead the players to play as a team” (p. 16).

Implicitly or less so, various authors indicate that for a tactical coaching approach to be effective, it needs to have PoP guiding training sessions (Clemente & Rocha, 2013; Delgado-Bordonau & Mendez-Villanueva, 2012). PoP were primarily aimed at organising the complexity of the game and having coaches co-ordinate each players’ efforts “into a combined team effort” (Wade, 1967). They are references to action for players to play as a team, and coaches to devise training sessions with the intention of coordinating tactical behaviours and attitudes of the players in game situations (Clemente & Rocha, 2013). This method of organisation provides the coach with a pedagogical structure. This shows the importance tactical content knowledge has within the concept of CPP. It is exactly this level of importance that defines the role of this study.

### 2.4.4 Terminology for Coaching through Principles of Play

In order to be able to CPP one needs to understand the terminology presented above, but also go deeper and conceptualise the depth offered by the layering structure of CPP.

In understanding that “fundamental tactical principles of the game of soccer represent a set of action rules” (Borges, Guilherme, Rechenchosky, Da Costa, & Rinadi, 2017, p. 207), one can start conceptualising the principles within a hierarchical structure. Clemente, Martins, Mendes, & Figueiredo, (2014) have organised the tactical principles in three constructs as presented hereunder.

The ***general principles*** are PoP common to all the phases of the game. They are characterised by the spatial and numerical relations of team players and opponents. The authors claim that “to not allow a numerical disadvantage”,

"to avoid numerical equality" and "to attempt numerical superiority" are the three general principles of soccer.

**Operational principles** provide the procedures required to solve problems in the game in both the defensive and offensive phase. The defensive operational principles are i) not to allow the opponents to finalise action, ii) to recover the ball, iii) to prevent the opponent's progression, iv) to protect the goal and v) to reduce the opponent's play space. In attack they are i) to maintain ball possession, ii) to create offensive actions, iii) to advance on the opponent's field and iv) to create finalisation situations, and v) try to score (p. 663).

Like Borges et.al., (2017, p. 207) Clemente et al. (2014) explain that ***fundamental principles*** represent a set of action rules in the two phases of the game. This is very similar to the term ***principles of action*** which as explained earlier is made of a set of action rules (Gréhaigne & Godbout, 1995; Gréhaigne et al., 2005). Table 2.2 represents the fundamental principles as presented and defined by Clemente et.al., (2014).

| **Fundamental Defensive Tactical Principles** | **Fundamental Offensive Tactical Principles** |
|---|---|
| Delay | Penetration |
| Defensive Coverage | Offensive Coverage |
| Balance | Depth Mobility |
| Concentration | Width and Length |
| Defensive Unit | Offensive Unit |

Table 2.2: The fundamental offensive and defensive principles.

Clemente and Rocha (2013) explain that a set of individual and collective PoP form the ***Model of Play***, which is defined as a project of collective organisation which is subject to adaptations and to evolutions during the process of build-up. It is an initial draft that is built to organise play in a conceptual manner (Oliveira, 2014b). The model of play is, in my thesis, sometimes referred to as the curriculum (which is not necessarily exactly what the term in used for in educational contexts). The terms ***moments*** and ***phases*** *are discussed and explained in the Tactical Periodization section*.

## 2.5 THE FIELD OF STUDY

This concept of CPP has taken off very well in the soccer coaching field. Spanish soccer coaching, especially FC Barcelona, has become an advocate of CPP (Albertini, 2013; Pascual, 2016). The importance of PoP is also shown in long essays written by coaches doing the UEFA Pro at Coverciano in Italy (Ballardini, 2001; Baresi, 2003; Massaro, 2001; Torricelli, n.d.; Viali, 2013; Vierchowod, n.d.). In an article published by the FIGC, Albertini (2013) has even discussed the systematic approach to training used at Barcelona, in which he refers to the PoP and to the individual tactical principles. Various books and articles cover this field of study (Delgado-Bordonau & Mendez-Villanueva, 2012; Happel, Shankly, & Finke, 2014; Oliveira, 2014a, 2014b; Pimenta, 2014; Jankowski, 2016; Carvalhal, Lage, & Oliveira, 2014).

A new periodical series about the Model of Play of professional coaches is being published by the www.allenatore.net Magazine (Lucchesi, 2017a, 2017b, 2017c, 2017d). The same renowned website has published various other magazines that discuss principles and models of play.

In the Journal of Physical Education and Sport, Clemente and Rocha (2013), discuss briefly the importance of tactics in coaching interventions and its planning. In an International Tennis Federation Coaching and Sport Science Review, Crespo, (2011) introduces *Tactical Periodization* in tennis, in which he also refers to the general principles and the sub-principles of play amongst other things. Authors such as Clemente, Martins and Mendes (2014) have also considered the physiological effects of the method. Although less accessible due to the language of publication, there is a good number of publications which can further one's understanding in the field internationally (Garganta & Grehaigne, 1999; Marques Junior, 2011; Tobar, 2013).

Although this concept was introduced as early as 1967, and although PoP have been covered in various publications, and has become important in soccer coaching, especially with the introduction of *Tactical Periodization*, the research activity in this field is still limited.

On the 5th of December 2017, I conducted searches on Google Scholar, EBSCOHost and StarPlus, for articles with the 'all of the words' and the 'exact phrase' in the title of the article, the phrase "Principles of Play" turned out only 8

results on Google Scholar with citations excluded. The term “Model of Play” turned out 16 results while there were only 21 results for “Style of Play”. When all 45 resulting titles were analysed, only 6 were found as ‘partially’ relevant to the field of this thesis (Table 2.3).

| **Google Scholar** | | |
|---|---|---|
| **“Principles of Play”** | | **8 (3)** |
| Principles of Play ***for Soccer*.** | J Ouellette (2004) | 1 |
| Not soccer related – but related to the study | | |
| Principles of Play**: *A proposed framework towards a holistic overview* *of* *games in primary physical education*** | G Ward, G Griggs (2011) | 1 |
| ***Teaching games for understanding using progressive Principles of Play*** | TF Hopper (1998) | 1 |
| Not sports related | | |
| Therapy (3); adult playfulness (1), education philosophy (1) | | 5 |
| **“Model of Play”** | | **16 (1)** |
| ***Optimising a probabilistic model of the development* of play *in soccer*** | J Castellano-Paulis, A Hernández-Mendo (2007) | 1 |
| Not sports related | | |
| Anthropology (1); Play (8); gaming (1); Therapy (2); PE (1), education (2) | | 15 |
| **“Style of Play”** | | **21 (2)** |
| ***Coaching the Tiki Taka Style of Play*** | JC Davies (2013) | 1 |
| ***Managing furia latina: the making of a Romanian soccer system and style of play*** | F Faje (2016) | 1 |
| Not sports related | | |
| Children (2), Golf Aerodynamics (2), Sociology (5), Health (3), Gaming (2), NHL (1), Table Tennis (2), Physical Conditioning (1), theatre (1) | | 19 |

Table 2.3: Search on Google Scholar.

When running the same search in EBSCOhost, no relevant titles came up for the Principles of Play and Model of Play. “Style of Play” generated the title shown in Table 2.4, which was already listed in the those generated in Google Scholar.

| EBSCOHost | | |
|---|---|---|
| **EBSCOhost "Style of Play"** | | **16 (1)** |
| ***Managing furia latina: the making of a Romanian soccer system and style of play*** | F Faje (2016) | 1 |
| Non-Scientific Research | | |
| News (8), magazines (5) | | 13 |
| Not sports related | | |
| Health (1), Children (1) | | 2 |

Table 2.4: Search on EBSCOHost.

On StarPlus (Table 2.5), the online search engine of The University of Sheffield, the relevant returns for "PoP" are the same once obtained from Google Scholar. The term "Model of Play" returned only 6 non-relevant titles. When removing newspaper articles, the term "Style of Play" returned 18 results with the only 3 relevant titles being already outlined by Google Scholar.

| StarPlus | | |
|---|---|---|
| **"Principles of Play"** | | **5 (2)** |
| ***Principles of Play for Soccer.*** | J Ouellette (2004) | 1 |
| Not soccer related – but related to the study | | |
| ***Principles of Play: A proposed framework towards a holistic overview of games in primary physical education*** | G Ward, G Griggs (2011) | 1 |
| Not sports related | | |
| Play Therapy (3) | | 3 |
| **"Model of Play"** | | **6** |
| Not sports related | | |
| Health (1), Sociology (4), Children (1) | | 6 |
| **"Style of Play"** | | **18 (1)** |
| ***Managing furia latina: the making of a Romanian soccer system and style of play*** | F Faje (2016) | 1 |
| Not sports related | | |
| NHL (4), Health (2), Children (3), Golf Aerodynamics (7), skill testing (1) | | 17 |

Table 2.5: Search on StarPlus.

In substance, these searches returned only one article about TGfU using Principles of Play (Hopper, 1998), a one-page article about the Principles of Play in soccer which covers only five main attacking and five main defending principles (Ouellette, 2004) and a framework intended at primary physical

education (Ward & Griggs, 2011). The other three publications are either less relevant or non-academic.

The latest two academic studies in this field, compared the performance of fundamental tactical principles among youth soccer players from 12 to 17 years of age (Borges et al., 2017) and verified that pupil improved in variables related to performance and adherence after a Teaching Games for Understanding unit of floorball which was contextualised in the Principles of Play (Morales-Belando et al., 2018).

### 2.5.1 Filling in the Gaps

Pimenta (2014) outlines the need for soccer coaches to develop further understanding of the hierarchy of PoP as defined by experienced coaches. He also identifies the need for studies that explain how the hierarchy is distributed, and how this tactical content knowledge can be structured and sequenced (two areas very well covered in Bruner's *A Theory of Instruction* back in 1963). The need for pedagogical content knowledge in Integrated Tactical Approaches has also been identified by Roberts (2011).

While the identification of the pedagogical tactical content knowledge and its hierarchy, structure and sequence is evidently important, the literature highlights another important gap, that of identifying the coaches' role (Cassidy et al., 2009; Evans, 2007; Lyle & Cushion, 2017).

When they call for coaches to observe and collect relevant information about the collective behaviour of players to further understand the PoP and consequently improve football training and the tactical behaviour of football teams, Clemente et al., (2014) identify an important role for coaches, that of generating pedagogical tactical content knowledge. This recognises the importance of the coach as a learner in his/her own right. This gives space to look at the expert participant, the coach, as a learner who participates in an ongoing learning process. In view of this, in this study, I look at the coach as a learner who interacts with the environment, including the game, to filter input and create (rather than acquire) meaning (Ertmer & Newby, 2013; Werner, Thorpe, & Bunker, 1996), by (but not limited to) the understanding of the game. This view stands very well in Sfard's (2008) participation metaphor, which promotes the idea of co-inhabiting participation of the learner (athlete) and

teacher (coach) as the apprentice and the expert participants respectively. This is why, rather than focusing on the presentation of a 'ready-made' body of content knowledge (Appendix 1.1), in this thesis I focus on the phenomenon in order to understand '***how coaches generate knowledge to coach through Principles of Play***'. This brings me to Anne Isabella Ritchie's metaphor which will be discussed in chapter 3.

> "If you give a man a fish, he is hungry again in an hour;
> if you teach him to catch a fish you do him a good turn"
>
> (Anne Isabella Ritchie).

#### *2.5.1.1 Gap 1: The Process of Coaching through Principles of Play*

Sports coaching research in recent years has investigated coaching knowledge (Cushion, Armour, & Jones, 2006), and the coaching process (Abraham, Collins, & Martindale, 2006; Côté, Salmela, Trudel, Baria, & Russell, 1995; Cushion, 2007; Cushion, 2001; Jones, Armour, & Potrac, 2002; Leunes, 2007; Lyle & Cushion, 2017; Potrac et al., 2017). However, the interrelation between the coaching process and knowledge generation and the impetus this relationship exerts on the Subject Matter Content Knowledge and Pedagogical Content Knowledge remains largely overlooked (Cassidy et al., 2009).

Like Brooks, I can define curriculum as "the body of knowledge I [am] to teach. This knowledge I divide into 'content areas' and subdivide into 'topics' and 'skills' that [learners are] to learn in doses of large 'units' and smaller 'lessons'" In a constructivist curriculum, "curriculum development and delivery are contingent on the thoughtful mediation of the teacher". It allows teachers to shift direction according to the cognitive abilities of students (Brooks, 1987, p. 66).

This leads to the important understanding that tactical content knowledge cannot be considered as fixed and does not exist in a vacuum. There is no knowledge without context, and there is no context without knowledge. The subject matter (content knowledge about PoP) emerges from the general soccer context to inform the same soccer context. Pedagogical Content Knowledge is generated when one links the Content Knowledge to the learning environment in which that same content knowledge is delivered.

Curricular Content Knowledge can be obtained from non-contextualised curricula, which are (possibly) published by sporting organizations (Cassidy, Jones and Potrac, 2009, p. 131). It is important for coaches however, to be able to generate that knowledge into a more contextualised content knowledge which takes a pedagogical nature, which fits the needs of the learner in their learning environment. That is what makes tactical content knowledge contextualised, and pedagogical in nature.

Despite the challenges it imposes when modelling it (Cushion, 2007; Leunes, 2007), I suggest that a "theoretical…understanding [of] the coaching process…which accept(s) the complexities associated with [the] implementation" (Leunes, 2007, p. 405) of generating knowledge for CPP can assist us in clarifying the complexities of the multifaceted contextual realities of this type of coaching and provide guidelines for good practice, which practitioners undoubtedly crave for (Cushion et al., 2006).

Informed by Shulman's approach of *Pedagogical Reasoning and Action*, this study will (i) look at the coach as an ongoing learner, who (ii) generates content knowledge (not just Subject Matter Content Knowledge) (Shulman, 1987), with the intention to (iii) contextually inform himself or herself and understand the knowledge needed by his/her learners, the athletes. This will:

> ***Provide soccer coaching academics and practitioners with a conceptualisation of the coaches' process of knowledge generation for coaching through Principles of Play***.

This shall contribute to the existing shift of soccer coaching from conventional to a more evidence-based knowledge-oriented process (Williams & Hodges, 2005, pp. 1-2).

#### *2.5.1.2 Gap 2: Content Knowledge for CPP*

Shulman (1987, p. 14) assumes that there is '**almost** always' a form of 'text: a textbook, a syllabus…' that initiates the teaching and learning process. Writing specifically about sports, Gilbert and Trudel (2001) however, suggest that this is not true in sports coaching as they claim that all sports, in general, lack a curriculum.

This void, has been sustained by coaching researchers and practitioners who have shown their desire for greater understanding of content knowledge, as it is an area which is understudied (Cassidy et al., 2009). In 2011, Roberts specified the need for Pedagogical Content Knowledge for Integrated Tactical Approaches. Pimenta (2014) took it closer to the focus of this study as he confirmed the need for a deeper understanding of Content Knowledge for CPP.

Although the 'text' is only the starting point for teaching a topic, teaching and learning may be unachievable without it (Shulman,1987, p. 15). For this reason, although it is not the main aim of this study, I will also present the ***implicit and explicit content knowledge found within the Model of Play*** *of two of the participating coaches, as their contextual curriculum to coach through Principles of Play (CPP)*. This will be presented in Appendix 1.1, as it was constructed (after considerable discussion and synthesis of the raw content knowledge presented in the first interview) together with the two participating coaches.

## 2.6 FRAMING THIS RESEARCH

In appreciating soccer as a complex game, one needs to acknowledge the challenge coaches face when trying to frame the necessary tactical content knowledge within their pedagogical endeavour. It is exactly this point that gives direction to this thesis which, as already stated, looks at ***conceptualising the coaches' process of knowledge generation for coaching through Principles of Play***.

In justifying the composition of the theoretical framework of this study, I will, in this section explain why ***A Model of Pedagogical Reasoning and Action*** (MPRA), ***A Theory of Instruction*** (TI) (Bruner, 1963, 1966) and ***Tactical Periodization*** (Oliveira, 2014b, 2014a), will frame the pragmatic function of this study (Figure 2.1).

First, it is pertinent to start by understanding the important position PoP have in the composition of this theoretical framework. Tactical coaching approaches need to have PoP underpinning training sessions (Clemente & Rocha, 2013; Delgado-Bordonau & Mendez-Villanueva, 2012). It is so, because it is teaching [or coaching] through 'PoP' that may direct these coaches'

pedagogical endeavour with a foundation of pedagogical content tactical knowledge (Forrest et al., 2006).

*Tactical Periodization* (see DiBernardo, 2015; Jankowski, 2016) is the main soccer coaching methodology that focuses on the use of PoP. Therefore, *Tactical Periodization* is used to tie this theoretical framework with the concept of CPP.

The pedagogical nature of the coaches' process of knowledge generation is underpinned by the inclusion of the *Model of Pedagogical Reasoning and Action* (Shulman, 1987), as part of the theoretical framework of this study. Shulman (1986) is also important for this study, as he introduced the concept of pedagogical content knowledge (Wilkes, 1994), an important concept for this study.

Taking that pedagogical tactical content knowledge is ultimately, needed to teach tactics, and "to assist or to shape growth" (Bruner, 1966, p. 1) of soccer players' tactical understanding (and application), *A Theory of Instruction* (Bruner, 1963, 1966) is an important part of the theoretical framework of this thesis.

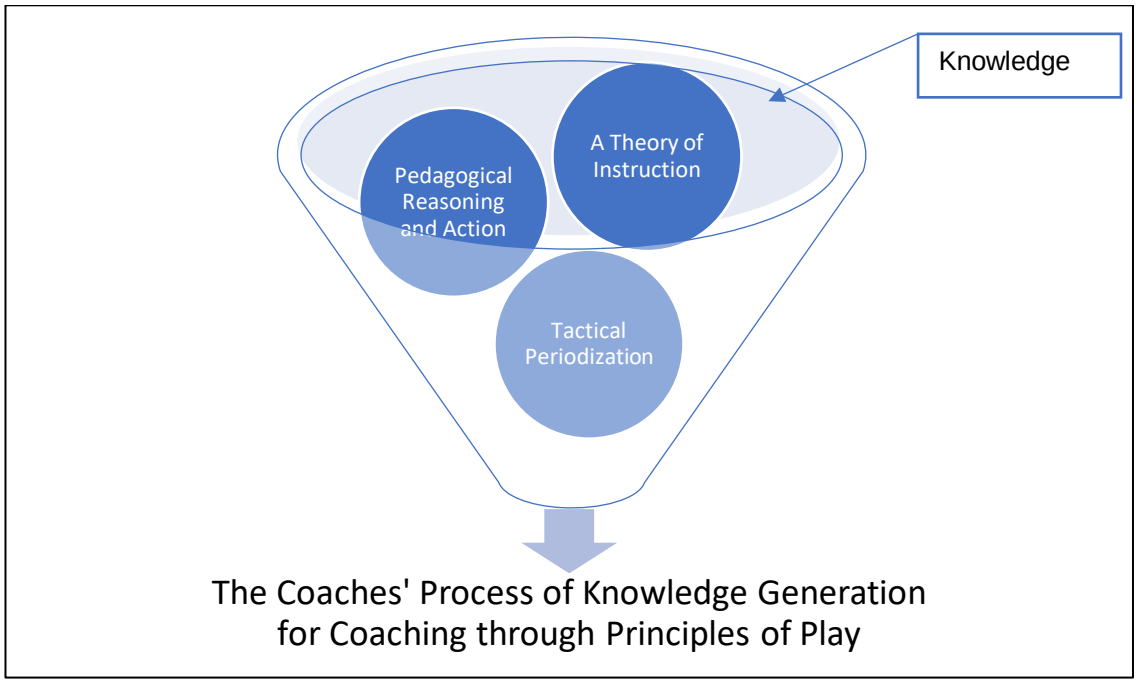



**Figure 2.1:** A visual representation of the conceptual framework underpinning this study.

While it is not part of the theoretical framework, ***Knowledge*** (Anderson, 1982; Berliner, 1986, 1991; Collinson, 1996; Metzler, 2011; Shulman, 1986, 1987),

which has inductively emerged as an important area, at a later stage of my conceptualisation process, (during data collection and analysis) is also being reviewed in this chapter.

The *Model of Pedagogical Reasoning and Action* (Shulman, 1987) acts as the main structuring framework of this study. *A Theory of Instruction* (Bruner, 1963, 1966) and *Tactical Periodization* (Delgado-Bordonau & Mendez-Villanueva, 2012; Oliveira, 2014b, 2014a) will consolidate this theoretical structure with a more robust framework that considers instruction and Integrated Tactical Approaches.

The pedagogical reality of sports coaching puts knowledge as a central and significant area, for coaches, who like teachers, "…commute from the status of the learner to that of the teacher, from being able to comprehend subject matter for themselves, to becoming able to elucidate subject matter in new ways…" (Shulman, 1987, p. 12).

For this reason, knowledge and its different facets will provide this study with a clarification that Pedagogical Content Knowledge, is dependent on many other facets of the same knowledge.

### 2.6.1 The Model of Pedagogical Reasoning and Action

The coaches need to prepare what they know into effective instructions. This is emphasised by *Tactical Periodization* which proposes that coaching instructions should be specifically based on tactical objectives.

The transformation of knowledge into effective instructions is very well explained by Shulman's (1987, pp. 14-15) *Model of Pedagogical Reasoning and Action* (table 4.1). The coach first needs to ***comprehend*** information to form ideas that s/he wants to teach and needs to understand how these ideas can be presented in various ways and how they relate to other ideas within the same field. Secondly, coaches need to ***transform*** comprehended ideas into something that can be taught, or better learned by the present learners. A subprocess exists within this stage of transformation. Thirdly, the coach would here need to first ***prepare*** the available text or knowledge and finally find a way to ***represent*** this knowledge in various forms.

Coaches spend 50% of every coaching session and 30% of youth soccer coaching session providing instructions (Gallimore & Tharp, 2004; (Ford, Yates & Williams, 2010). Therefore, ***selection*** of the best method of instruction, in Shulman's transformation of knowledge, is also very relevant within the process of CPP.

***Consideration of students' characteristics*** needs to be central to the whole process of *Pedagogical Reasoning and Action*, with transformation evolving out of the necessary adaptations to meet students' characteristics. This process identifies how one commutes "from the status of the learner to that of teacher" (Shulman, 1987, pp. 12-13). Up to this stage, the coach is still in the planning phase, generating various types of knowledge, in preparation for the actual coaching performance.

According to Shulman, at this stage, the pedagogue is ready for **instruction**. This is when classroom management, explanation, presentation, tasks assignment, together with questioning, probing, answers, reactions, praise and criticism by the teacher towards the learner, take centre stage. The latter set, which forms verbal instructions, is directly influenced by the level of comprehension. This does not only show that 'teaching behaviour is bound up with comprehension and transformation of understanding (Shulman, 1987, p. 18), but it also shows how the coach needs to "comprehend both content and purpose" (p. 15). It is only through a deep understanding of content knowledge that one would be able to methodologically apply the concept of transfer of principles (Bruner, 1960). The last two steps of *Model of Pedagogical Reasoning and Action* are ***reflection*** and ***evaluation***, which are both retrospective in nature. At the end of this five-step process, the teacher may be able to create a ***new comprehension*** of the same content knowledge.

Looking at coaching from a *Model of Pedagogical Reasoning and Action* point of view may immediately clarify the importance of the more comprehensive view of knowledge. This perspective can also assist in locating the coaches' role (Evans, 2007) within this pedagogical profession called coaching.

### *2.6.1.1 Comprehension*

The *Model of Pedagogical Reasoning and Action*, sustains that "the starting point and terminus for the process is an act of comprehension" as "most teaching is initiated by some form of text; a textbook, a syllabus or an actual piece of material the teacher or student wishes to have understood" (Shulman, 1986, p. 14).

Taking that "the Subject Matter Content Knowledge…is not written in stone" (Cassidy et al., 2009, p. 130), many coaches do not, or cannot, follow a curriculum (Gilbert & Trudel, 2001). While this might look like a shortcoming, I suggest that it is a natural reaction to the need of Content Knowledge to be contextualised and to the possibility that coaches realise that knowledge is not static. Having a curriculum published by the sporting organisations (Cassidy, Jones & Potrac, 2009, p. 131) is not a solution, as that can lead to a static curriculum design. Acknowledging the fluidity and temporary nature of knowledge (Cassidy et al., 2009) can lead to a contextualised curricular design (Brooks, 1987; Thompson, 2001; Yildirim & Kasapoglu, 2015), such as is reflected in the Model of Play.

Coaches, like teachers, need to go through a process in which they grasp an idea, comprehend it, reason it in a way to tailor it to the learners' needs, and then think about how to allow learners to meet that idea in a constructive experiential manner (Shulman, 1987).

Further to the "comprehension of purpose, subject matter, ideas within and outside the discipline" (Shulman, 1987, p. 15), I believe that a deep comprehension of the complexity of the coaching role is a necessity. Together with Shulman's (1987) emphasis on comprehending subject matter, on the learners and on the self as the pedagogue, coaching literature refers to the importance of comprehending the coaching context and structure (e.g. the club, the physical environment, the committee and the fans) (Cushion, 2007; Fraser-Thomas & Côté, 2009).

### *2.6.1.2 Transformation*

"Comprehended ideas must be transformed in some manner if they are to be taught" (Shulman, 1987, p. 16). This process is divided into four areas in the *Model of Pedagogical Reasoning and Action*.

***Preparation:*** In assuming that a curriculum exists, Shulman explains that first one needs to scrutinise the teaching material considering one's own comprehension, to determine if it is fit to be taught. This goes hand in hand with the scrutiny of the "educational purposes or goals". Once necessary corrections are applied to the text, then the teacher would need to "structure and segment the material into forms better adapted to the teacher's understanding and, in prospect more suitable for teaching" (Shulman, 1987, p. 16).

As clarified earlier, Shulman's (1987, p. 16) assumption of the existence of a curriculum is not real in soccer coaching (Cassidy et al., 2009; Gilbert & Trudel, 2001). In terms of soccer knowledge, it is difficult "to know who and what to believe" and "what knowledge, is needed" (Tinning, 2002, pp. 384-385). In order that soccer coaches do not become "pedagogically skilful but ignorant in their content knowledge" (Tinning, 2002, p. 378) rather than starting from Curricular Content Knowledge or Pedagogical Content Knowledge, coaches may need to begin with Subject Matter Content Knowledge.

***Representation:*** This is when the teacher would be thinking about "multiple forms of representation[s]" to "build a bridge between the teacher's comprehension and that (comprehension) desired for the students".

***Selection:*** Selection of instructional forms or methods, is when the teacher chooses the method used to convey the content knowledge.

***Adaptation:*** This is the moment when the teacher fits the represented material to the students' characteristics.

### *2.6.1.3 Instruction*

Instruction "includes many of the most crucial aspects of pedagogy" such as classroom management and organisation, clear explanations and vivid descriptions, work assignment and checking and interactions with students through "questions and probes, answers and reactions, and praise and criticism" (Shulman, 1987, p. 17). Shulman suggested that the process of 'comprehension' and the style of teaching are strongly related.

### *2.6.1.4 Evaluation, Reflection and New Comprehension*

Evaluation, reflection and new comprehension of knowledge, are presented as three consecutive stages in the *Model of Pedagogical Reasoning and Action*.

**Evaluation** looks at the in-learning-evaluation with “checking for understanding” or the lack of it during lessons. It also looks at the post-learning-evaluation with “more formal testing and evaluation that teachers do to provide feedback and grades”. To be able to conduct a learning check one needs to comprehend both the “material to be taught and the process of learning itself”. Pedagogical content knowledge is very important here (Shulman, 1987, pp. 18-19) as in-teaching evaluation and post-teaching evaluation reflect on the pedagogue’s performance, the material presented, and the teaching styles employed.

For Shulman (1987, p. 19), ***reflection*** follows evaluation. This is when the teacher gathers the information evaluated before and “reconstructs, re-enacts, and/or recaptures the events, the emotions, and the accomplishments”. Shulman seems to distinguish between evaluation and reflection with the former being an assessment of teaching and learning, while the latter being the comparison of that achievement in comparison to the pre-set outcomes. As Shulman (1987) says this can be done alone or with the assistance of others, using recording devices or referring only to memory.

It is important at this stage to understand that the act of reflection is not only dependent on one’s dispositions, or merely on the strategies applied, but also on ‘analytical knowledge’ (Shulman, 1987, p. 19), which is not easily acquired.

The *Model of Pedagogical Reasoning and Action* starts and ends with comprehension. Generating a ***new comprehension*** is possible by reasoning about the process itself. Through this reasoning, the teacher “achieves new comprehension” of the purpose, the subject, the students and the pedagogical process (Shulman, 1987, p. 19).

### 2.6.2 A Theory of Instruction

Instruction is defined as “an effort to assist or to shape growth” (Bruner, 1966, p. 1). *A Theory of Instruction* (TI) is, therefore, a theory that focuses on how different means assist growth and development (Bruner, 1963). “*A theory of instruction* is about as practical a thing as one could possibly have to guide one in the process of passing on the knowledge, the skills, the point of view…” (Bruner, 1963, p. 523).

I assume that for instruction to be effective it needs to "occur within a coherent framework known to the teacher and communicated to the students" (Metzler, 2011, p. 1). Henceforth, *A* TI can be valuable in informing the Process of Knowledge Generation for CPP with this necessary framework. *A* TI shall shed light on how CPP can help in instructing athletes and provide them with a "guide to what to do in order to achieve certain objectives" (Bruner, 1963, p. 524).

In trying to shed further understanding in the *Coaches' Process of Knowledge Generation for CPP*, I will strive to recognise that coaches commute "from the status of a learner to that of teacher" (Shulman, 1987, pp. 12-13). The Coaches' *Process of Knowledge Generation for CPP* needs to provide a learning process with a purpose. With the purpose being coaching instructions, based on one's own philosophy and the needs of the team, the *Coaches' Process of Knowledge Generation for CPP* provides the learning coach with the opportunity to engage in a learning process which is intrinsically motivated, and which has a tangible direction.

This shall offer an alternative to coaching education which is normally influenced by the courses' objectives, which in turn are not set by the learning coaches, but by the coaching educators. Furthermore, from my experience, it looks to me that it normally requires contemporary knowledge rather than skills for coaches to become ongoing learners.

*A* TI is prescriptive; it is about "how what one wishes to teach can best be learned" (Bruner, 1972, p. 40). It prescribes optimal outcomes, sets normative targets, directs instruction and curriculum design (Bruner, 1963). Taking that players are active learners who can generate their own learning (Williams & Hodges, 2005) and create meaning from their own experience (Ertmer, Newby, 2013), when taking coaching instructions in consideration, it is important for coaches to understand how learners take information and break coaching instructions down into pieces that they can bite into (Bruner, 1963, 1966), rather than having that knowledge already divided into small pieces in a one-size-fits-all approach.

TI can guide soccer coaching practice in how to explicitly organise its overt and covert knowledge. Its focus on preparing knowledge for 'instruction'

makes it ideal to underpin the Process of Knowledge Generation for CPP, which is after the systematic understanding of the process coaches go through when preparing implicit or explicit, existing or newly generated knowledge, for coaching instruction. It is important to have the conceptualisation developed in this study, grounded in a TI, as ultimately instruction, on the soccer pitch, is a main purpose of the coaching process.

Bruner (1963, 1966) divides the TI into four aspects; predisposition, optimal structures of knowledge, optimal sequence, and consequence. Table 4.2 includes a visual representation of a TI as explained by Bruner (1963). It offers a practical guide to the process of passing on knowledge (Bruner, 1963, 1966). This visual representation is the result of the analysis process but will be used as a point of reference to assist in the readers' understanding of *A Theory of Instruction*.

#### *2.6.2.1 Predisposition*

Predisposition supports the idea of an environment that does not limit learners from being proactive, explorative and problem solvers. *A Theory of Instruction*, in fact, suggests a start with developing an environment that boasts on predisposition to effective learning. This is where the coach, together with other environmental factors (Williams & Hodges, p. 2), becomes very important. Learners predisposition to learning is also influenced by; the sort of relationships learners engage in; by their own (learner's) "courage and skill to explore alternative ways of dealing with a problem"; and by the ability to subvert to previously "established constraints" through "healthy scepticism toward holy cows, prefabricated doctrines, and stuffed shirtliness" (Bruner, 1963, p. 526).

The learning environment needs to be one where the coach allows learners to express themselves, with the coach allowing learners to express themselves, without resolving to the "implicit authoritative relationship as a means of using own office as a way of establishing truth and falsity". Predisposition towards learning is enhanced within an environment that explains the reason behind failure, rather than punishing it; and within an environment that instils the idea which rather than by chance, one can exercise his/her mind to get to the desired destination (Bruner, 1963, p. 526-527, 1966).

### *2.6.2.2 Optimal Structuring of Knowledge*

Optimal structures of knowledge are important in providing athletes with both declarative (factual knowledge) and procedural (knowing how to perform) tactical or strategic knowledge (Janelle & Hillman, 2003).

*A Theory of Instruction* specifies how a "body of knowledge should be structured so that it can be most readily grasped by the learner" (Bruner, 1966, p. 41). This fits perfectly with the idea behind 'transformation' in Shulman's (1987) work who talks about the use of representations and selection of instruction, critically prepared from content knowledge, which is structured, segmented and developed with a clear purpose, and adapted for the students' needs. Referring to the categories of teachers' knowledge (Shulman, 1987), I suggest that this is the transformation process of Subject Matter Content Knowledge into Pedagogical Content Knowledge, which potentially leads to contextually devised Curricular Content Knowledge.

Bruner (1963) suggests that when structuring a body of knowledge with instruction in mind, content knowledge needs to be simplified, by breaking it into simpler elementary form (***economy***). This structure of knowledge shall lead the teacher to manipulate knowledge, in a way such that s/he generates "new propositions, to go beyond the information given" (***productiveness***) while increasing (***power***) "the manipulability of a body of knowledge" and making it his/her own (Bruner, 1966, p. 41). All this needs to be related to the needs and characteristics of the learner.

Optimal structuring considers the way knowledge is represented as well. ***Enactive*** (by doing), ***ikonic*** (using images) and ***symbolic*** (by use of words) are the three methods identified (Bruner, 1966). All three methods will be considered in the conceptualised process. However, this study will mostly focus on symbolic representations (coaching cues) and ikonic representations (*coaches' board-drawings, etc.)*. The way in which principles are transferred into training exercises (enactive) will not be investigated.

When structuring content knowledge to teach children, Bruner (1966) suggests that we lead children from doing, to imaging what they have done, to finally symbolise what they have done. This is in a way a method that fits soccer

coaching. Coaches may first allow learners to play, then perhaps discuss a coaching diagram and only then, discuss in a technical and tactical manner.

For knowledge to be converted into a structure that is economical, productive and powerful, it is also important that one does not lead learners into ***early symbolisation*** (use of words) but allows them to spend enough time in enactive and ikonic representations (Bruner, 1966, p. 49).

Another important point Bruner refers to is ***prerequisites***. For a learner to move from one representation to another, and I would add from one level of content knowledge to the next, the learner first needs to acquire what is considered a 'prerequisite' to then move to the next stage; this is what Bruner (1963, p. 530) terms the "spiral curriculum". In suggesting that learners should be allowed to meet knowledge at stages appropriate to their level, Bruner (1963, p 530) takes a learner-centred approach.

### *2.6.2.3 Optimal Sequence*

"The sequence in which material is presented" (Bruner, 1963, p. 530) is very important. It is, however, important to point out that there is no such thing as a common sequence. Sequence depends on various factors, including the achieved prerequisites, level of representations and predispositions.

Besides the ***sequence of*** *the* ***content*** of knowledge itself, one also needs to consider the sequence of ***representation*** (enactive, ikonic, symbolic), the sequence of ***exploration of alternatives*** (Bruner, 1966), and ***methodological sequences*** such as ***inductive or deductive***, and ***contrast***. It is also important for 'sequence' to allow learners to ***guess***, as "it is by guessing that we become aware of what we know" (Bruner, 1963, p. 531). Finally, it is an important part of the optimal sequence in TI to provide learners with the opportunity to **revisit** as to allow them to connect previously acquired learning to actual learning (Bruner, 1963, p. 531). This strengthens the position of the concept of a "spiral curriculum" (Bruner, 1963, p. 530).

### *2.6.2.4 Consequences*

A TI considers the importance of **success and failure**, where success means that the set end result is reached, or the problem set for solving is solved, or what Shulman (1987) calls 'knowledge of educational needs', is achieved, whereas failure is the opposite of this.

Linked to this is ***reward or punishment***, which are the consequences related to success or failure, but which can potentially divert attention from success and failure, and may also limit the learner's initiative and shift it to the teacher, especially if the learner is not as yet able to determine what constitutes the said success and failure. Bruner (1963) suggests rewarding good errors, and not only success, in a way to promote problem-solving and put the focus on the learner and the task, and not only on success and failure and the teacher's decision in that regard.

The final consideration is 'reinforcement', which has been reconceptualised as the ability of the learner as an independent problem solver who is able to self-assign reward and punishment by judging the adequacy of his/her own efforts. This is possible by equipping the learner with tools that can (Bruner, 1963) make instruction only a provisional state and make the learner a self-sufficient problem solver (Bruner, 1966).

### *2.6.2.5 A Spiral Curriculum*

While the four areas presented here above (predisposition, optimal structuring of knowledge, optimal sequence and consequences) are the four areas that make *a Theory of Instruction* (Bruner, 1963, 1966), it is important to finally refer to the concept of a ***spiral curriculum*** *within a Theory of Instruction*. In looking at the structure of knowledge within a curriculum, the spiral curriculum acknowledges every learner's 'known' parts of knowledge. It also highlights that it is impossible for any learner to learn 'everything', hence it is important for the structure to allow revisiting old knowledge for the learner to draw connections with the newly acquired knowledge. The breaking of knowledge into simple pieces contributes to this. An explicit body of knowledge provided to the learner, in a structure that indicates the big chunks of knowledge and the simpler elements that make it, will make it possible for the learner to identify the knowledge that is relevant at any stage in time. It will also be possible for the learner to independently identify success and failure, and the underlying determining factors.

This idea fits nicely with the concept of general principles, sub-principles and sub-sub-principles in *Tactical Periodization* (Carvalhal et al., 2014; Mendonça, 2013). If coaches want their athletes to improve performance, they

need to place athletes' learning at the centre of the coaching environment. Essentially this requires the coach to pay attention to the way his/her instructions contribute to learning, especially given that instruction is predominant in coaching at all levels (Millar, Oldham, & Donovan, 2011).

### 2.6.3 Tactical Periodization

*Tactical Periodization*, a soccer training methodology developed by Professor Vitor Frade (Mendonça, 2013), promotes the idea that the teaching and learning of soccer have to respect the logical structure of the same game (Oliveira, 2014a). *Tactical Periodization* promotes the idea of creating a model of play that simplifies a reality of soccer (Pimenta, 2014, p. 18).

*Tactical Periodization* takes a constructivist approach, allowing specificity of learning through one's environment. As Oliveira explains (2014a, p. 25), *Tactical Periodization* is all "about our game of soccer, our PoP, our methods". This goes hand in hand with Bruner's (1963, 1960) idea of structures and sequence in a *Theory of Instruction*, which as he suggests should not be common; to the contrary, as in a constructivist curriculum (Brooks, 1987; Thompson, 2001; Yildirim & Kasapoglu, 2015) they need to be very personalised to the context, needs and characteristics of the learners. Similarly, in *Tactical Periodization*, a coach developing a Model of Play needs to enter into a constant dialogue between his/her ideas and the context (Pimenta, 2014, pp. 18-19). This leads to a Model of Play which is in a constant "construction and evolution, with an unattainable final aim" (Pimenta, 2014, p. 19).

#### *2.6.3.1 Fractals in Tactical Periodization*

The game of soccer is (see Garganta and Grehaigne, 1999; Oliveira, 2014a, 2014b) "complex, chaotic, random and disorganised" (Pimenta, 2014, p. 11). The fractal organization explains how this complexity can be broken into more manageable pieces. A fractal is the use of sub-models to represent a more chaotic bigger reality. Pimenta, (2014, p. 12, p. 25) explains how in a fractal representation the pyramid can either include the 'tactical dimensions' (technical, physical, psychological and strategical), the 'playing moments' (attack, defence, transitions, set pieces, specific strategies) or the 'scales of the team' (collective, inter-sectoral, sectoral, group and individual).

In the case of the tactical dimensions as the supra-dimensions, it is the interaction of the technical, physical, psychological and strategical dimensions, their inseparability and their identity of parts in a whole, which makes the supra-dimension, and which guides the coaching decision making. Similarly, thinking systematically, playing moments "can be seen as subsystems inside a superior system, in this case, the soccer game" (Pimenta, 2014, p. 17). It is the Model of Play that organizes this complexity (Faria, 1999 in Pimenta, 2014, p. 18) in a simplified representation of reality (Pimenta, 2014, p. 18). This more systematic approach to soccer coaching is considered very important in teaching and coaching processes (Garganta & Grehaigne, 1999).

### *2.6.3.2 The Model of Play in Tactical Periodization*

As Pimenta (2014) explains, to be operational a Model of Play needs to include a set of principles within all the moments of the game and needs to include a clear idea of the expected behaviours (principles) from the players, in the different playing moments. It shall provide a framework for the coach to refer to. This framework is built on the desired aim to be attained, which is the coach's aspired future, that shall condition the present (translated from Frade, Annex C in (Tobar, 2013, p. 92).

A Model of Play identifies the expected behaviours (action promoter) and "defines situations, behaviours, positions, tasks, responsibilities and competences", through the playing principles and sub-principles (Pimenta, 2014, p. 20). The game model should take into consideration the players' capabilities, club's structure aim, context (e.g. country and culture), and coach's ideas in order to be able to structure the principles and sub-principles for all the moments (and phases) of the game (Delgado-Bordonau & Mendez-Villanueva, 2012). Finally, the Model of Play and the identified principles and their subordinates lead to the selection of particular methodological principles which result in the adopted specific model of training (Oliveira, 2014a, p. 50).

This approach to coaching emphasises placing the athlete at the centre of the learning process and specifies that "TP does not intend to train exercises, it intends to train PoP" (Oliveira, 2014a). The philosophy behind this methodology is that training exercises are learning experiences only intended at

developing the PoP, hence no exercise should take centre stage at the expense of principles (Oliveira, 2014a).

### *2.6.3.3 The Principles of Play*

Mental and behavioural dynamics, including intentions and habits, created through a set of principles will enhance the way of playing. This will lead the players to move from a “chaotic, random, and disorganised” (p. 11) way to a more organised way of playing, achieved through the fractal organisation (Pimenta, 2014, p. 11). While the way Pimenta explains the need of PoP sounds behavioural in its approach, one cannot exclude the possibility of using PoP in a constructivist environment, with the same aim of creating a structure of play. This is better explained by Frade who said that “systematic repetition [is] not the simple automation of a certain type of behaviour, but the understanding and learning of certain principles, so they become regularities” (Tamarit, 2015, p. 51).

These PoP define the intentionality patterns in a team’s play. These are expressed in individual or group, sectoral or inter-sectoral and collective principles, and are expected to be seen in the playing moments as the identity and functionality of the team (Oliveira, 2014b).

### *2.6.3.4 The Moments and Phases of the game in Tactical Periodization*

Literature about *Tactical Periodization* is inconsistent in the definition of certain terms. Pimenta, (2014, p. 17) considers offense, defence, offensive transitions and defensive transitions as four different sequential ***phases*** (2014, p. 17). However, I concur with Sanz (2010 in Tobar, 2013), who argues that these four terms are ***moments*** rather than phases***.*** These moments are subsystems found inside the superior system, the soccer game (Moreno, 2010 in Pimenta, 2014). In this case, the moments are considered as interdependent and linked to each other through common principles. It is important to mention that moments of the game normally include ‘set plays’ and ‘specific strategies’ such as being in a scoring advantage or disadvantage, one man down or one man up (Oliveira, 2014b, p. 83).

In considering *phases*, I refer to a subsystem within attack and defence as the superior systems. These two *moments* are divided into three

interdependent phases, the 1st, the 2nd and the 3rd (Figure 2.2). This idea of phases is shared by Mendonça (2013) and Tamarit (2015) in the field of *Tactical Periodization* who refer to "the 1st and 2nd phases… [and] the last phase of attack" and "the second third of the field" in defence which imply that the field is divided in three (Oliveira, 2014b, p. 14, p. 83). The same understanding of the term phases has been expressed by Atletico Madrid's-Under-16 coach Carlos Gonzales in a coaching symposium in Italy in July 2017.

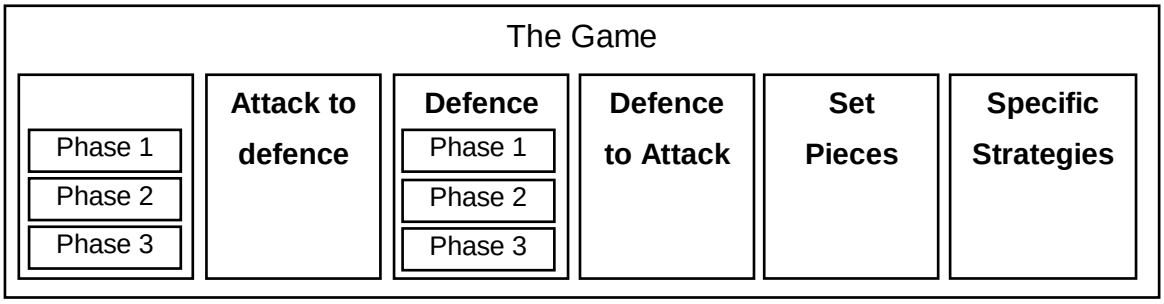



**Figure 2.2:** Moments and Phases of the game

### *2.6.3.5 Training Principles in Tactical Periodization*

As will be discussed in chapter four (Figure 4.3), *Tactical Periodization* also refers to the matrix (Oliveira, n.d.; Pimenta, 2014) of methodological principles (Delgado-Bordonau & Mendez-Villanueva, 2012; Happel et al., 2014; Oliveira, 2014a, 2014b; Pimenta, 2014). Although the terminology used, and the number of training principles mentioned, are inconsistent across the literature, the following intends to give a general view of these training principles. Congruence and similarities between the *Tactical Periodization* principles and *Model of Pedagogical Reasoning and Action* and *A Theory of Instruction* may be observed while reading this section.

***The Principle of Specificity*** (Delgado-Bordonau & Mendez-Villanueva, 2012; Happel et al., 2014; Oliveira, 2014a; Pimenta, 2014), is considered to be the most important principles of *Tactical Periodization* (Delgado-Bordonau & Mendez-Villanueva, 2012), and is more of a category that inspires the whole process, rather than a methodological principle (Oliveira, 2014a; Pimenta, 2014). Specificity is obtained when there is congruence between all the tactical dimensions, training exercises and the game model (Delgado-Bordonau & Mendez-Villanueva, 2012; Oliveira, 2014a). The general PoP, the sub-principles and their suborder principles should all lie within the principle of specificity (Oliveira, 2014b).

***The Principle of Horizontal Alternating Specificity*** refers to the way a playing idea is operationalised through a week of training from a periodization perspective, (Happel et al., 2014), by identifying: type of muscular contraction, complexity of exercises, intensity, and effort-recovery balance. These need to be taken in consideration across the whole week of training (horizontal), and not within one single training session (vertical).

***The Principle of Propensities*** refers to the density of how the general PoP, and their sub and sub-sub-principles are used. This principle allows training to stop being chaotic and become deterministically chaotic. It makes coaching sessions pedagogically directed in a way that causes systematic repetition. This provides athletes with an internalised behaviour led by the PoP that guide the Model of Play (Oliveira, 2014a). This principle defines "the systematic repetition of the desired concepts at a certain moment" (Pimenta, 2014), whether a single training session or a week of training, and is somewhat behavioural in nature. As (Delgado-Bordonau and Mendez-Villanueva, (2012, p. 30) describe, "This systematic repetition of the tactical PoP should enable the players to transform the match-play patterns that the coach wants into habits".

***The Principle of Dismantlement/Disassembly and Hierarchisation of playing principles,*** is the process of dismantling the complex structure of the game into principles and sub-sub-principles and putting them in order (hierarchy) to make it easier for players to understand (Oliveira, 2014a). Taking that PoP can also be complex to digest, it is important for coaches to break them further down. No matter how one breaks things down, it is important that the game model remains present in each component part (Delgado-Bordonau & Mendez-Villanueva, 2012). This fits nicely within the idea of fractals and contributes to the ***Principle of Operationalisation*** of the tactical principles (Happel et al., 2014) which reminds us of the importance of having all exercises leading to the game model, hence remaining specific (Delgado-Bordonau & Mendez-Villanueva, 2012).

***The Principle of Complex Progression*** specifies how the dismantled PoP and their sub-order principles may be presented in a progressive manner that moves from less to higher complexity. This progression needs to be seen across a macro, meso and micro-cycles (Oliveira, 2014a). The way the topics are outlined and presented (Happel et al., 2014) across training sessions,

weeks, months and season/s determiness the level of how and how much players absorb. As Frade (2004 in Delgado et.al.) suggests, it is about the presentation of the general principles, the more specific principles of our Model of Play, and then the more complex behaviours expected by the players. While the principle of operationalisation needs to build on this principle, this same principle also needs the principle of horizontal specificity alternation and without dismantlement and hierarchisation (Delgado-Bordonau & Mendez-Villanueva, 2012).

***The Principle of Tactical Fatigue and Concentration*** (Delgado-Bordonau & Mendez-Villanueva, 2012; Happel et al., 2014) and the ***Principle of Intensity and focus Decision Making*** (Oliveira, 2014a), have a similar meaning in *Tactical Periodization*. This explains how important it is to develop an attitude to thinking and quick decision making. This is varied according to the size of analysis the players need to do in a training exercise. If a player needs to analyse a lot in order to function well, the intensity is high, while if the demands of the exercise require a low level of analysis, then the intensity is low (Delgado-Bordonau & Mendez-Villanueva, 2012). An exercise could be physiologically intense but be unrelated to the 'mental demands' of the specific Model of Play. This principle reminds us of a concept called 'tactical fatigue' which is when the player is not able to concentrate (Oliveira, 2014a).

***Guided Discovery*** within Tactical Periodization promotes the idea where the coach manages to get his/her players to independently reach the same conclusions s/he intends them to. This can be achieved by allowing them freedom within the defined principles. "Giving clues, not answers, answering questions with other questions and forcing players to think for themselves" are few suggestions how one can obtain guided discovery (Oliveira, 2014a, p. 45).

***Performance Stabilization*** is the last principle in Tactical Periodization. In Mourinho's words this is when, rather than peaking performances the coach tries to "keep always high levels of performance" (Delgado-Bordonau & Mendez-Villanueva, 2012, p. 33). This can be achieved by providing players with a "pattern micro-cycle structure where the degree of effort is similar week after week", hence obtaining a stable and standard weekly plan (Oliveira, 2014a), which obviously needs to function with the principle of horizontal alternating specificity.

## 2.7 TEACHERS' CATEGORIES OF KNOWLEDGE

Knowledge, in its wide sense is a very important aspect of the study reported in this thesis. Inquiry-based learning is a common pedagogical method in an athlete-learner centred environment (Light, 2013). For this method to be meaningful and effective as a learning tool, 'it cannot be left to chance' (2009, p. 37) as meaningful questioning and probing are only possible when the coach has a clear and deep understanding of his/her own knowledge (Cassidy, Jones & Potrac, 2009, p. 36).

"Extensive knowledge is considered a primary characteristic of those who become expert coaches" (Côté's & Gilbert, 2009, p. 309) so that they can enter a pedagogical process in which they understand, transform and then instruct (Shulman, 1987) according to their own (newly) generated knowledge. Metzler (2011, p. 46) highlights the importance of the breadth of knowledge for effective model-based instruction, as he considers it to be the foundation supporting the structure of both the development and application of the model. This leads me to undertake a deeper examination of the wider picture of the different facets of knowledge (Anderson, 1982; Berliner, 1986, 1991; Collinson, 1996; Metzler, 2011; Shulman, 1986, 1987) which underpin the study, as they demonstrate that Content Knowledge and the process go hand in hand.

Berliner (1991, p. 147) specifies that ***content knowledge (CK)***, ***pedagogical content knowledge (PCK)*** *and* ***pedagogical knowledge*** are "three important sources of knowledge needed for the competence-performance of teaching". Having shaped much of the literature on teaching knowledge (Côté & Gilbert, 2009), Berliner's (1991, p. 147) and Shulman's (1986, 1987) contributions will serve as a foundation in this section. Differently, from Côté and Gilbert (2009), I consider these works as complementary parts contributing to a bigger, more comprehensive understanding. Collinson's (1996) work is used to categorise all the areas of knowledge depicted by the other authors. The knowledge domains (Anderson, 1982; Larkin, 2010; Metzler, 2011) complete this comprehensive picture (Figure 2.4).

### 2.7.1 Shulman's and Berliner's Categories of Knowledge Base

In 1986 Shulman outlined Content Knowledge, Pedagogical Content Knowledge and curricular content knowledge (Cassidy et al., 2009), acknowledging that

"there are clearly other important domains of knowledge" (Shulman, 1986, p. 10). A year later he identified seven categories (Table 2.6) of teachers' knowledge (Shulman, 1987).

| Knowledge Categories | Description | |
|---|---|---|
| **Subject Matter Content Knowledge (SMCK)** | The amount and organisation of knowledge per se in the mind of the teacher | Content Knowledge |
| **Curriculum Content Knowledge (CCK)** | Materials and programmes that serve as "tools of the trade" for teachers | |
| **Pedagogical Content Knowledge (PCK)** | The amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding. | |
| **General Pedagogical Knowledge (GPK)** | Broad principles and strategies of classroom management and organization that appear to transcend subject matter | |
| **Knowledge of learners and their characteristics** | | |
| **Knowledge of education contexts** | Ranging from the group/classroom, the governance and financing of school, the character of communities and culture. | |
| **Knowledge of educational ends** | Purposes, values and their philosophical and historical backgrounds | |

Table 2.6: Categories of the Knowledge Base *(Shulman, 1986, pp. 9-10, 1987, p. 8)*.

***Pedagogical content knowledge*** distinguishes a pedagogue from a content specialist or an organiser, as it amalgamates ***subject matter content knowledge*** with ***general pedagogical knowledge***. These three domains of knowledge have been identified by Berliner, (1991) as three important sources of knowledge for teaching. ***Curricular content knowledge*** is also necessary to inform the pedagogue about existing tools that can be applied in the field (Shulman, 1987). ***Knowledge of learners and their characteristics, knowledge of the educational context and knowledge of the educational ends*** set within the educational context for the involved learners (Shulman, 1987) are another three important knowledge domains.

### 2.7.2 Shulman's Categories of Knowledge and Collinson's Triad of Knowledge

Côté and Gilbert, (2009) offer a succinct summary of Collinson's triad of knowledge:

> Collinson (1996) proposed a more comprehensive and, nevertheless, simpler model of knowledge content for expert teachers: **professional**

> **knowledge** (i.e., subject matter, curricular, and pedagogical knowledge)**, interpersonal knowledge** (i.e., relationships with students, the educational community, and the local community) **and intrapersonal knowledge** (i.e., reflection ethics and dispositions)**.** (Côté & Gilbert, 2009, p. 310)

It is important to unpack each element a little further.

#### *2.7.2.1 Professional Knowledge*

Professional Knowledge (Table 2.7), Collinson (1996) gathers Subject Matter Content Knowledge, Pedagogical Content Knowledge and Curricular Content Knowledge (Cassidy et al., 2009; Shulman, 1986). However, Collinson (1996, p. 3) does not differentiate between what Shulman calls Pedagogical Content Knowledge and General Pedagogical Knowledge. Therefore, he is either implicitly including the two areas or he is not distinguishing between them.

#### *2.7.2.2 Interpersonal Knowledge*

Rather than the ability to behave interpersonally or intrapersonally, Collinson seems to be referring to the knowledge and relational skills, developed through interpersonal and intrapersonal behaviours (Table 2.7). Similarly to Shulman's (1987) reference to knowledge of the learner's' characteristics and to the educational contexts, Collinson (1996, p. 3) refers to ***interpersonal knowledge*** as the relationship built between the teacher and the learners and between the teacher and the learning context. While Shulman might be referring to the wider context of the community hosting the 'school' implicitly, Collinson's focus is on the teacher's *relationship* with the local community.

Collinson's (1996, p. 5) use of the word *relationship* shows a different approach to knowledge generation, suggesting that rather than being 'passive' observers, aiming to learn about the learners and contexts, teachers need to be active in building a relationship with the entire context. He says that "in addition to being continuous learners in order to be professionally knowledgeable" teachers need to "work at developing high levels of interpersonal knowledge, sometimes referred to as 'people skills'". This perspective resonates with the concept of *expert participant* found in the participation metaphor (Sfard, 2008, p. 35).

| | **Categories of Knowledge Base** (Shulman, 1986, 1987) | **The Triad of Knowledge Categorisation** (Collinson, 1996) | |
|---|---|---|---|
| Content Knowledge | Subject Matter Content Knowledge | Subject Matter | **Professional Knowledge** |
| | Curriculum Content Knowledge | Curricular | |
| | Pedagogical Content Knowledge | Pedagogical | |
| | General Pedagogical Knowledge | | |
| | Knowledge of Learners and their characteristics | Learners | **Interpersonal Knowledge** |
| | Knowledge of Educational Contexts | Relationship with: Educational Community | |
| | Knowledge of Educational Ends | Local Community | |
| | **Knowledge of the SELF** | Reflection | **Intrapersonal Knowledge** |
| | | Ethics | |
| | | Dispositions | |

| Shulman | **My additions** | Collinson's work |
|---|---|---|

**Table 2.7:** Categories of the Knowledge Base *(Shulman, 1986, 1987)* and the Triad of Knowledge Categorisation *(Collinson, 1996)*.

### *2.7.2.3 Intrapersonal Knowledge*

***Intrapersonal Knowledge*** includes reflection, ethics and disposition. This emphasises "understanding of oneself and the capacity for introspection and reflection". Intrapersonal knowledge refers to the importance for teachers to be introspective and reflective in a way to get to know themselves and to understand how they can develop further in terms of an ethic of care, work ethics and one's disposition for continuous learning (Collinson, 1996, p. 7).

Rather than challenging Shulman's knowledge categories, I find Collinson's work to be complementing. Table 2.7 shows this visually.

### 2.7.3 The Three Knowledge Domains

"Superficial knowledge is not nearly adequate to attend to the complexities" (Metzler, 2011, p. 46) of coaching. Referring to Shulman's knowledge base, Metzler clarifies that teachers need to apply each knowledge category at three levels (Figure 2.3); declarative, procedural and conditional knowledge (Anderson, 1982; Larkin, 2010; Metzler, 2011). This continues to elaborate the comprehensive view of the wide picture of knowledge.

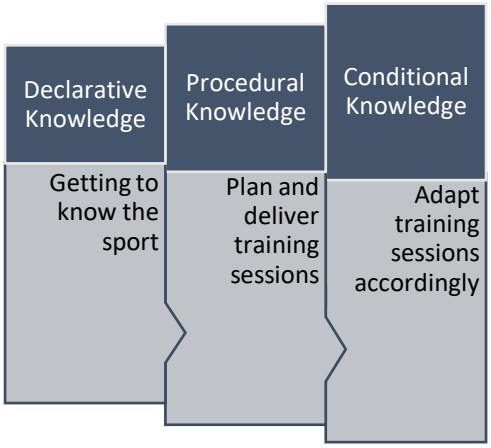



**Figure 2.3:** A simple application of the three domains of knowledge, declarative, procedural and conditional.

Declarative knowledge is the knowing of "readily available information about concepts and elements". It is concerned with facts such as rules, aims, terminology and etiquette. Procedural knowledge refers to the steps needed to perform a task or when generating an action. Knowing how to get past an opponent in a one to one situation would be one example. Conditional knowledge is about the when and why decisions need to be taken to fit the present context, which can be summarised as the if-then-do (Cassidy et al., 2009; Côté & Gilbert, 2009; Kirk & MacPhail, 2002; Metzler, 2011).

These knowledge domains have been referred to in coaching literature. Sport-specific knowledge, pedagogy and scientific knowledge form the ***declarative knowledge*** in 'the coaching schematic'. ***Procedural knowledge*** is represented as the second step, which includes *scientific procedures* (mental skills, fitness training and lifestyle skills), *sport-specific procedures* (technique

and tactics of the particular sports and planning) and *pedagogical procedures* (drills, practices and communication) (Abraham, Collins, & Martindale, 2006, p. 555).

Table 2.8 shows how the three knowledge domains fit with Shulman's (1987) three subsets of content knowledge. The first column includes Subject Matter Content Knowledge, the second includes Pedagogical Content Knowledge while the third column includes Curricular Content Knowledge.

Looking at the white part of the matrix (Table 2.8), from left to right, one can see how Subject Matter Content Knowledge, Pedagogical Content Knowledge and Curricular Content Knowledge vary across each of the declarative, procedural and conditional knowledge. On the other hand, looking from top to bottom, in every column shows how Subject Matter Content Knowledge for instance develops and becomes procedural or conditional.

| **Shulman's (1986) Three Subsets of Content Knowledge** | | |
|---|---|---|
| **Subject Matter Content Knowledge** | **Pedagogical Content Knowledge** | **Curriculum Content Knowledge** |
| *"…the amount and organisation of knowledge per se in the mind of the teacher"* | *"…goes beyond the knowledge of subject matter per se to the dimension of subject matter knowledge for teaching".* | *"The curriculum is represented by the full range of programs designed for the teaching of particular subjects and topics"* |
| **Metzler's (2011) categories fitting Shulman's Subsets (Cassidy et al., 2009)** | | |
| **Declarative Knowledge** | | |
| *"That which a coach can express verbally or in a written form"* (Cassidy et al., 2009, p. 128) | | |
| *"Relevant information, e.g. knowledge of rules, biomechanics and psychology"* | *"Knowledge of the different methods and strategies that can be adopted [to teach]"* | *"Knowledge of what coaching resources are available"* |
| **Procedural Knowledge** | | |
| *"That which a coach can apply before, during and after the coaching session"* (Cassidy et al., 2009, p. 128) | | |
| *"Being able to model and adjudicate the rules of the game in the coaching session"* | *"Being able to apply various methods and strategies in the coaching session"* | *"Being able to incorporate the ideas and activities into the coaching session"* |
| **Conditional Knowledge** | | |
| *"That which informs a coach regarding when and why to make decisions so that they fit a particular moment or context"* (Cassidy et al., 2009, p. 128) | | |
| *"Knowing what tactics to employ against what opposition"* | *"Changing the methods and strategies to suit the learning preferences of the athletes"* | *"Using words to explain the drills that suit the context and the type of athletes"* |

**Table 2.8:** Metzler's (2011) categories fitting Shulman's (1986) Subsets as presented in sports coaching (Cassidy et.al., 2009).

### 2.7.4 Knowledge Categories in Coaching Research

Coaching research differentiates between the knowledge needed to manage the training environment and sport-specific technical knowledge (Abraham & Collins, 1998). According to Abraham et al., (2006) coaches specify that extremely good level of sport-specific knowledge (CK) is vital, while pedagogical knowledge classifies as secondary.

Gréhaigne and Godbout (1995, pp. 495-499) identify three categories of team sports knowledge. ***Action rules*** refer to the rules that guide efficient action, and which are based on the principles of action. This knowledge is fundamental for *tactical knowledge*. An example of this would be that for a player to create space for his/her team to attack, it is important to shift the game to one side of the pitch and then shift the ball to the space created on the other side of the pitch. ***Play organisation rules***, includes strategy related knowledge, such as logic of the game, dimensions, formations and roles. These rules contribute to the concept behind some of the principles that guide the *strategy*. For example, in soccer, defenders should send the attackers off centre – due to the central position of the goal (which is play organisation rules). Finally, ***motor capacities*** refer to the perceptual skills that contribute to decision making and to the motor skills necessary to play the game. The principles obtained in the first two categories are complexly interrelated to motor capacities.

Figure 2.4 includes the visual that integrates these two contributions to the comprehensive picture of knowledge categorisation.

### 2.7.5 Knowledge Categories – A Conclusion

Researchers show the importance of the coaches' knowledge base (Abraham & Collins, 1998) as they claim that "extensive knowledge is considered a primary characteristic of those who become expert coaches" (Côté & Gilbert, 2009, p. 309).

Following Gréhaigne and Godbout's (1995) call for more systematically and formally identified knowledge, I believe that coaching research needs to start looking at the wider, more comprehensive understanding of knowledge (Figure 2.4, 2.5), and consider the contribution of all types of knowledge in the development of specific coachable content knowledge.

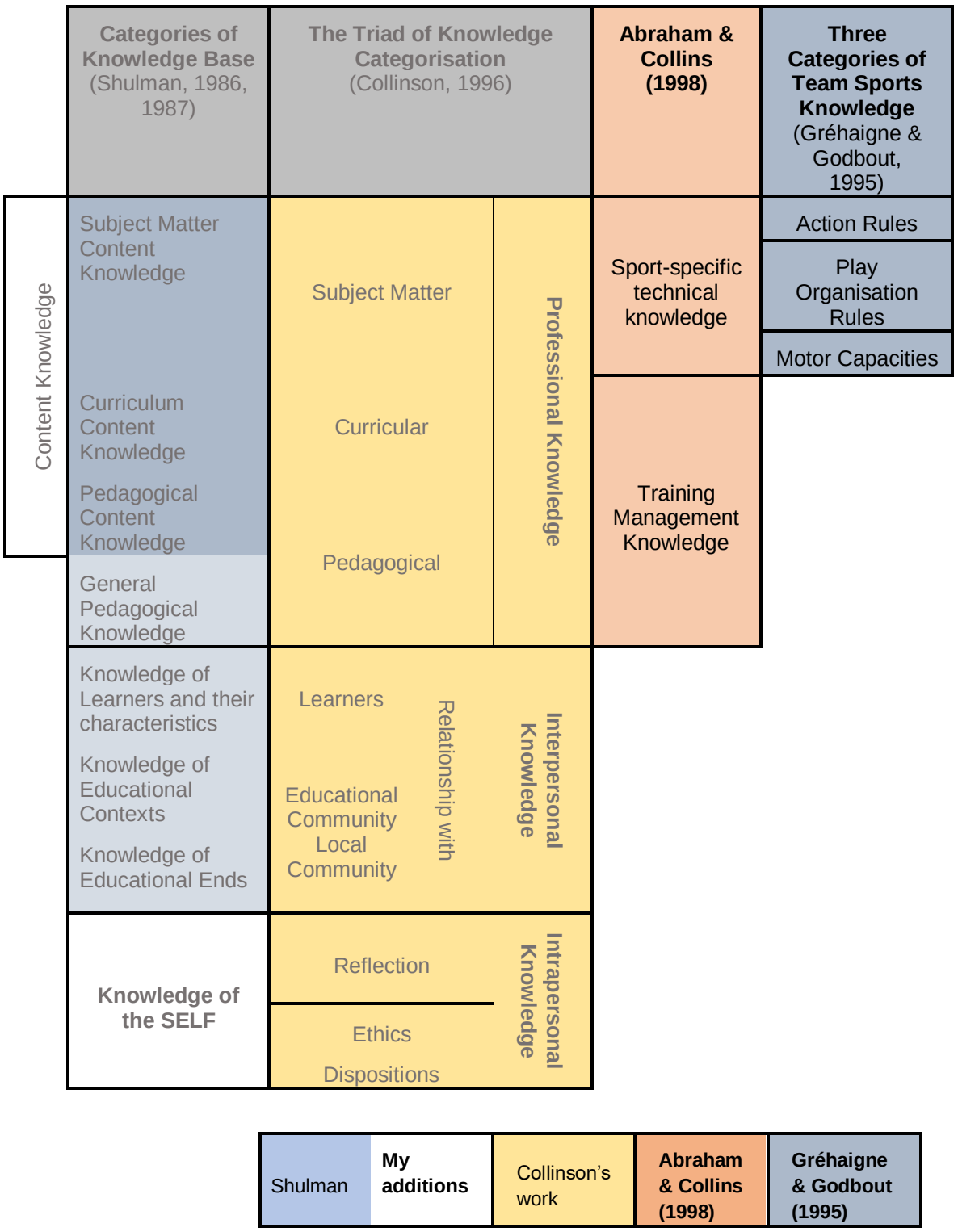



**Figure 2.4:** Integrating Abraham and Collins' (1998) and Gréhaigne and Godbout's (1995) work.

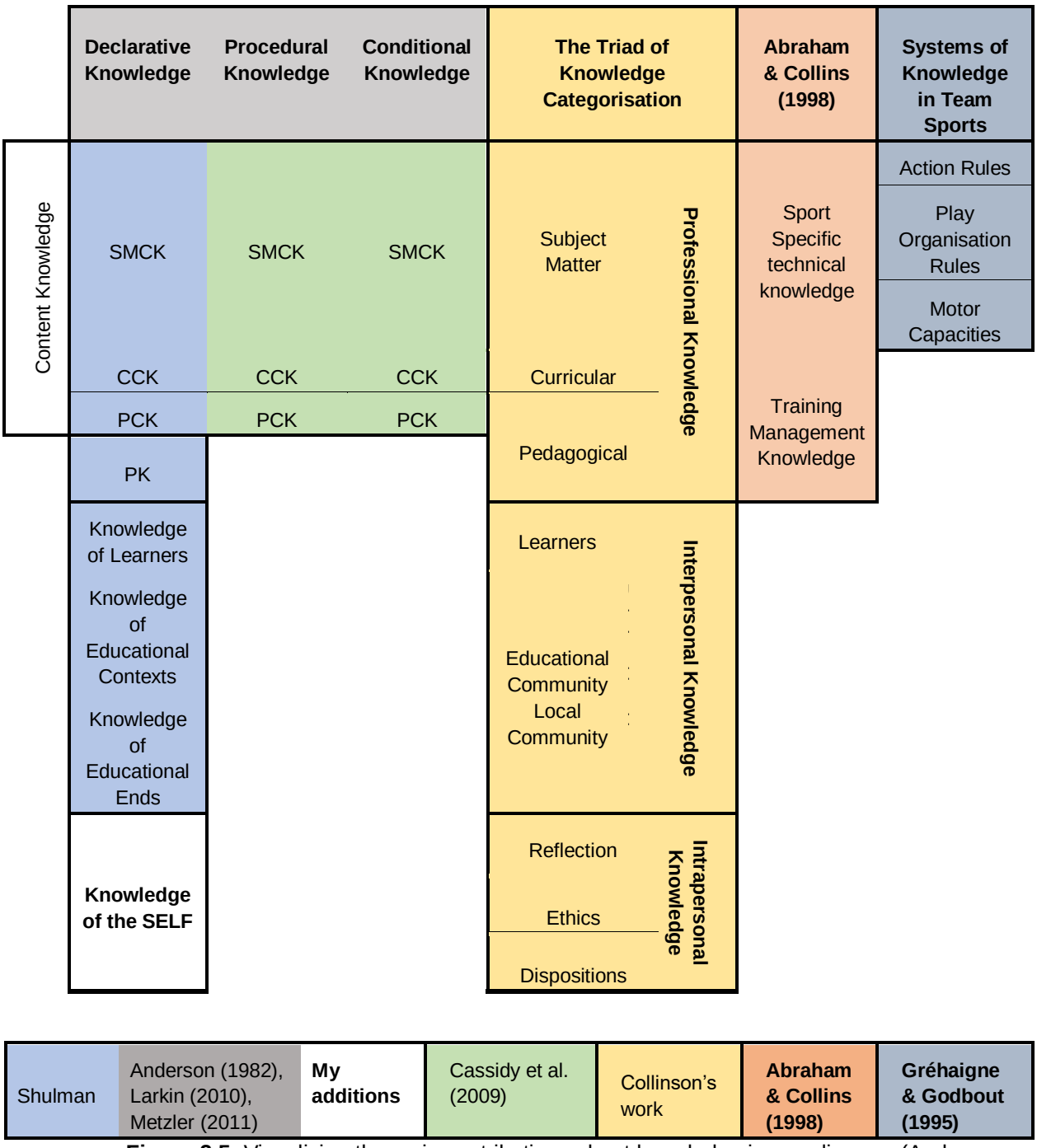



**Figure 2.5:** Visualising the main contributions about knowledge in one diagram (Anderson, 1982; Cassidy et al., 2009; Collinson, 1996; Larkin, 2010; Metzler, 2011; Shulman, 1986, 1987).

With this view in mind, in this study, I follow Abraham and Collins (1998) who claim that experts can better organise their knowledge, and ensure that they include expert coaches to help in the development of the Coaches' Process of Knowledge Generation for CPP. Expert coaches have also been influential in identifying specific Content Knowledge as used by themselves when CPP (Appendix 1.1).

It is a "…*need for coaches' development in game understanding, to know and comprehend which playing principles experienced coaches define for their playing moments"* (Pimenta, 2014)*. However,* acknowledging that knowledge is not static, *it is equally* important for coaches to understand the Coaches' Process of Knowledge Generation for CPP.

The comprehensive understanding of knowledge categories has been beneficial for this study. Although I mainly look for Subject Matter Content Knowledge and Pedagogical Content Knowledge when investigating for PoP used by expert coaches, it will be evident how all the categories of knowledge will interact in a more comprehensive approach to knowledge generation in the development of the Coaches' Process of Knowledge Generation for CPP.

## 2.8 CONCLUSION

Coaches spend a substantial part of training sessions giving instructions (Ford, Yates, & Williams, 2010; Tharp & Gallimore, 1976). Therefore, it is important to consider the quality of the instructions provided, especially as coaching instructions have a great impact on athletes' learning (Ford & Williams in Williams, 2013, p. 132). Therefore, sporadic manners and ill-informed sources of knowledge should be rejected when formulating instructions. This thesis follows the importance placed on coaches' knowledge in the literature (see Côté & Gilbert, 2009b; Gearity, 2012) specifically pedagogical content knowledge (Harvey & Jarrett, 2014; Roberts, 2011) which focuses on the tactical (knowledge) nature of the game (Gray & Hall, 2015; Harvey & Jarrett, 2014).

In accepting a constructivist view of knowledge generation, and hence accepting that coaches construct their knowledge through their interaction with their environment (Ertmer & Newby, 2013), it follows that knowledge is not necessarily transferred from one source to another. In practical terms, knowledge cannot be seen as if it is transferred from a book, a coach or a course to the learning coach. Every coach needs to generate knowledge depending on his/her interaction with the environment. For this specific reason, this thesis moves from the concept of knowledge acquisition towards knowledge generation.

In order for the coach to coach through PoP, he or she would need to be able to generate tactical content knowledge and then through *Pedagogical Reasoning and Action*, s/he would need to transform that knowledge into pedagogical tactical content knowledge, as needed by the athletes in that particular context.

For this reason, this thesis seeks to understand how coaches generate knowledge to coach through PoP. This is being done by;

1. **Conceptualising the Coaches' Process of Knowledge Generation for Coaching through Principles of Play**, and by;
2. **Presenting (Appendix 1.1) expert coaches' implicit and explicit tactical content knowledge in the form of a Model of Play, used to coach through Principles of Play.**

This shall compensate for the concern about insufficient knowledge of the game (Harvey & Jarrett, 2014; Mitchell et al., 2013), and for the call for research to support teachers' and coaches' conceptual and pedagogical content knowledge (Harvey & Jarrett, 2014). Rather than having coaches move back to the sole use of direct technical approaches, as might be happening in PE teaching (Roberts, 2011), this conceptualisation may provide coaches with the necessary tools to be able to generate the necessary knowledge for them to CPP, and hence, possibly feeling more confident in applying an integrated tactical approach to their coaching.

## 2.9 SUMMARY OF THE LITERATURE REVIEW

In this literature review, I began by introducing soccer as a complex, chaotic and random game and proceeded to consideration of how an Integrated Tactical Approach acknowledges this complexity. This took me to the importance of coaches' knowledge, more specifically tactical content knowledge, which is the main focus of this study. This led into a clarification of the main terminology used in the field of tactics in soccer, and to the introduction of PoP. The terminology for CPP was presented thereafter.

Following this first part of the literature review I introduced how literature covers this field, and what gaps are being left, and tackled by this study. That

was followed by the introduction of the theoretical framework. Thereafter, I introduced the *Model of Pedagogical Reasoning and Action* (Shulman, 1986, 1987), *A Theory of Instruction* (Bruner, 1963, 1966) and *Tactical Periodization* (Mendonça, 2013; Oliveira, 2014a, 2014b). Taking the position that coaches are teachers of that sport, I included teachers' categories of knowledge in order to fulfil an aim of this study.

Having critically reviewed the relevant literature, the next chapter will focus on the methodology of the study.

# CHAPTER 3
# METHODOLOGY

## 3.1 INTRODUCTION

This chapter sets out the methodological approach to the thesis. First, the research questions are restated both to recapitulate and to consider them in view of Anne Isabella Ritchie's saying, which I consider an ideal metaphor to introduce the approach to this qualitative study. This is followed by a deep and critical discussion into Qualitative Content Analysis (QCA). While this chapter will provide a picture of the methodological decisions made pre-analysis, the next chapter (four) will show how data was analysed and how the different levels of conceptualisation of *the Coaches' Process of Knowledge Generation for Coaching through Principles of Play*, were developed.

### 3.1.1 Aim

The aim of this study is to contribute to soccer coaching which takes a CPP approach.

In taking a glimpse at understanding '***what tactical content knowledge coaches use to coach through Principles of Play***', I present the body of knowledge of two of the participating coaches, in the form that they consider to be their Model of Play (Appendix 1.1). Further, in order to answer my main research question, "***How do coaches generate knowledge to coach through Principles of Play?***", I **conceptualise the Coaches' Process of Knowledge Generation for Coaching through Principles of Play**.

## 3.2 A METAPHOR

"If you give a man a fish, he is hungry again in an hour; if you teach him to catch a fish you do him a good turn" (Anne Isabella Ritchie). This is why, rather than just providing coaches with the knowledge needed to CPP, this study focuses on the deeper understanding of the Coaches' Process of Knowledge Generation for CPP.

### 3.2.1 'Give a man a fish' – give him content knowledge.

While I assume it is helpful to provide coaches (especially novice coaches), with expert coaches' Model of Play and its Content Knowledge (as I do in Appendix 1.1), I also believe that any Model of Play needs to be contextually created by

the coach, hence, the provision of expert coaches' Content Knowledge can be likened to giving a man a fish, instead of teaching him how to fish.

To provide soccer coaches with a clear understanding of the content knowledge needed when CPP, two expert soccer coaches participating in this study have identified the "principles informing the knowledge" (Cassidy, Jones and Potrac, 2009, p. 130) when CPP.

Providing practicing (perhaps novice) coaches with a full body of tactical content knowledge necessary to CPP, enables them to understand and verbalise what was likely implicitly known (Nash & Collins, 2006), but not explicitly verbalised. This can assist coaches in understanding how a Model of Play may look like and in writing their own Model of Play to inform the way content is embedded in their coaching (Amade-Escot, 2006; Cassidy et al., 2009).

### 3.2.2 'Teach a man how to fish'

In acknowledging that the Model of Play is never 'final' because in its contextuality, it is always under construction and evolution (Pimenta, 2014, p. 19), shows a constructivist approach to curricular development in soccer coaching.

This has led to the conceptualisation developed in this study which explores how coaches generate the necessary knowledge in view of the pedagogical necessities to CPP. This process allows the coach to look for tactical content knowledge, contextually transform that into pedagogical tactical content knowledge and contribute to the development of contextual curricular content knowledge within the Model of Play. The Coaches' Process of Knowledge Generation for CPP has been first conceptualised theoretically and has then been populated further with the participation of ten international expert coaches.

## 3.3 APPROACH TO QUALITATIVE RESEARCH

Although this study seemingly simplifies and frames the concept of CPP and its process, it does so in full acknowledgement of the coaching complexities (Jones & Thomas, 2015) without trying to diminish its problematic nature.

Believing that there is no such thing as absolute and static truth, within an interpretative paradigm, I look at meaning that is constructed by individuals and their interaction with their environment, and which can be studied qualitatively (Rambaree, 2007).

With this constructivist idea of knowledge as fluid, I cannot expect this study to be considered as the absolute solution for coaches who want to CPP. It would be philosophically illogical of me to aim at the transferability of this conceptualised process to sports coaching in general, as “there would appear to be no acceptable models with universal applications” (Lyle, 2002, p. 83). It would be irrational to expect coaches’ processes of knowledge generation to take the same exact route, especially across different sports. Nonetheless, I believe that a deeper understanding of the process may inform practitioners as to how they can continuously generate and re-generate knowledge to keep abreast with the developments of the game and the demands of the context in which they are coaching. This deeper understanding to this understudied field may catalyse other studies in the field.

### 3.3.1 Epistemological Approach

Following criticism towards compartmentalisation of pedagogy which focuses “on teaching at the expense of the learner and the context” (Rossi & Cassidy, 1999, in Cassidy et.al., p. 131), pedagogy has been alternatively explained as “a process rather than an act” (Cassidy, Jones & Potrac, 2009, p. 131). This view recognises the dynamic relationship between the coach, the athlete and the content. When these are seen in a constructivist worldview, their social interactions with and within their environment is given significant importance in the development of the pedagogical content knowledge contributing to the development of the curriculum. This type of curriculum development challenges the static reality of coaching curricula which are typically published by NSO’s and distributed or sold to coaches, assuming knowledge increase. If [tactical] pedagogical content knowledge is influenced by the interactions of the main stakeholders with and within the environment, one cannot expect a uniform and unique curriculum design. This view calls for a contextually devised curriculum based on tactical content knowledge which allows contextual influence on the transformation into relevant Pedagogical Content Knowledge. This is in congruence with the concept of a Constructivist Model for Curriculum

Development (Driver & Oldham, 1986, p. 113). No teacher or learner can share precisely the same Subject Matter Content Knowledge because their previous knowledge in their operational context will be different even when there are similarities.

This leads me to an epistemological perspective which does not separate content knowledge from the process of continuous learning. The coaching process is a dynamic learning process which continuously generates content knowledge. The interrelations within the same process, its context, culture, social reality, specific situation and social mediation influence the development of the pedagogical content knowledge and the curricular content knowledge.

I conceive learning as predominantly a participation, more than an acquisition process. 'Knowing' is a non-permanent ongoing perpetual action which is influenced by the context, culture, social reality, specific situation and social mediation, and which is without endpoints (Sfard, 2008, p. 33).

While we can fall into the trap of looking at knowledge as a definite object that can be acquired, logically, one cannot acquire an object that 'is' not [absolute], due to its ever-changing form. Hence, learning is more appropriately seen as a participative approach by a community of individuals who engage in the development of a continuously evolving understanding of meaning, rather than a process which leads to the acquisition of knowledge.

This is equivalent in view of coaches' and athletes' knowledge generation, which is continuously influenced by the club's socio-cultural reality, contextual interactions with and within the club and its structures, stakeholders' relationships and others. For subject matter to be transformed into pedagogical content knowledge, it must be recognised by the learner, the context and the place and time (Geddis & Wood, 1997, in Cassidy et al., 2009, p. 131).

I add to clarify that, in this case, the term 'learner' refers to both pedagogue and student/athlete. I further suggest that the interaction of these two distinct learners with the same body of content knowledge, may influence the generated content knowledge and its transformation into pedagogical content knowledge.

In conclusion, I suggest that it is important to highlight the significance of 'awareness'. A coach can only engage in a process aiming at generating

pedagogical content knowledge and/or curricular content knowledge to CPP, if s/he is aware of the existence of the process, the content knowledge and the concept of CPP.

## 3.4 SELECTING A METHOD OF ANALYSIS

The methods of analysis that can be used in qualitative research are various (Bengtsson, 2016). Many of these are concerned with the textual or content analysis, which is closely related to the needs of this study. For this reason, various methods that were considered valid for the needs of this study were scrutinised and compared to the criteria checklist described in Table 3.1. This was done to identify the most appropriate methods to be used.

### 3.4.1 Qualitative Content Analysis

With her comparison of qualitative content analysis (QCA) to coding, discourse analysis and (social semiotics) Schreier, (2012) assists in my selection of the method of analysis.

Amongst other objectives, QCA aims at exploring new topics and describe complex phenomena. QCA is a form of analysis for verbal and visual data, intended at summarising information from the data set. It is also intended to generate codes in an inductive manner rather than generating codes based on existing theory or research (Drisko & Maschi, 2016). This is an important aspect of the method when considering an understudied field in an inductive manner. “A description of patterns or regularities found in the data is the goal of qualitative content analysis” (Drisko & Maschi, 2016, p. 86). With its main focus being to look at ‘what is there in the data’, QCA, is data-driven, and focuses on how data relates to each other and how the data and the emerging categories relate to each other. While it is often used as a descriptive methodology, “QCA can be placed in the service of a more critical analysis” through which meaning in a specific aspect needs to be analysed (Schreier, 2012, p. 47)

Although I am studying a new phenomenon, phenomenology was not deemed ideal as I did not intend to “seek what is hidden beneath the accumulation of taken-for-granted assumptions” (Sohn, 2017, p. 2). To the

contrary, I was interested in how different sources and their apparent data can help in the understanding of the studied phenomenon.

While grounded theory (Charmaz, 2006)-and phenomenology (Aagaard, 2017) are useful approaches to the development of theory and to describe lived experiences respectively, QCA is “ideal for concept development or model building” (Hsieh & Shannon, 2005, p. 1281), and is appropriate for analysing ‘written, verbal and visual’ content in a qualitative and/or quantitative manner (Elo & Kyngäs, 2008). In essence, it is used to interpret meaning from content (Hsieh & Shannon, 2005), allowing researchers to investigate social phenomena by going beyond the quantitative idea of counting words to extract meaning (Zhang & Wildemuth, 2005) as is typical in most forms of content analysis. Unlike other methods, QCA is not connected to or reliant upon to any particular science and is kept simple with few rules to follow (Bengtsson, 2016). As required for this study, it allows sources and participants to be ‘purposively selected’ to inform the area being investigated. This is reinforced by the allowance within the method to move back and forth between analysis and data collection in a way that new sources can be included if they enrich the study (Zhang & Wildemuth, 2005). The textual data can be obtained from various sources, including interviews which are (normally) transcribed and analysed, and media formats including books, articles and videos (Kondracki, Wellman, & Admunson, 2002; Mayring, 2000). Bengtsson (2016) provides a detailed process by which she caters for robustness in the selection of sources and participants. She also explains in detail the data collection and data analysis process in a way that these can be systematically organised by the researcher to achieve empiricism. Originally developed in nursing studies, QCA is relevant to this study, as besides making it possible to deeply understand the researched phenomena (Hsieh & Shannon, 2005), it has also been used in evidence-based practice (Elo & Kyngäs, 2008) which makes it effective in informing practice by its achieved outcomes. Borrowing from another discipline is thus legitimate because the method offers an appropriate tool for the study reported in this thesis. Hsieh and Shannon (2005, p. 1281) add to remind us in Lindkvist's (1981) claim that QCA is also ideal for conceptual development. I found the existing literature useful in designing the checklist in Table 3.1 to assure that Qualitative Content Analysis is a useful method for the two study

areas in this research.

| | |
|---|---|
| 1. Qualitative research method | ✓ |
| 2. Data to be extrapolated from content *(purely text)* | ✓ |
| 3. Not necessarily research-based content | ✓ |
| 4. Accepts, interviews and media formats like books, articles, manuals and videos. | ✓ |
| 5. Purposefully selected content (sources) | ✓ |
| 6. Robustness in sources' selection | ✓ |
| 7. Is concerned with the understanding of an implicit process | ✓ |
| 8. To inform practice by evidence | ✓ |
| 9. Provides a process of data collection, coding and categorisation, and analysis. | ✓ |
| 10. Empirical & systematic | ✓ |

**Table 3.1:** QCA checklist for methodology selection.

Bengtsson's (2016) 'process of QCA from planning to presentation' was rigorously applied step by step, to assure a systematic and robust approach (Appendix 3.1).

## 3.5 QUALITATIVE CONTENT ANALYSIS APPLIED

Aiming to obtain transparency and trustworthiness, this section will outline how the process of a QCA from planning to presentation' (Bengtsson, 2016) was applied to the whole study.

### 3.5.1 Phases of data collection and analysis

Figure 3.1 shows how this study is divided in two phases. Aiming at shedding light on CPP, as shown in table 3.2, this study starts with a theoretical conceptualisation of the Coaches' Process of Knowledge Generation for CPP (phase 1) which was obtained through a process of analysis of the selected texts.

Considering the pedagogical nature of the knowledge generation process and considering the currently limited research in the field of PoP, I needed to refer to alternative areas, mainly pedagogy, instruction and *Tactical*

*Periodization*. As Chapter 1 describes, established publications in these areas allowed this study to ground its theoretical foundations in works of prominent contributors in the respective fields. This provided a solid foundation for the second phase of the study.

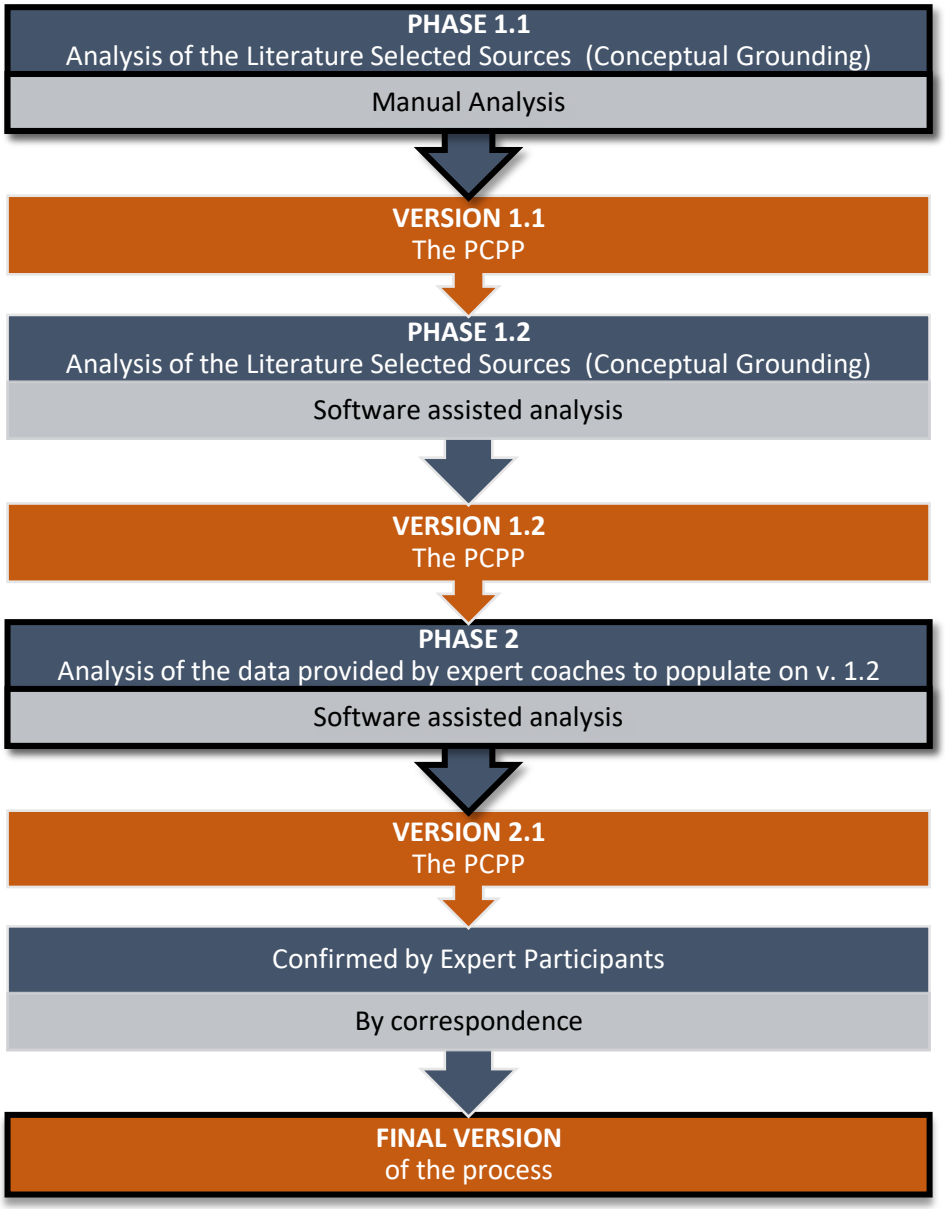



**Figure 3.1:** The steps of the analysis process.

The analysis of these sources (Table 3.2) provided a theoretical understanding of the studied phenomenon and led to the first-level conceptualisations (version 1.1 and 1.2). The first version of the developed conceptualisation (version 1.1) was developed (appendix 3.2) after manual analysis was applied to the selected texts. Version 1.2 was developed after computer assisted analysis was carried out on the same texts.

Similar to other studies (Abraham et al., 2006; Côté et al., 1995), to add "…meat on theoretical bones" (Jones & Thomas, 2015, p. 74), this first level conceptualisation (version 2.1) was further developed through the participation of ten expert coaches. In the second phase of this study, these ten coaches were interviewed and asked to explain in detail what they do and why they do it (Gilbert & Trudel, 2004), in view of the presented process (version 1.2). They were also asked to critically evaluate and review version 1.2 of the Coaches' Process of Knowledge Generation for CPP. This led to populating the conceptualisation in version 1.2 and develop a more comprehensive version (2.1). This observe-verify-conclude process in social science is parallel to discover-describe-explain in scientific research (Yeasmin & Rahman, 2012).

The Coaches Process of Knowledge Generation for CPP, versions 1.1, 1.2 and 2.1 are presented in chapter five. Version 2.1 the final version presented in this study, and, hence the first Coaches' Process of Knowledge Generation for CPP– this represents a distinct contribution to knowledge in the field.

| **The Coaches' Process of Knowledge Generation for CPP** |
|---|
| **Phase 1 – Existing Publications (leading to version 1.1, 1.2)** |
| - *A model of pedagogical reasoning and action* (Shulman, 1987)<br>- *'A Theory of Instruction'* (Bruner, 1963, 1966)<br>- *Tactical Periodization* (Oliveira, 2014b, 2014a) |
| **Phase 2 – Expert Coaches (leading to version 2.1)** |
| - Semi-Structured Interview<br>- Discussion meetings (between participating coaches and researcher)<br>*Based on a document provided by the researcher based on the first part of phase 1 (version 1.2).* |

**Table 3.2:** The two phases of this research process.

Two of the participating coaches were willing to share with me their Models of Play, (Appendix 1.1). These provide exemplars of what they mean by PoP and their sub principles.

### 3.5.2 Selecting the Unit of Analysis for Phase 1

The synthesis of the selected sources made it possible to start the conceptualisation process. The first data set was extracted from five texts which satisfied the selection criteria checklist (Appendix 3.3). The contribution of these sources to the study of the Coaches' Process of Knowledge Generation for

CPP, in this thesis, were discussed in the Literature Review in Chapter 2. In this section, I am focussing on how they fit together and how they can contribute to the pedagogical process of CPP.

As shown in Table 3.2, two books about *Tactical Periodization* (Oliveira, 2014a, 2014b) served as a foundation for the concept of CPP. The analysis of '*A Model of Pedagogical Reasoning and Action*' (Shulman, 1987), shed light on the stages through which coaches acquire knowledge and transform it into pedagogical content. Finally, '*Toward A Theory of Instruction*' (Bruner, 1966) and 'Needed: A Theory of Instruction' (Bruner, 1963) provided the necessary insight into how one would transform knowledge into valid instructions.

The selected texts were used to deductively find the cases that embody the theoretical constructs relevant to this part of the study. Since random sampling is not a necessity for qualitative research (Merriam, 1998), these five texts were selected with the intention of obtaining rich and relevant information (Patton, 1990). Appendix 3.3 identifies the criteria checklist used to select these publications, and Denscombe's (2014) checklist for the use of books and other documents. The selection process identified five publications and was then followed up by theoretical saturation (Strauss, 1987), additional sources being unlikely to add further insights for the scope of this first study (Toye et al., 2013).

The five selected documents resulted in a total of 277 pages of content, which were then analysed and organised. The 'process of QCA from planning to presentation' (Bengtsson, 2016) was applied for this purpose. A total of 347 meaning units were identified as relevant for the development of the studied phenomenon.

#### *3.5.2.1 Rigour in the Selection of Sources*

The legitimacy of a research process relies on one's rigour in demonstrating integrity and competence, no matter the selected paradigm. The absence of rigour would jeopardise the research in becoming "fictional journalism, worthless as contributing to knowledge" (Tobin & Begley, 2004).

In selecting the published documents for analysis, I have applied two processes to ensure rigour. Firstly, a criteria checklist was applied during the selection process. Secondly, a checklist for the use of books and other

documents' (Denscombe, 2014) was applied after the first reading (Appendix 3.3).

#### *3.5.2.2 Rigour in the Data Collection Process*

A criteria checklist (Appendix 3.3) was created and continuously referred to during the data collection and analysis processes in order to endure rigour.

### 3.5.3 Selecting the Unit of Analysis for Phase 2

In the second phase, I have systematically drawn upon the 'wisdom of practice' of expert practitioners (Shulman, 1987). This was achieved through semi-structured interviews and discussions with ten expert soccer coaches (Table 3.3) who had already used CPP in some way. See Appendix 3.4 for more details about the participants.

#### *3.5.3.1 Sample Size, Selection and rigour*

There is no established optimal size of a unit of analysis in content analysis (Bengtsson, 2016; Creswell, 2014). However, Côté et al., (1995) and Abraham et al., (2006) use 16 and 17 participants respectively. I aimed to match this number of participants, but due to the difficulty of finding enough coaches who were willing to be participants in the study, my sample was ten. This represented a form of *Purposeful sampling* (Patton, 1990), and more specifically *Criterion sampling* which I employed when choosing the expert coaches. This ensured that all participants fitted the necessary criteria, to contribute to the scope of this study (Palys, 2008). It was important for the participants to relate to the underpinning framing theories, written by renowned authors and related to the fields of coaching, pedagogy, instruction, learning and any other related field. Personal contacts, and *snowball sampling* (Hardon, Hodgkin, & Fresle, 2004), were used to find the ten expert coaches who were willing to participate in the study reported in this thesis.

Bruner (1960, p. 19) suggests that "… the best minds in any particular discipline must be put to work on a task" (Brunner, 1977, p. 19). The expert coaches participating in this study have contributed populating on the previous developed conceptualisation, aiming at the provision of depth, empiricism and trustworthiness. During the selection process, I rigorously applied the purposeful sampling criteria for coaches' checklist (Appendix 3.3). Participants who did not fit the criteria were excluded.

| Coach | Acronym | Interviewed on | Minutes | Pages |
|---|---|---|---|---|
| **Sergio Raimundo** | ***Sergio*** | 13/3/17 | 90 | 5 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | Portuguese | UEFA A | Irish FA | Brazil |
| – Young Portuguese coach with more than 10 years' experience in various clubs worldwide.<br>– Worked at Benfica (Portugal), in Senegal, Austria and Brazil. He is a full-time coach.<br>– Obtained a Degree in Sports Sciences and a Master's in physical education from the University of Human Kinetics of Lisbon. | | | | |
| **Hugo Vicente** | ***Hugo*** | 6/2/17 | 101 | 5 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | Portuguese | UEFA A | Portugal | China & Norway |
| – Portuguese coach with more than 15 years' experience in various clubs worldwide.<br>– Worked at Benfica (Portugal) and FC Copenhagen (Denmark), amongst other clubs in Portugal, Norway and China. He is a full-time coach. | | | | |
| **Joseph Grech** | ***Joseph*** | 13/2/17 | 99 | 5 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | Maltese | UEFA PRO | Malta FA | Malta |
| – Maltese coach with more than 15 years' experience in various clubs in Malta and Gozo.<br>– Worked in all the divisions of Maltese football. He is a part time coach. | | | | |
| **Andrew Weavill** | ***Andy*** | 2/3/17 | 125 | 10 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | English | UEFA A | Malta FA / FA | Coaching Mentor |
| – English coach with around 40 years' experience in various clubs in England and Malta.<br>– He coached at Premier Division Level in Malta<br>– He led coaching education in Malta. He stayed involved in coaching education and mentoring in the later part of his career.<br>– He is an educator by profession. | | | | |
| **Mark Miller** | ***Mark*** | 1/4/17 | 75 | 1 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | English | UEFA PRO | Malta FA | Malta |
| – English national who had a playing career in Malta, and then moved into a player-coach position in the early 1990s.<br>– He coached the majority of the Premier Division teams in Malta and had an 8-year-spell within the national team setup. | | | | |
| **Fannar Berg Gunnolfsson** | ***Fannar*** | 11/4/17 | 60 | 1 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | Icelandic | UEFA A | NFF | Norway |
| – A young Icelandic coach with more than 10 years of experience<br>– He coached at youth level and senior level in Iceland and Norway. He is a full-time coach. | | | | |
| [redacted] | ***Brian*** | 16/4/17 | 55 | 1 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | North Ireland | UEFA PRO | Irish FA | Ireland |
| – An Irish coach with more than 14-years' experience in coaching at senior level<br>– He coached in the Premier Division in Ireland, Zimbabwe and South Africa | | | | |

| Coach | Acronym | Interviewed on | Minutes | Pages |
|---|---|---|---|---|
| [redacted] | ***Ray*** | 16/5/17 | 57 | 1 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | English | UEFA A | FA | England |
| – Young English coach with experience in Development coaching and social sports coaching.<br>– He coached in Development Programmes at Aston Villa and West Bromwich Albion.<br>– Also involved in Coaching Education with the FA. | | | | |
| **Sergio Soldano** | ***Soldano*** | 19/5/17 | 70 | 1 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | Argentinian | UEFA A | Malta | Malta |
| – An Argentinian who moved to Italy to play football and then started coaching in Italy.<br>– He was coaching educator for foreign coaches for Parma AC and Inter Milan.<br>– He moved to coach and Develop the Under 16 and Under 17 Maltese National Teams.<br>– He coached Malta in the UEFA European Under 17 Finals in 2014. | | | | |
| **Paul Zammit** | ***Paul*** | 22/5/17 | 77 | 2 |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | Maltese | UEFA PRO | FIGC (Italy) | Malta |
| – One of the main coaches in the Malta Premier Division.<br>– Leading coach at the Malta National Sports School | | | | |
| **Coaches** | **Acronym** | **Interviewed on** | **Minutes** | **Pages** |
| **10** | **-** | **-** | **809** | **32** |
| | **Nationality** | **Licence** | **Obtained in** | **Coaching in** |
| | **6 Countries** | **UEFA A / PRO** | **6 Countries** | **6 Countries** |

**Table 3.3:** The Participating Expert Coaches.

Selected participants were asked to provide a copy of the latest coaching licence certificate and the latest coaching card, to assure their expertise level and recent activity in the field.

Identifying coaches who fitted the sampling criteria and had the time to participate in the study was very challenging. To start with, not all coaches coach through principles of play, and some of those who do, are too busy. Although only males were interviewed, a diverse population (Shenton, 2004) was still obtained. The ten participating expert coaches, whose age ranged between thirty-three and sixty-three in 2017, came from six different countries, have obtained their highest coaching badge from six different associations, and are coaching in six countries across three continents.

### *3.5.3.2 Data Collection*

Semi-structured interviews were conducted, allowing me to participate in the discussion as an 'expert other', making it possible to delve deeper into specific points when necessary. Approaching the conversation with familiar coaching

terminology, rather than simply putting forward direct questions, resulted in the participants in providing valuable content for the scope of this study.

The first version of the Coaches' Process of Knowledge Generation for CPP served as a catalyst for these semi-structured interviews. While the expert coaches could intervene on the conceptualised process as they deemed fit, I endeavoured to remain faithful to the main theoretical framework which guided the study as from its inception.

Following the first phase of this study, I compiled a document which was sent to coaches before holding the semi-structured interviews (phase 2). The ***compilation document*** included:

- An explanation of the Conceptualised Process (version 1.2)
- A diagram of the Conceptualised Process (version 1.2)
- Step-by-step explanation of the process (version 1.2)

The contents of the compilation document were clarified and explained to coaches in a preparatory direct conversation held two days before the actual interview. This was intended to allow time for the coaches to process information and initiate their critical thinking process, to internalise the concept and to contextualise it within their practice. It was also a way of providing a focused briefing so that the time they were willing to allocate for this study would be used to maximise generation of data.

The semi-structured interviews were conducted either face-to-face or using video-conferencing technology. All the participants signed a consent form and indicated whether they wanted to be identified by their name, or not. There were two main reasons why I found it appropriate to mention the coaches by their name (if they want to do so). First, their knowledge and experience were main contributors to the development of the Coaches' Process of Knowledge Generation for CPP. Given them credit for their contribution was only fair. Secondly, sometimes their contribution reflected their own context, nationality, school of coaching.

### 3.5.4 Ethics

Ethical approval was obtained from the Ethics Review Board, within the School of Education at the University of Sheffield in September 2016. This study does

not involve vulnerable participants or sensitive topics. Nor is it harmful to the participants in any way.

In the first phase of this study, ethical issues were rather limited, since data was entirely collected from published work, which is in the public domain, and hence does not need any particular permission. Approvals for the used publications were not required as they are in the public domain. Permission to use Table 4.1 was granted by email, by Professor of Education Emeritus Lee S Shulman, on the 9th of February 2018 (Appendix 3.5).

In the second phase, data was collected from ten expert senior coaches who were all over 18 years of age. Ethical issues were considered and actions were taken during all stages of the study (Creswell, 2014). All participating coaches were asked to sign an informed consent form, which was also attached to a participation information sheet. At the stage of signing their consent form, participants were left free to give or refuse consent for participation. They were also advised in writing that they could withdraw from the study at any stage, without need to explain the reason for withdrawal. All participants were given the option to either ask me to treat data with strict confidence and keep them anonymous (Bengtsson, 2016), or otherwise allow me to use their name, and/or their coaching experience for further transparency.

All the information sheets together with the signed consent forms were filed in the researchers' residence and kept secure. All interviews were recorded on an Acer Intel® Core™ i5, 2.5Ghz. Interviews with International coaches were done on Skype and recorded through a screen recorder. Other coaches were interviewed live, hence the video recorder on the laptop was enough to record the interview. A voice recorder on the same laptop and an external camera, taking a video of the same interview were also used to reduce the possibility of data loss. At the beginning of every interview, the participant was asked for consent verbally, and their verbal consent was recorded as well. The recorded interviews were all saved in a subfolder on a password secured Google drive system, which is also accessible from the same laptop.

## 3.6 OBTAINING RIGOUR

A positivist worldview is linked to quantitative research, while constructivism is highly linked to a qualitative approach (Creswell, 2014). Reliability, validity and generalisation belong mainly to the positivist paradigm (Rambaree, 2007, p. 7) and cannot be addressed in the same way in qualitative research (Tobin & Begley, 2004, Shenton, 2004). Of course, there are degrees of change across a qualitative-quantitative continuum and not all research is either one or the other but often a mix of methods. However, the study reported here took a qualitative approach and as such its rigour needs to be considered in ways appropriate to qualitative approaches, and not necessarily in terms of scientific criteria for quantitative studies.

There is a general agreement that ***rigour*** is pertinent to any research, whatever paradigm or methods are used (Rambaree, 2007, p. 7) as it is the ***precursor to research trustworthiness****,* which according to Guba and Lincoln (1989) can be obtained in qualitative studies through ***credibility, transferability, dependability and confirmability*** (Shenton, 2004, p. 64).

Lyle (2002) claims that very few have been rigorous in the development of coaching models (Lyle, 2002). He recognises the work by Côté *et al.*, (1995) as rigorous in modelling coaching. I would add that Abraham, Collins and Martindale's (2006) schematic also demonstrates rigour. While the aim of Côté et al., (1995, p. 12) was to “articulate a model representative of the organisation and utilisation of expert high-performance gymnastic coaches’ knowledge”, Abraham and colleagues tested their coaching schematic based on interviews with expert coaches (Lyle, 2002). In a similar manner, I set out to demonstrate strong dedication to being rigorous and systematic in my study.

### 3.6.1 Ensuring Trustworthiness

Although internal validity has been acknowledged as challenging in QCA (Hsieh & Shannon, 2005, p. 1280), I agree with Tobin and Begley (2004, p. 388), that qualitative studies cannot reject the concept of validity and reliability, as that would imply also rejecting some forms of rigour and therefore undermine qualitative research as a credible approach.

Creswell's, (2014, p. 259) recommendations for triangulation of data, member checking, peer examination, participatory modes of research,

clarification of researcher bias, thick detailed description, and diverse population, together with Shenton's (2004) suggestions, which address Guba and Lincoln's (1989) four criteria for trustworthiness (credibility, transferability, dependability and confirmability) were thoroughly applied and explained in Appendix 3.6. The triangulation approaches applied in this study is further explained in Chapter 4.

As Bengtsson (2016) suggested in the decontextualisation stage, I analysed all the data multiple times, allowing weeks between one analysis and the other, with the intent of reducing the effect of my involvement with the data and letting go of unimportant information which did not contribute to the scope of the study.

### 3.6.2 Objectivity

While acknowledging my positionality as an influencing factor, I strived to control personal bias and allow the research and its findings to objectively guide the development of this study. Inductive coding allowed themes, categories and sub-categories to emerge from meaning units and their derivatives condensed meaning units (Bengtsson, 2016).

It was not feasible, due to limited resources, to apply cross or blind coding. Instead, while acknowledging that subjectivity is factual to a certain extent, ways to assure trustworthiness were sought, rather than accepting the status quo.

I did not find blind coding practical, so decided to assimilate blind coding into 'partial blind coding', by allowing myself distance from the data and by employing a totally different method (NVivo instead of manual) in the second round of analysis (Phase 1, Part 2). This allowed me to 'cross code' my two coding sets (Table 4.3) as will be explained later. Furthermore, I took further steps to assure the empirical findings by having expert coaches criticising my designed outcome (process model) and going through the coding process once again. Thus, there is some subjectivity in my process, and this is a limitation. However, I was able to develop workable methods to ensure, as far as possible, the trustworthiness of the analysis, through rigorous and deep processes (Appendix 3.6). This allowed for a transparent research approach which should permit any subsequent researchers to assess the credibility of this study.

### 3.6.3 Pilot Study

A pilot study was held with a UEFA A soccer coach who has obtained his badges in Malta and has since coached in Maltese lower leagues and youth soccer. The pilot study helped me to realise and correct the following points:

**Reference to document -** For the sake of clarity when analysing the video or voice recordings, it was important for me to clearly name the areas I was referring to during discussions with the interviewee.

**Introduction -** The introduction to the interview needed to clarify that the discussion is specifically about the concept of CPP, to help keep the discussion focused.

**Recording -** It became very evident that the interviews should ideally be recorded with multiple methods. A Skype recorder or a laptop video recorder were used together with a voice recorder. An external camera was also used to capture the recordings on the laptop.

**Document use during the interview -** It became very evident that the diagram (version 1.2) was a strong tool for structuring the interview. Furthermore, it allowed participants to keep the whole picture in mind all the time.

**Teachers' Knowledge -** The importance of this area emerged in an inductive manner. It was during the pilot study that it started to become evident that knowledge, in its wider sense, was going to be a very important aspect of this study.

## 3.7 CONCLUSION

With the intention of obtaining a deeper understanding of the concept of CPP, and the process coaches may need to engage into, this study was divided in two phases (Table 3.4). The first phase dealt with the conceptual development of the Coaches' Process of Knowledge Generation for CPP, while the second focused on the participants' contributions to 'populate' the same construct further.

| | Phase 1 | Phase 2 |
|---|---|---|
| **Sources** | Publications | Expert Coaches |
| **Data Collection** | Documents | Semi-Structured Interviews |
| **n=** | 5 documents | 10 expert coaches |
| **Research Method** | QCA | QCA |
| **Conceptualisation of** | Version 1.1, 1.2 | **Version 2.1** |

**Table 3.4:** The areas and phases making this study.

Appendix 1.1 includes two models of play provided by two of the participating coaches. The data they provided me with, was analysed and synthesised in a way that I could assist the reader in better understanding the concept.

The step-by-step explanation of QCA from planning to presentation (Bengtsson, 2016) allowed me to apply a very rigorous process, not only in the selection of units of analysis and their sample but also in the process of data collection and analysis. To obtain a higher level of trustworthiness, the next chapter provides a step-by-step description of the data analysis process.

Having presented the research methodology of this study, the next chapter will, in a transparent way, present how data was analysed and how the main conceptualisations were developed.

# CHAPTER 4
# A DETAILED EXPLANATION OF THE PROCESS OF ANALYSIS.

## 4.1 INTRODUCTION

This chapter describes the practical process of analysis conducted for this study in order to provide sufficient explanation about how the analysis was carried out and how it led to the obtained results (Elo & Kyngäs, 2008). Providing thick (Shenton, 2004), rich and detailed reporting of data collection and analysis methods adds to further external validity (Creswell, 2014).

Keeping in mind that the aim of this study was to ***Conceptualise the Coaches' process of knowledge generation for coaching through Principles of Play,*** this chapter evolved into a detailed explanation of how Qualitative Content Analysis was manually applied on the five publications analysed. This was followed by a similar section, which provides a step-by-step explanation of how NVIVO was used in the Qualitative Content Analysis process that led to version 1.2.

The chapter concludes with a detailed explanation of all the steps taken in the synthesis of the data collected from participating expert coaches who were asked to populate their ideas based on version 1.2.

Visual representations and categorisation tables of the analysed texts are also included or referred to throughout this chapter. This is done, to show in a transparent way how data was synthesised in a process of analysis. This is all aimed at enhancing trustworthiness (Shenton, 2004).

The conceptualisations obtained after analysis 1.1, analysis 1.2 and analysis 2.1 are presented in Chapter 5 as conceptualisation 1.1, conceptualisation 1.2 and conceptualisation 2.1 respectively. Conceptualisation 2.1 is then discussed in Chapter 6, where this final conceptualisation is also presented.

## 4.2 CONCEPTUALISING THE COACHES' PROCESS OF KNOWLEDGE GENERATION FOR COACHING THROUGH PRINCIPLES OF PLAY.

The conceptualisation of sports coaching as a pedagogical endeavour (Cassidy et al., 2009; Jones et al., 2004) was the catalyst for focusing on the coaches' process of knowledge generation for CPP.

Supported by A Theory of Instruction (Bruner, 1963, 1966) and *Tactical Periodization* (Oliveira, 2014b, 2014a), the *Model of Pedagogical Reasoning and Action* (Shulman, 1987) provides a solid theoretical framework for the idea of coaches who continuously 'commute from the status of the learner to that of teacher' (p. 12). The Teachers' Knowledge base (Shulman, 1986, 1987) emerged as a key area which added quality to the analysis and discussion.

To understand the phenomenon of CPP and the process of knowledge generation it requires, I felt it was important to investigate the following:

i) what type of knowledge is needed by coaches?

ii) how do coaches transform tactical content knowledge into pedagogical tactical content knowledge?

iii) how do coaches transform this pedagogical tactical content knowledge into valid instructions?

In the next sections, I will engage in a rich explanation of how data was analysed. The development of the emerging conceptualisation will be presented in a respective order.

## 4.3 ANALYSIS PHASE 1.1

I drew on Bengtsson, (2016) who sets out an approach to Qualitative Content Analysis in "The process of a Qualitative Content Analysis from planning to presentation" (Bengtsson, 2016, pp. 8-14). I followed Bengtsson's suggested steps, namely: decontextualisation, recontextualisation, categorisation and compilation (see Appendix 4.1).

### 4.3.1 Stage 1 - Decontextualisation

I initially selected the five key sources listed above and in Chapter 3, from many other sources identified in the literature (see Chapter 2). This was followed by another comprehensive reading of the texts to familiarise myself with the data and to confirm the texts' relevance in relation to the studied phenomenon. This was followed by a third 'selective' reading of the most relevant parts from the five sources to focus on more 'detail' (Sohn, 2017). During the third reading, open coding was applied manually, and each data line was examined. Each relevant sentence or paragraph was manually highlighted (Hsieh & Shannon,

2005; Rambaree, 2007), identifying the meaning units that would contribute to answering the research question. Each meaning unit was labelled with a representative code (Bengtsson, 2016). This was obtained through an inductive process, involving writing notes on the original document to represent the highlighted meaning units.

The highlighted parts and their codes, together with memos written (Burnard, 1991) provided the initial draft idea of the studied phenomenon.

### 4.3.2 Stage 2 - Recontextualisation

After three readings, I stayed away from the data for two weeks, because as Bengtsson (2016) suggests, when researchers are immersed in data, everything starts looking important.

To ensure that the identified data was relevant, I read the sources for a fourth time, and coded the data again on a clean 'new' un-marked copy and, contrary to Bengtsson's suggestion, I decided to employ inductive coding again.

After the second 'open coding' process, I compared the two sets of codes (Zhang & Wildemuth, 2005), with the aim to obtain trustworthiness. My page-by-page comparison, (Figure 4.1), allowed me to review and compare the two sets of documents for all meaning units and the written memos.

When the meaning unit, code or memo was repeated, it indicated a straightforward confirmation. When there was not agreement between two sets, I re-read and reviewed that selection of data in light of the research question. At times, I discussed the matter with colleagues to obtain another perspective before taking the final decision.

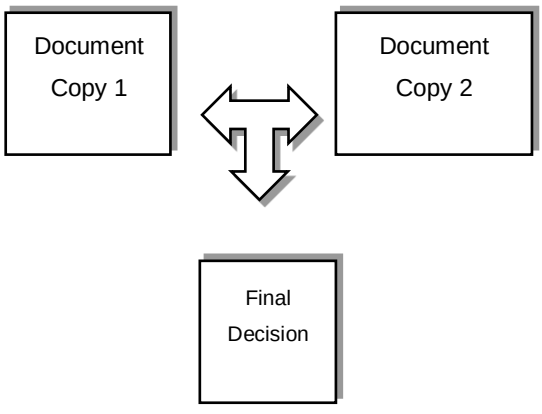



Figure 4.1: The process of analysis.

### 4.3.3 Stage 3 - Categorisation

The process of categorisation includes the creation of clusters of common content. In view of the challenges and meticulous aspects of this core stage of Qualitative Content Analysis, I sought a facilitating process which could ensure trustworthiness, full cover of the identified meaning units, and transparency in the way meaning units relate.

#### *4.3.3.1 Data Displays and Analysis*

Analysis based on unreduced text may be weak and cumbersome as the text is dispersed over different pages, which makes it difficult to see everything simultaneously (Williamson & Long, 2005). This makes it hard to read and understand the different areas a data source might be presenting, making the process tedious and time-consuming (Dey, 1993).

With this in mind, I considered expressing concepts visually to condense relevant data and facilitate analytical thinking. Displaying data, or its selected meaning units, in an organised and condensed manner, on one or a few pages, and organising this systematically in line with the research question, can facilitate drawing the necessary conclusions and identifying the required action. If coherently organised, data displays will permit careful comparisons, detection of differences, patterns, themes and trends (Miles & Huberman, 1994). Hence, it facilitates the categorisation process.

Thus, at this stage of analysis, I developed a Network visual display (Verdinelli & Scagnoli, 2013) so as to deeply understand:

i) Pedagogical Reasoning and Action,

ii) Instruction

iii) How these interact within the idea of CPP

This process enabled me to identify the themes, categories and sub-categories within the highlighted meaning units, and understand the relationships between them.

I began drafting visual representations on my fifth reading. The use of data displays as “aids to qualitative data analysis” (Williamson & Long, 2005, p. 8), helped me in the organisation and reduction of information and facilitated the process to conclusions and actions (Miles & Huberman, 1994).

The articulation of the process enables transparency in this study. The first visual representations show the selection (hence the reduction) and the compression stage of data analysis. This part of the process of Qualitative Content Analysis led to the development of domains, categories and sub-categories through the development of data displays on:

i) *The Model of Pedagogical Reasoning and Action* (Table 4.1)

ii) *A Theory of Instruction* (Table 4.2)

iii) *Tactical Periodization* (Figure 4.3)

Subsequently, this first set of visual representations made it possible to analyse the integration and relationship of domains, categories and sub-categories across each display, and identify where and how the displays interact. This led to the first categorisation process of this study (Appendix 4.2).

***Framing Theory 1: The Model of Pedagogical Reasoning and Action***

*The Model of Pedagogical Reasoning and Action* put forward here was my theoretical foundation and my starting point to conceptualise ***how coaches transfer content knowledge into pedagogical representation and actions.*** Here, I am following Shulman (1987, p. 15) in reconstructing the visual representation from the original source.

It is immediately evident that each section within the model is relevant to the answer to my research questions. While with 'pedagogical reasoning' one can clearly understand that there is an ongoing thinking process intended at teaching and learning, with action, here, we shall not be misled. "Reasoning and action…imply a dynamic state in which knowledge is being tested and refined and new understandings generated" (Wilkes, 1994).

To engage in a *Pedagogical Reasoning and Action* process, coaches need to ***comprehend*** the relevant content knowledge, curriculum knowledge, and contextual knowledge. This would form the foundation for the ***transformation*** of the obtained content knowledge which would reflect contextual realities. The transformation goes hand in hand with pedagogical content knowledge as this is where the coach prepares, represents, selects and adapts the selected content knowledge for his/her learners' and his/her own needs. Following this process, the coach would be ready for coaching

***instruction*** during training sessions, which would be followed up by evaluation and reflection, leading to consolidation and ***new comprehension***.

| ***A Model of Pedagogical Reasoning and Action*** | | |
|---|---|---|
| **1.Comprehension** | Of purposes, subject matter structures, ideas within and outside the discipline. | |
| **2.Transformation** | **Preparation** | Critical interpretation and analysis of texts, structuring and segmenting, development of a curricular repertoire, and clarification of purpose. |
| | **Representation** | Use of a representational repertoire which includes analogies, metaphors, examples, demonstrations, explanations, and so forth. |
| | **Selection** | Choice from among an instructional repertoire which includes modes of teaching, organizing, managing and arranging. |
| | **Adaptation and Tailoring to Student Characteristics** | Consideration of conceptions, preconceptions, misconceptions, and difficulties, language, culture, and motivations, social class, gender age, ability, aptitude, interests, self-concepts and attention. |
| **3.Instruction** | Management, presentations, interactions, group work, discipline, **questioning**, and other aspects of active teaching, discovery or **inquiry instruction**, and the observable forms of classroom teaching. | |
| **4.Evaluation** | Checking for student understanding during interactive teaching.<br>Testing student understanding at the end of lessons or units.<br>Evaluating one's own performance and adjusting for experiences. | |
| **5.Reflection** | Reviewing, reconstructing, re-enacting and critically analysing one's own and the class's performance and grounding explanations in evidence. | |
| | | |
| **1.New Comprehension** | Of purposes, subject matter structures, students, teaching and self.<br>Consolidation of new understandings and learnings from experience. | |

**Table 4.1:** Data Display of *The Model of Pedagogical Reasoning and Action*. (Shulman, 1988, p. 15).

### *Framing Theory 2: Theory of Instruction*

Coaches, like teachers, need to reason through a process which includes both "thinking about what they are doing and an adequate base of facts, principles and experiences from which to reason. They must learn to use their knowledge base to provide the grounds for choices and actions" (Shulman, 1987, p. 13).

For this study to deal with how the transformation from knowledge to action takes place, a 'Theory of Instruction' (Table 4.2) was identified as the second theory to frame this study. This is so, because, ***A Theory of Instruction*** is "…as practical a thing as one could possibly have, to guide one in the process of passing on the knowledge, the skills, the point of view…" (Bruner, 1963, p. 523).

<table>
<tr><th colspan="4">Aspects of a Theory of Instruction</th></tr>
<tr><th>Predisposition<br>Effective Learning<br>Predisposition factors</th><th>Structures<br>Optimal Structuring of Knowledge</th><th>Sequences<br>Optimal Sequence</th><th>Consequences<br>Rewards &<br>Punishments<br>Success & Failures</th></tr>
<tr><td rowspan="2">A safe environment that supports proactive learners - exploration, problem-solving,<br><br>Clarification of reasons behind failures is more important than punishments.</td><td>o Economy<br>o Productiveness<br>o Power<br>Economy: The simplification of knowledge. No matter how complicated, it can be broken into simpler elementary form.<br>Productiveness: The structure of knowledge enables generation of new propositions<br>Power: The power of language in making (manipulating) knowledge of your own.<br><br>It is important to highlight that all this is relative to the learner, and it is suggested that learners should be allowed to encounter knowledge at stages appropriate to his/her level.</td><td>For knowledge to be converted into a structure that is economical, productive, and powerful, and therefore transferable:<br>o Induction<br>o Contrast<br>o No premature symbolization<br>o Guessing<br><br>Induction: Have the learner meet learning concepts and make sense of them on his/her own.<br><br>Contrast: 4x3 = 3x4<br><br>No Premature Symbolisation: To produce powerful learning let the learner spend enough time in enactive and ikonic representation in a way that symbolic representation does not become rote.<br><br>Guessing: Allow the learner to guess, to his/her rights as a mind. This way s/he can become aware of all s/he knows.</td><td>Success and failure is the inherent part of the task which identifies if the issue is solved or not.<br><br>Reward and punishment is the consequence that follows upon success or failure.<br><br>When applying rewards and punishments, attention is diverted away from success and failure and the person giving rewards or punishments takes the initiative from the learner.</td></tr>
<tr><td>Representation of knowledge<br>o Enactive Representation<br>…by doing.<br>o Ikonic Representation<br>…using an image.<br>o Symbolic Representation<br>…using words<br><br>'you create a structure…by giving it in the muscles, then in imagery and then giving it in language, with its tools for manipulation'.</td></tr>
<tr><td></td><td>Any topic has internal prerequisites, easier modes of representation, perhaps less symbolic, more enactive or ikonic (but not only) that lead to the next stage of learning. This is what we know as 'spiral curriculum'</td><td>Revisiting<br>Learning everything is practically impossible – hence the need to revisit allows the learner to connect previous acquired to actual learning.</td><td>"The independent problem solver is one who rewards and punishes himself by judging the adequacy of his efforts. Equip him with the tools for thinking and let him be his own man."</td></tr>
<tr><td></td><td>The BLUE TEXT identifies the areas that are explicitly learner-centred in their approach.</td><td>The text in the yellow boxes links to a 'spiral curriculum' design</td><td></td></tr>
</table>

**Table 4.2:** A Data Display of A Theory of Instruction (Bruner, 1963).

Two papers by Bruner (1963; 1966) were identified in the purposeful sampling. The 1963 paper led to my development of a data display of his Theory of Instruction (Table 4.2).

Keeping the research question central to the analysis of the text was essential, as was staying mindful of the original objective of the study (Berg, 2004, p. 278). For this study, 'instruction' is only the result of a more complete ongoing process, which is The Coaches' Process of Knowledge Generation for CPP. Early in the analytical process, the focus was on optimal structuring and optimal sequence of knowledge (table 4.2). Later in the process of analysis, it started becoming evident that a Theory of Instruction is complementary to the *Model of Pedagogical Reasoning and Action* in view of the Coaches' Process of Knowledge Generation for CPP.

### *Framing Theory 3: Tactical Periodization*

Extracts from Oliveria's (2014a, 2014b) work on *Tactical Periodization* which set out the required structure of the concept of CPP were selected for analysis. The focus remained on the research question and ensured that that *Tactical Periodization* was only used to provide a framework for how to look at, and what to look for, in PoP in soccer.

My visual representation (Figure 4.2) integrates the 'Model of Play building phases' (Oliveira 2014a, p. 31) and clarifies the impact of the coach's idea of soccer on the PoP. Oliveira also highlights the influence of the players' characteristics on the system of play and then on the PoP as collective, sectoral, inter-sectoral and individual, that would be necessary during every moment of the game. I have drawn solely on Oliveira in this focus because Oliveira writes on *Tactical Periodization* in English. In addition, The Coaches' Process of Knowledge Generation for CPP does not consider all the principles of *Tactical Periodization* because not all are relevant in the process of generation of pedagogical tactical content knowledge. Some of the principles of *Tactical Periodization* are based on physiological assumptions or methodological approaches which are not the main focus of the study. This thesis focuses on the 'process of knowledge generation' of the coach from a *Pedagogical Reasoning and Action* point of view, which is intended at coaching (instruction) pedagogy.

***Integrating the Framing Theories***

This first stage of content analysis led to a visual representation which integrates the main purposefully sampled content showing my personal understanding of i) *Pedagogical Reasoning and Action*, ii) a Theory of Instruction and iii) Principles of Play (in *Tactical Periodization*). Through this process of making a visual representation, I was able conceptualise how the three areas might interact with each other and how the stages of each one of them could fit or interact with the others. Figure 4.3 shows the first integration of the three areas.

This informal and non-conservative process, could be viewed as the first stage of an '**open coding process**' (Berg, 2004) where **meaning units** were indirectly identified through the design of the first visuals and were unconsciously **labelled with a code** (the subheadings of each of the areas). Looking through an analytical and conceptual lens, I started identifying common concepts which integrate or relate to each other and which I thought could inform a Process of CPP, intended at coaching instructions through PoP.

Integration of the framing theories began by placing the visual representations next to each other, to begin visualising how the main framing theories could contribute to the development of The Coaches' Process of Knowledge Generation for CPP. This was an important pragmatic analytical exercise, which led to categorisation (Bengtsson, 2016).

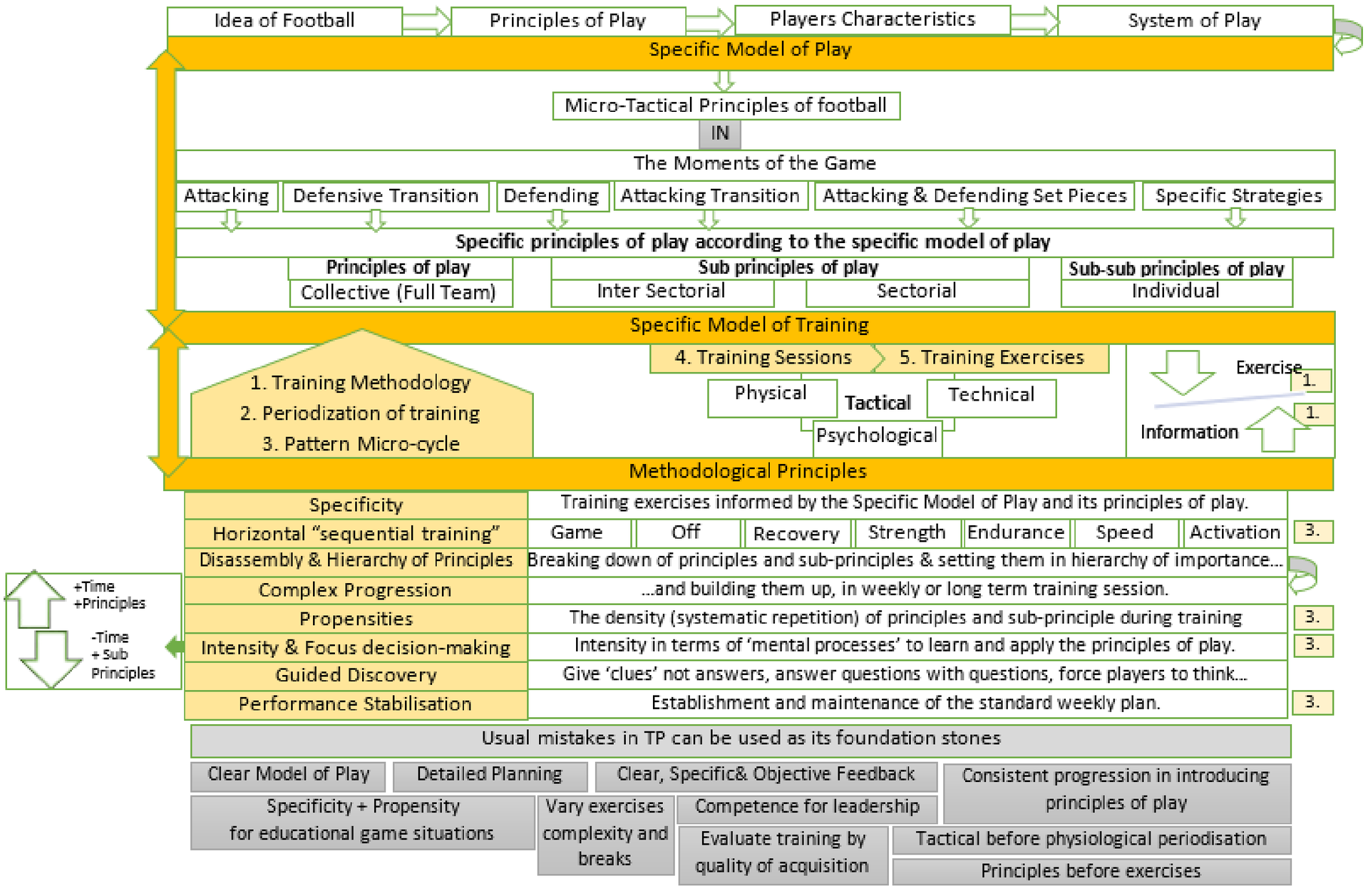



***Figure 4.2:*** *Data Display – My interpretation of Tactical Periodization after a second reading of the two main texts (Oliveira, 2014b, 2014a).*

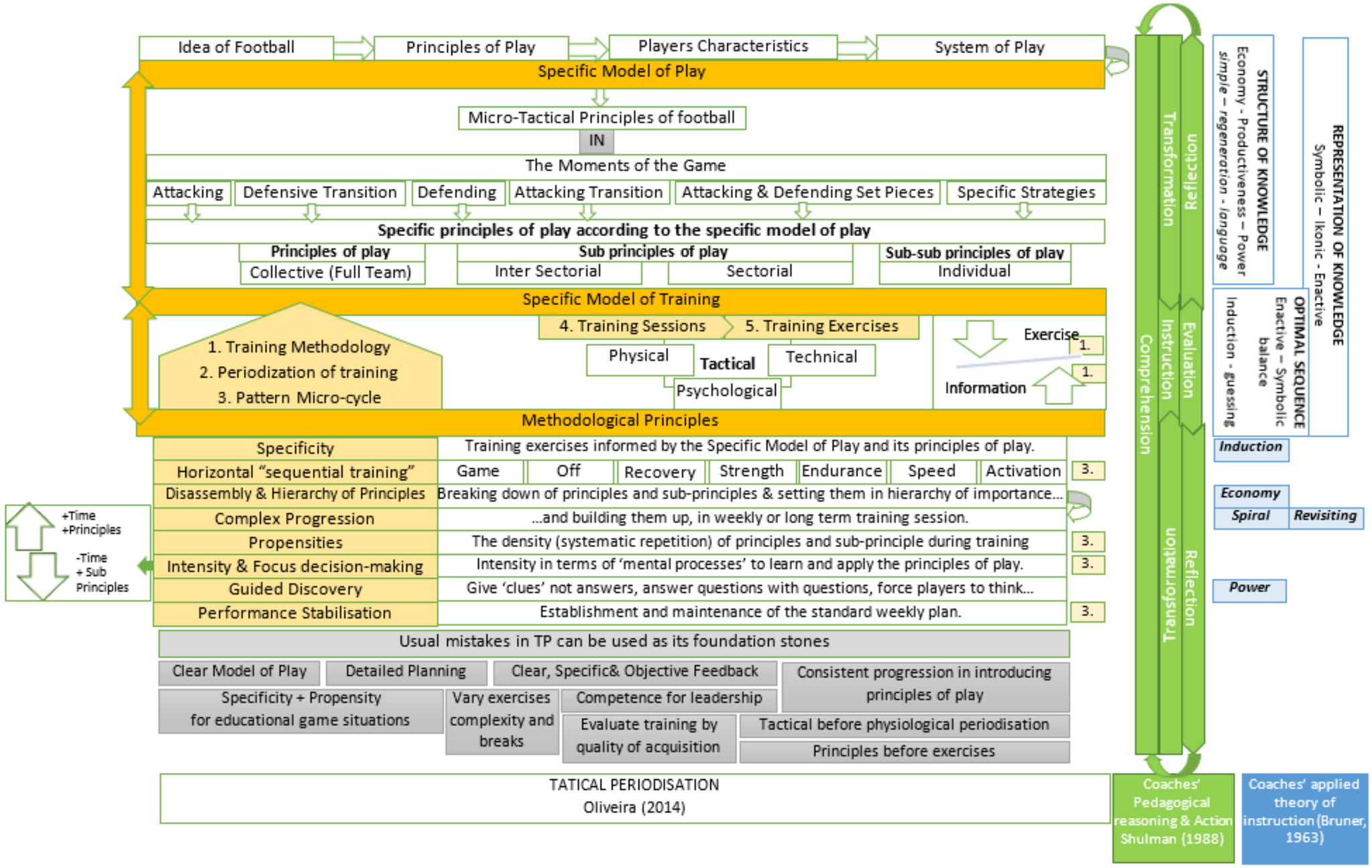



**Figure 4.3:** Data Display - A representation of the authors' ideas (Bruner, 1963, 1966, Oliveira, 2014b, 2014a; Shulman, 1987).

### *4.3.3.2 Categorisation following data displaying and analysis*

The process defined so far serves multiple purposes. The displays condense and display data, show a “logical chain of evidence”, which aids transparency in the research process and are a way of “teasing out promising analytical lines of enquiry” (Williamson & Long 2005, p. 9).

The process of creating data displays created through a process of condensing, categorising and analysing, form a catalyst for an automatic pattern and category extrapolation. This stage involved a considerable amount of conceptual thinking and drawing, with the intention of reaching an understanding of how each data display interrelates with the other, what ‘*jumps out*’, what patterns exist in each data set, and which sub-category fits in which theme (Miles & Huberman, 1994).

By integrating all the visuals together (Figure 4.3), I was able to extract a list of themes, categories and sub-categories. The process of categorisation up to this stage is presented in a transparent manner in Appendix 4.2. Central to the process of categorisation was the phenomenon being studied and the way each set of data fits the phenomenon.

It is important, at this stage, to clarify that the three theoretical framing pillars were separate and unrelated, until they were brought together in this study. There is no assumption that either Shulman (1987) or Bruner (1963, 1966) were thinking about the sporting context, more specifically a context which considers CPP, when they were writing their work. However, in my analysis of their content, with my focus always kept on coaches’ generation of pedagogical tactical content knowledge, I could, as seen in Figure 4.3, begin to see interactions between the different data sources.

It is worth noting a detail which shifts emphasis from an equal consideration of the three main areas of this study, towards putting more weight on Shulman’s (1987) work. This study essentially addresses the ‘*Pedagogical Reasoning and Action*’ of the coach who engages in CPP, and clearly Shulman's (1987) work fitted well as the foundation of this study, with the main themes being those proposed by Shulman’s whose concept of selection or adaptation, formed some categories of the study. I drew on Bruner's (1966, 1963) work to create sub-categories which allowed deeper focus on how a

process of '*Pedagogical Reasoning and Action*' might be aimed at instruction. Finally, the conceptual grounding of this study was directed at PoP by applying sub-categories which emerged from *Tactical Periodization* (Oliveira, 2014a, 2014b).

## 4.4 ANALYSIS PHASE 1.2

Understanding and accepting the bias placed on the interpretation of data (Creswell, 2014) allows me, to look for a strong structure of analysis. Through the first part of the analytical process, I worked with the data to make my own subjective sense of it, in the context of the studied phenomenon. Welsh (2002) suggests that manual methods of analysis are most probably the only way one can examine thematic ideas and gain a deep understanding of data. However, the combination of manual and computer-assisted methods leads to the best possible results (Welsh, 2002). For this reason, following a manual analysis, I opted for computer-assisted qualitative data analysis with the intent of increasing accuracy and transparency in the understanding and analysis of data (Ryan & Bernard, 2003; Welsh, 2002).

### 4.4.1 Using NVivo in Qualitative Content Analysis

To distance myself from data again, I initiated computer-assisted analysis (Welsh, 2002) three months after I finished the manual analysis process. The process of a Qualitative Content Analysis from planning to presentation (Bengtsson, 2016) was rigorously applied using the Pro edition of NVivo 11 for Windows. Reports generated within NVivo 11 were transferred to MS Excel 2013 to obtain more manipulability of the reports. As shown in Figure 4.4, this part of the process builds rigour and adds to the trustworthiness in this study.

#### *4.4.1.1 Triangulation*

Triangulation was applied to increase trustworthiness by incorporating several viewpoints and methods (Yeasmin & Rahman, 2012). Repeating the decontextualisation stage after three months, allowed me to validate my own work to a certain extent, looking at the text with a fresher outlook. This process made it possible to check on the previous coding process, selection of meaning units, categorisation, and understanding of how these interrelate within the concept being studied.

The inclusion of the three framing concepts, the *Model of Pedagogical Reasoning and Action*, *Theory of Instruction* and *Tactical Periodization* have contributed to ***theoretical triangulation***. ***Methodological triangulation*** was obtained by applying manual and computer-assisted analysis in phase one. It was also obtained by applying document analysis in phase one, and semi-structured interviews in phase two (Denzin, 1970; Yeasmin & Rahman, 2012)..

***Data triangulation*** was obtained by applying QCA on the existing literature to form the first Coaches' Process of Knowledge Generation for CPP and (expert coaches) to populate the conceptualisation further.

While it was not practical to incorporate ***investigator triangulation*** (Archibald, 2016; Tobin & Begley, 2004; Yeasmin & Rahman, 2012), I decided to include two sports lecturers to verify my work at different stages. One of the lecturers is a final year PhD student and was very influential in my approach to this study and in the visual development of the Coaches' Process of Knowledge Generation for CPP. The other lecturer, a UEFA A coach, reading for a Masters in Coaching, was very critical of the conceptualised process across its stages of development. He raised various questions, requiring me to revisit the data at various times to ensure that I represented pertinent conclusions. A third investigator, a UEFA PRO coach was only involved (Appendix 3.6) in confirming my *Tactical Periodization* visual representation.

### 4.4.2 Stage 1 and 2 – Decontextualisation and Recontextualisation

Appendix 4.1 provides a step by step visual explanation of this phase of analysis, while the remainder of this chapter explains further detail.

While I understand why Bengtsson (2016) sees preconceived knowledge as an advantage, I find relevance in her own warning about the influence of subjectivity on interpretation and analysis. One way of increasing credibility of content analysis is by trying to assure that no irrelevant data has been added, or no relevant data has been excluded from the covering categories (Graneheim & Lundman, 2004). Although as suggested by Bengtsson, I seek confirmation (at a later stage) from experts (participants), I have decided to test my own subjectivity by repeating the process – a form of internal verification.

Although I was already familiar with the text being analysed, and although categories were already formed in the previous part of the study, I

wanted to add credibility through further rigour. This was achieved by repeating the whole process once again as if I had not been through it. The five publications were imported into and read on NVivo directly. In this phase, it was not possible to decontextualise with the text, as despite the three-month break since the previous reading, I remained familiar with the text. Therefore, I saw no value in repeating the holistic reading and progressed directly to selective reading which was the 5th reading of key sections and chapters.

Open coding was applied inductively again. Relevant meaning units were coded, and a new set of codes were created, without looking back on the work being done in the previous process. This allowed me to check the rigour of my work through triangulation (Figure 4.4) which was achieved by comparing the two sets of analysis. Categories that re-emerged strengthened their position while those which did not come up in the second stage of analysis or which were altered in any way could be challenged. In the case of the latter two situations, I kept revisiting the text until the coded parts were either confirmed or rejected (Table 4.3).

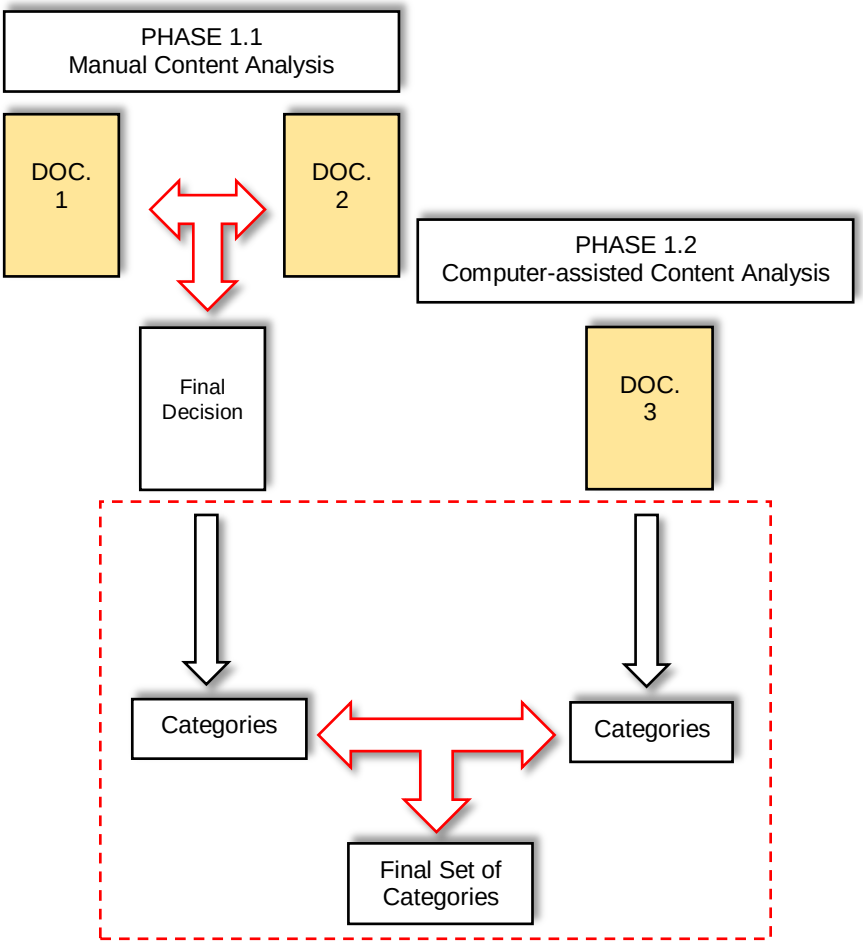



**Figure 4.4:** The second and third triangulation processes.

| Themes | Categories | Sub-Categories | Sub Level 2 |
|---|---|---|---|
| Predisposition | Coach's Predispositions | Coach's Philosophy of the game | |
| | | Coach's knowledge and preferences about the system of play, a model of play, and style of play. | |
| | | Coach's knowledge and preferences about principles, sub-principles and their subordinates. | |
| | | Personal Objectives | |
| | | Existing Knowledge | |
| | | Coaching Methodology | Philosophy |
| | | | Planning |
| | Environmental Predispositions | Club's Objectives | |
| | | Culture and Attitudes | |
| | Individual Predispositions | Players' Characteristics | |
| | | Learning predisposition | |
| | | Players' Objectives | |
| ~~Comprehension~~ Acquisition | A clear understanding of Subject Matter | | |
| | A clear understanding of the Context | | |
| | Sources of knowledge | | |
| | Detection and correction for teacher's understanding and suitable for teaching. | | |
| ~~Transformation~~ Preparation | Preparation of text into a structured curriculum | Simplification of knowledge (Economy) | Breaking down MoP, PoP |
| | | Structure of knowledge (Productiveness) | Hierarchy of Importance of PoP |
| | | Language (Power, Symbolic) | |
| | | Symbolic Representation – using words | |
| | Representation – such as examples and demonstrations. | | |
| | | Enactive Representation – by doing | |
| | | Ikonic Representation – using the image | |
| | Selection – methodological and organisational | Sequence "In what order do we present things?" | Progression & periodization of PoP |
| | Adaptation to learner's characteristics | | Considering consensual target |
| | Considering contextual predisposition | | |
| | Curriculum Design | | |
| | Training Sessions Design | | |
| ~~Instruction~~ Dissemination | Coaching Delivery | | |
| | Coaching Methodology | | |
| | Feedback and Instruction | Questioning and Probing | |
| | | Answering and Reacting | |
| | | Praising and Criticising | |
| | Checking Learning | | |
| ~~Evaluation & Reflection~~ Regeneration | Evaluation | | |
| | Reflection | | |
| | New Comprehension | | |

| Shulman | Bruner | Oliveira | New |
|---|---|---|---|
| *Pedagogical Reasoning and Action* | *Theory of Instruction* | *Tactical Periodization* | Newly included categories |

**Table 4.3:** The Coaches' Process of Knowledge Generation for CPP 1.2. Categorisation table for Phase 1.2.4.4.3 Stage 3 – Categorisation

When all data was internally homogeneous or externally heterogeneous (Bengtsson, 2016), and when I was comfortable with the coding process, I felt I could start categorising the coded meaning units.

Like Bengtsson (2016), I find computer-programs to be helpful in speeding up processes, but soulless, hence not necessarily relevant in data analysis. After coding and categorising the data with NVivo, I decided to export the list of codes and subcodes (to the 8th level), together with their respective meaning units to Microsoft Excel 2013.

Considerable work was done at this level to condense extended meaning units. A decision needed to be made upon the extended level of sub-categories. Sense needed to be made of all the sub-categories, until they were reduced (Burnard, 1991) to a strong structure, without having too many unnecessary categories, but still enough to explain the researched area in detail.

In an attempt to help the readers contextualise their understanding of this study, I tried to obtain transparency (France et al., 2014) by providing a clear picture of how my analysis progressed. This should reduce the likelihood of "allegations of "unthorough" research practices" (Welsh, 2002, p. 4). Table 4.3 shows the categorisation structure created and indicates the new areas (in red) being identified through the second part of the study. An analysis schedule is also presented in Appendix 4.3.

## 4.5 ANALYSIS PHASE 2.1

After conceptualising the Coaches' Process of Knowledge Generation for CPP (version 1.1 and 1.2 presented in appendix 3.2 and chapter 5 respectively), I embarked on furthering my understanding of this phenomenon by engaging expert coaches who were asked to look at version 1.2 and offer their critique of it and to populate the understanding of the phenomenon further. Through this part of the study I sought to provide a deeper contextual foundation while minimising biases (Yeasmin & Rahman, 2012). Ten expert soccer coaches with experience in CPP have had the opportunity to go through version 1.2 of The Coaches' Process of Knowledge Generation for CPP including the simplified explanation and the diagram presented above. In various one-on-one discussions with me, both as the researcher and an expert colleague, they had

the opportunity to criticise the model according to their own experience and knowledge.

### 4.5.1 The Process of Qualitative Content Analysis

After creating the 'theoretical' conceptualisation (1.1 & 1.2), I could follow Elo and Kyngäs' (2008) suggestion to take a deductive approach to test the 'theory' I departed with. This approach is supported by Qualitative Content Analysis which may be used both in an inductive and deductive manner. While prior to this study there was no or very limited research in the field of study, the data made available and the reflective analytical process obtained in the first phase of this study made it possible to create a deductive list of codes to be used in this phase of analysis. This shall aid in increasing trustworthiness (Shenton, 2004).

Videos or audios of the ten interviews and notes scribbled on the document given to each of the coaches to criticise (DC-A1 P2 – Process of CPP Expert Coaches – Process of CPP Document for Coaches.pdf) were analysed. The interviews held between February and May 2017, amounted to some 809 minutes of interview recordings and 32 pages of interview notes made during the interviews. The 'process of Qualitative Content Analysis from planning to presentation' (Bengtsson, 2016) was applied once more. A total of 700 meaning units were identified as relevant for the development of the studied phenomenon.

### 4.5.2 Computer-assisted Content Analysis

Qualitative Content Analysis from planning to presentation (Bengtsson, 2016) was once again applied in this process of analysis. The Pro edition of NVivo 11 for Windows was used to analyse each recorded interview and the notes made by each coach on their respective documents. At the end of the coding process, reports were generated within NVivo 11 transferred to MS Excel 2013 for further manipulability.

This process was intended to obtain empiricism and a higher level of validity, hence a truthful empirical image of the real process (Yeasmin & Rahman, 2012). This study engaged in a triangulation approach which incorporated different views, different methods of analysis, and different stages

of analysis together with different methods and stages of data collection (Shenton, 2004).

### 4.5.3 Qualitative Content Analysis through direct Video and Audio Coding instead of transcripts

Audio or video recorded interviews are traditionally transcribed (Bengtsson, 2016). Transcription is taken as the standard in qualitative studies, sometimes presented as unproblematic, but often overlooking the need for researchers to be skilled in its application. Although transcription has evolved in parallel to the evolution of technology (Davidson, 2009), it seems that few researchers have as yet considered the possibility of coding directly from audio or video recorded interviews, without engaging in the step of transcribing.

The term ‘data collection’ can be misleading because data is not “out there waiting for collection”. Data collection is influenced by the researcher. The transcription process, data selection, techniques used during data collection and many other subtle decisions directly influences what kind of data is collected for the purpose of the research (Dey, 1993, p. 16). Efficient data management is a prerequisite for good analysis. However, this is not an easy feat when considering the difficulty entailed in data recording, especially when transcribing a video or audio recordings (Dey, 1993, p. 77).

While transcription might be necessary when studying the structure of a conversation and the subtleties of expressions such as “speed, tone of voice, emphasis, timing and pauses” (Bengtsson, 2016, p. 11) during the interview, it is not necessary when one is only looking for the words being spoken (QSR International, 2014). Knowing that qualitative researchers are concerned with quality and trustworthiness of transcriptions, I suggest that with the use of technology, specifically the new version of NVivo, it is reasonable to forego transcription and code video or audio files directly (Markle, West & Rich, 2011) when transcription is not deemed a research necessity. This innovative method is known for time efficiency, allowing more time for more rigour, deeper analysis and width of the engaged sample (Rambaree, 2007).

On the basis of this argument, I exploited the benefits of new technologies and opted to directly code the video recordings, allowing myself more time to focus and go through the recordings with an analytical approach.

This also removes an extra step in between data collection and analysis, thus limiting the possibilities for mistakes or misinterpretations, and limiting loss of meaning and interpretational bias.

### 4.5.4 Computer-assisted Content Analysis on Coaches' Interventions

This section gives a detailed explanation of the process of analysis undertaken in phase two of this study. Appendix 4.4 provides a step by step explanation of this phase of analysis whilst this chapter offers a more detailed account of the tools and methods of analysis, rationale for using direct coding instead of transcribing interviews, and a step-by-step explanation of the analysis process for the sake of replication to demonstrate integrity and reliability. It is important to point out that although Bengtsson (2016) refers to reading as the way to analyse textual sources, in the following I mostly refer to 'listening to' recorded videos or audios, in the process of direct analysis as suggested by Markle, West and Rich's (2011).

### 4.5.5 Stage 1 - Decontextualisation

**Interviewing and listening to recordings:** Scanned copies in PDF format of the scribbled-on documents and the interview video recordings were imported in NVivo for analysis. I also took notes of the participants' contributions which were written down on a copy of the document provided two days prior to the interview. One coach also provided me with his own notes on the provided document, thus I analysed both his notes and my notes together with the video recording.

Despite being the interviewer myself, it was still very important to listen to each recording and familiarise myself better with the content of the recordings. The coding process started during the second hearing of each recorded interview.

**Coding List:** Deductive coding was applied in this phase. Codes/nodes were created before I started coding (Appendix 4.5). These were based on the final set of categories shown in Table 4.3. Before confirming these categories, I also went through a comparison process to check that the categories chosen, fully reflected the terms used in the coaches' data. A more colloquial language was used so that coaches would better understand the points of discussion.

This exercise, shown in Appendix 4.5, indicated a strong congruence between the two sets of categories.

Given that the discussion with the participating coaches followed the categories included in The Coaches' Process of Knowledge Generation for CPP 1.2, the deductive categories created in NVivo followed the same structure (Appendix 4.6). I also decided to (i) dedicate one category to objectives, (ii) retain 'build-it' under acquisition of knowledge, (iii) retain 'adapt-it' under 'prepare-it', and (iv) retain 'integrate it' under 'operationalise-it'. I also deemed it relevant to re-include two categories ('checking learning' and 'new comprehension'**)** which were part of the categorisation for 1.1 but not explicitly showing in The Coaches' Process of Knowledge Generation for CPP version 1.2. These were included under 'Dissemination of Knowledge' and 'regeneration of knowledge' respectively. No other major changes were made at this stage of the study, partly because I expected major restructuring to be implemented at a later stage in this process.

**Open Coding and Memos:** This list of themes, categories and sub-categories served as the list of codes used for coding in NVivo. This deductively created list (Appendix 4.6), and the description of each code, were entered in NVivo to increase the reliability of the coding process (Catanzaro, 1988). Each relevant meaning unit was coded under its respective 'node' while the remaining non-relevant content (speech or text) was marked as dross. Reflective notes (memos) were taken during the coding process, at any time when data led me to a conceptual revelation.

### 4.5.6 Stage 2 - Recontextualisation

When using NVivo it is much easier to assure that ***all the content*** has been coded appropriately (Figure 4.5), by simply opening each data source and confirming that it was all highlighted (coded). Listening to the audio/video while looking at the 'coding stripes', I could easily compare the content to its attributed node, including the unwanted content, which was coach Marked as 'dross'. When I was not sure of the relevance of that data to its attributed node, I re-listened until I could take a better-informed decision.

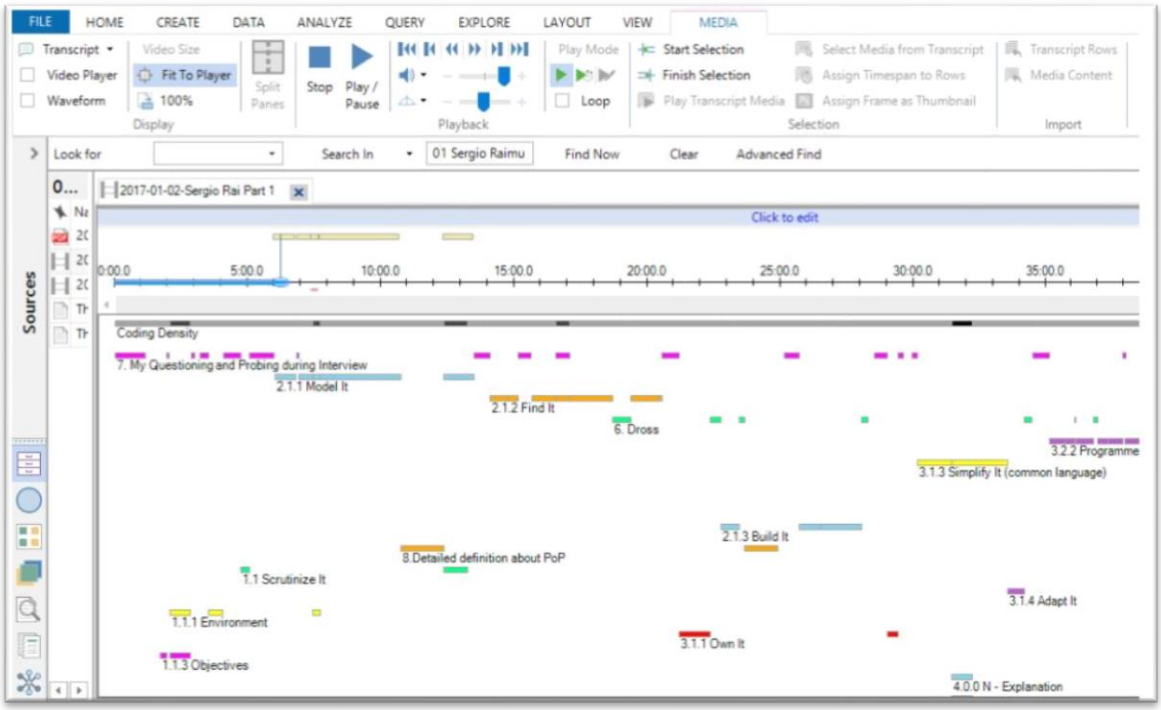



**Figure 4.5:** A screenshot of interview coding on NVIVO.

### 4.5.7 Stage 3 - Categorisation

The thorough categorisation process has been entirely held on MS Excel 2016. A Nodes Codebook was exported from NVivo and each code was recreated in Excel with the main, secondary codes, third and fourth level codes entered as themes, categories, sub-categories and sub-sub-categories respectively. At this stage, I went through each meaning unit in NVivo once more, to copy and enter each meaning unit in this “categorisation process” Excel file. I placed each meaning unit adjacent to its respective theme, category and sub-category as applicable. I entered the source name (participant’s name) and gave a reference number to each meaning unit. At this stage, I could automatically create a **condensed meaning unit** as representative as possible to the concept presented by the meaning units (participants words). This process was yet another **categorisation verification** opportunity. I could once more – as per recontextualization stage, check if the meaning unit fitted well in its respective category or if it needed to be moved. Several changes were made at this stage. Some of the meaning units were divided into smaller parts as different parts were reflecting a different argument hence a different category.

Once all the whole units were entered, I went through all the condensed meaning units and reflected on its categorisation. This process led to the development of a whole new theme, and several new categories and subcategories. It also led to the understanding of sub and sub-sub-categories, which served as a clearer explanation of the meaning of each theme and its subdividing categories (Appendices 4.7 and 4.8).

## 4.6 CONCLUSION

This chapter has provided a thorough explanation of the analytical process and how the data was synthesised to develop the final conceptualization (2.1) of the Coaches' Process of Knowledge Generation for CPP. This chapter does not provide the final findings, rather it has given a detailed explanation of *how* the conceptualization process took place. Further trustworthiness is mainly obtained through the transparent description of the process of analysis, amongst other methods (Graneheim & Lundman, 2004).

The next chapter presents the emerging conceptualisations (1.1, 1.2 and 2.1). The final conceptualisation (2.1) is discussed in chapter six. Appendix 1.1 presents two models of play by two of the participating coaches, who shared their Subject Matter Content Knowledge which was transformed into Pedagogical Content Knowledge and finally into Curricular Content Knowledge within a Model of Play (curriculum).

Thus far in this thesis, I have generated my conceptualisation of the Coaches' Process of Knowledge Generation for CPP, in relation to Shulman's (1987) *Model of Pedagogical Reasoning and Action*, Bruner's Theory of Instruction (1963, 1966), and *Tactical Periodization* and Teachers' Knowledge. It is important - at this point - to acknowledge that these findings could also be considered from other perspectives drawn from other sources of literature. This lies beyond the scope of this thesis.

Having explained the process of analysis in detail, the next chapter will present the main findings of this study. This will be obtained by presenting all the versions of the conceptualised process.

# CHAPTER 5

# THE CONCEPTUALISATION OF THE COACHES' PROCESS OF KNOWLEDGE GENERATION FOR COACHING THROUGH PRINCIPLES OF PLAY. FINDINGS LEADING TO VERSIONS 1.1, 1.2 AND 2.1

## 5.1 INTRODUCTION

In the previous chapter, I focused on presenting the first three stages (decontextualisation, recontextualisation and categorisation) applied during qualitative content analysis. In this chapter, I will present the fourth stage, “Compilation’ (Bengtsson, 2016, p. 9), with the aim of finding the “essence of the studied phenomenon” (p. 12). This will be done by presenting the conceptualisations in their respective order, which went hand in hand with the process of analysis, in Chapter four. Conceptualisation 2.1 which is presented at the end of this study builds on the previous conceptualisations, namely 1.1, and 1.2 which have developed following analysis phases 1.1 and 1.2 (presented in Chapter 4).

The Coaches’ Process of Knowledge Generation for CPP sets out a pedagogical ‘reasoning’ process, aimed at coaching action within a pedagogical perspective. This process looks at the generation, transformation, dissemination and regeneration of knowledge and the steps within that process. The data analysed led to version 1.1 of the outline process for Knowledge Generation for CPP.

This chapter will show conceptualisations emerging from the data analysed. The three presented emergent concepts should not be regarded as separate, but as stages where each one leads to the next level of conceptualisation. These were derived through a ‘debate of ideas’ (Jones & Ronglan, 2018) influenced by my positionality and by what the data was telling me, in view of the studied phenomenon. The first level of conceptualisation (version 1.1) and the second level of conceptualisation (version 1.2) were developed through an analysis of the selected publications. The interventions of expert-participating coaches have populated the final conceptualised process (2.1) which includes six components, namely; Scrutiny of the Environment, Conceptualisation, Generation of Knowledge, Transformation of Knowledge, Dissemination of Knowledge, and Regeneration of Knowledge; and their respective sub-components.

## 5.2 USING VISUAL DISPLAYS

The conceptualisation of the Coaches' Process of Knowledge Generation for CPP presented in this chapter, aims at providing an epistemological an ontological and a methodological (Lincoln & Guba, 2013) understanding of the process coaches need to engage into, to generate contextualised pedagogical tactical content knowledge when coaching soccer. In order to graphically depict the relationships between components and sub-components, I opted for a 'Network Visual Display' as per Verdinelli & Scagnoli (2013).

Similarly to pre-doctoral student Leigh Star (Strauss, 1987, p. 179), I did not leave the use of the visual displays or as Strauss calls them, the "visual stories", as useful organisational tools, only for the final write-up. For me, the visual displays, or as I call them, visual representations, took life in the early analysis stages (see figures 5.3 to 5.8). They became an important tool, which I continued to develop further, as a means of giving greater conceptual order to the data. Finally, visual representations were used to provide a complete visual rendition of "what [was] going on with the phenomena under scrutiny" (p. 143). I found this to be a 'soulful, life-giving' process for my data set. The continuous development of visuals of data, allowed me to stay close to the data as much as possible. Faithfulness to data was maintained by rigorous internal and external verification processes (Creswell, 2014) as described in Chapter 3. This cautiously contributed to the accuracy of the visuals and aids in the attempt to represent an accurate or an approximate visual rendition of "what it takes verbally to characterize the publication's elicited analytic structure" (Strauss, 1987, p. 250). Williamson and Long (2005) emphasise the importance to remain truthful to data and suggest that, while simplification is an important aspect of data displays, over-simplification should be avoided. This is also important in view of the coaching ontological reality. As expressed by the concept of coaching 'orchestration', it is possible to recognise coaching as ambiguous and complex, while conceptualising it (coaching) as "a system comprising manageable complexity" (Jones & Ronglan, 2018, p. 913).

In recognising coaching as ambiguous and problematic (Cushion, Armour, & Jones, 2006; Jones, Armour, & Potrac, 2002; Jones & Wallace, 2006) I strived not to end up with an unrealistic and unproblematic representation of the same coaching. Following the stages of theoretical

conceptualisation (1.1 and 1.2), during my discussions with the expert coaches, I asked them the following questions:

1. *How important do you consider this process for CPP in soccer?*
2. *Would you design it differently? What would you change?*
3. *Would you include or present any other area that is not included in this version?*
4. *Question 1 was repeated a second time.*

In working through the responses allowed I followed Williamson and Long's (2005) suggestions to return to the dataset and ensure that the visual display provide a faithful representation of what the participating expert coaches expressed.

There were 44 instances in which coaches commented on the design. In 17 instances, 7 of the 10 participating coaches confirmed the presented conceptualisation (1.2). The other 3 did not show disagreement at any point with the general concept behind it.

Coach Ray expressed his belief that this concept is applicable to any sports coach who wants to CPP. With reference to the coaching domains (Lyle, 2002) , he finds this model to be applicable to both the development coaching and performance coaching, but not to participation coaching.

Coach Soldano, claims that he has been using a similar process to the one presented in this study since the 1990's. Coach Fannar reported that he uses 'scrutiny of the environment' before he accepts a new job. Coach Joseph agrees that this concept represents the way he works and shares the belief that many coaches already go through the presented process, tacitly. Coach Andy confirms that the presented conceptualisation matched the process that he goes through from the moment he is in his room thinking about a session, at home, to the moment he is on the field of play. He clarifies that some areas may be more important than others at different stages, and the process would allow him to focus on any of the areas as much as needed within the respective context. As an ex-soccer coach, who has now taken more the role of educator, coach Andy feels confident in including this model "as the first iteration to coaching". "…at each level, depending on the level of the coach, I can build my curriculum of coaching education" on this conceptualisation.

Coach Paul shares a very similar thought to coach Andy. As a PE teacher and one of the main soccer coaches in Malta, coach Paul shares that differently from his early years in coaching, his experience now makes him believe that academic understanding of the coaching process is important. He emphasises that this process is a necessity when it comes to coaching through PoP. He finds the Coaches' Process of Knowledge Generation for CPP to be an important tool to prepare, adapt and evaluate better. "This is a guideline for coaches who CPP" he emphasises.

The fact that participants have confirmed that this is, broadly speaking, what they do in practice, might diminish the innovative nature of this study. However, this study stands to be important as it is important for research to understand and be able to initiate an articulation of what coaches may do when generating their knowledge. If this is exactly what coaches do in practice, this study is explicitly expressing what is implicit in nature. This also assists in furthering our understanding of the concept of CPP. Also, it is imperative to understand that while these coaches might be going through this process already, many others, might be struggling to generate the necessary knowledge (Harvey & Jarrett, 2014; Mitchell et al., 2013; Roberts, 2011)

## 5.3 THE NATURE OF KNOWLEDGE IN VIEW OF THE COACHES' PROCESS OF KNOWLEDGE GENERATION FOR COACHING THROUGH PRINCIPLES OF PLAY.

The five publications that constitute the data for this part of the study, revealed the importance of 'the nature of knowledge' and 'the nature of the knower' (Bruner 1966, p. 72) as a foundation for the process under study. The process of knowledge generation, by the soccer coach (knower), depends on the nature of the knowledge the knower/coach needs to generate and the needs of the knower/coach per se. It is not possible for the knower to engage in the Coaches' Process of Knowledge Generation for CPP without knowing the type and source of that knowledge. Shulman's (1987) perspective gives detail in the categories of the knowledge base. He argues that to begin a knowledge generation process, coaches must first comprehend knowledge (Shulman, 1987) themselves. I suggest that there must be awareness of the kind of

knowledge required before being able to generate it (Appendix 1.1 is an example). It is also imperative for the knower, as the learner, to understand the various interrelated categories of knowledge (Shulman, 1987).

*Tactical Periodization* highlights the importance of the PoP as the main Pedagogical Tactical Content Knowledge necessary to structure soccer coaching scientifically, and the soccer learning process (Delgado-Bordonau & Mendez-Villanueva, 2012; Oliveira, 2014b, 2014a). It identifies the importance for the coach to understand "the nature of the knower**"** (Bruner 1966, p. 72), claiming that the coaches would be able to develop a specific Model of Play (Oliveira, 2014a) based on their '*idea of soccer*' together with their knowledge about PoP and characteristics of the players available (knowledge of learner and their characteristics). Consequently, the development of Models of Play can guide the coach to understand further the nature of knowledge needed when CPP.

## 5.4 THE COMPILATION OF VERSION 1.1

In this section I will only introduce and present the visual representation of the first level of conceptualisation (1.1) which was obtained through the first phase of analysis of the selected content. Figure 5.1 is a visual intended at complementing the textual explanation and in the simplified Table presented in appendix 3.2. Although this was only the first conceptualisation of the Coaches' Process of Knowledge Generation for CPP, it becomes immediately evident that this process, is of a pedagogical nature.

However, even at this early stage, the visual representation (version 1.1, figure 5.1) showed a process, which lacked depth of understanding of the phenomenon and did not clearly represent how the same process engages with the concept of CPP. Furthermore, the arrows in the middle and the four equally sized coloured quarters gave an unrealistic impression which might suggest coaching to be linear, cyclical and unproblematic in nature.

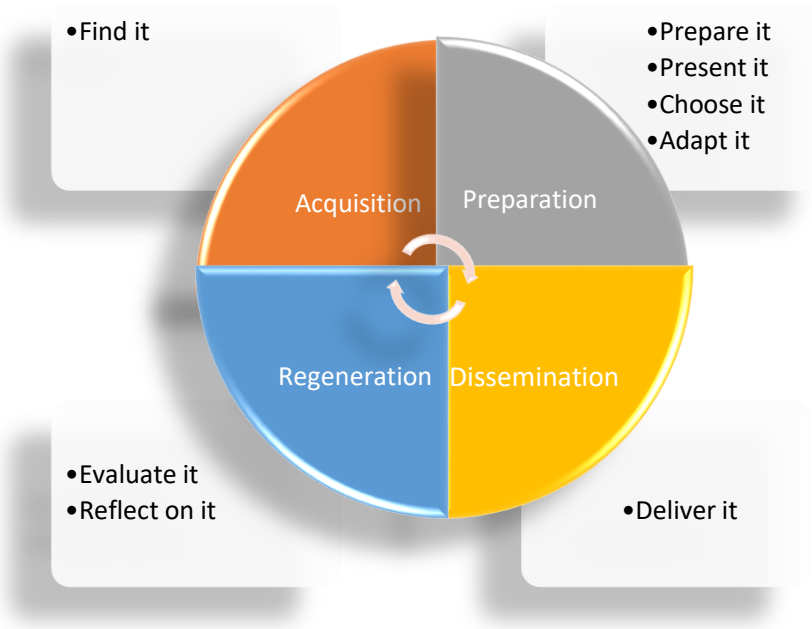



***Figure 5.1:*** *The Coaches' Process of Knowledge Generation for CPP version 1.1. A Visual Representation.*

## 5.5 THE COMPILATION OF VERSION 1.2

As explained in Chapter 4, after compiling version 1.1 of the conceptualised phenomenon, a deeper analysis of the selected data was performed on Nvivo (Section 4.4). This led to the re-structuring and re-development of a more detailed conceptualisation of the examined process (1.2).

### 5.5.1 The Conceptualisation of the Coaches' Process of Knowledge Generation for coaching through Principles of Play – Version 1.2

This section presents the Coaches' Process of Knowledge Generation for CPP version 1.2, in three complementary formats. Figure 5.2 is a visual intended at complementing the textual explanation and in the simplified explanation table (Table 5.1).

Whenever I reached a theoretical saturation point (Barnett-Page & Thomas, 2009; Campbell et al., 2011), I allowed myself time away from data. I then I went back a stage and checked if the data could tell me anything else. When it became evident that additional analysis was not yielding new discoveries about a category (Strauss, 1987), I moved on to compile The Coaches' Process of Knowledge Generation for CPP version 1.2.

The changes made through the categorisation process are reflected in this compilation. The second version of The Coaches' Process of Knowledge Generation for CPP, includes several differences from the first version created in the first part of this analysis (Appendix 3.2). Once again, The Coaches' Process of Knowledge Generation for CPP 1.2 is presented in further detail (Figure 5.2), with changes made from the first version coach Marked in blue (table 5.1).

### 5.5.2 A Simplified Explanation– Version 1.2

| # | Type | Nature of knowledge | Where / Notes | Shulman | Bruner 1963 | | Bruner 1966 | TP |
|---|---|---|---|---|---|---|---|---|
| **Coaches' Scrutiny of their Environment** | | | | | | | | |
| **Scrutinize it** | | | | | | | | |
| 1 | Environment | - Club's Philosophy,<br>- Club's History<br>- Freedom to work<br>- Interactions | Research, discussions, agreements | Comprehension of purpose, knowledge of learners and their characteristics, | | | Predispositions (1966) | Situational Analysis |
| 2 | Players | - Characteristics<br>- Experiences<br>- Potential<br>- Needs | Research, match analysis, videos, discussions with the same players | | | | | |
| 3 | Objectives | - Expected Objectives<br>- Possible Objectives<br>- Necessary Changes<br>- Model of Play | A regulated result of the relationship between environment, players and coach. | | | | | |
| 4 | Myself (Coach) | - Knowledge<br>- Personality<br>- Pedagogical Approach<br>- Coaching Methodology<br>- Game Philosophy | Self | | | | | |
| **Coaches' Acquisition of Knowledge (Collection)** | | | | | | | | |
| **Identify it** | | | | | | | | |
| 5 | Model it | Idea of soccer<br>Model of play<br>- Moments of the Game<br>- Phases of Moments<br>- PoP (sub…)<br>- Set objectives | Within personal opinion and preferences, relating to scrutinized factors | Comprehension | Economy | Productiveness | | |
| 6 | Find it | All the above and below | Deep match analysis<br>Books, videos, discussions etc.<br>Discussions with coaches | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | Build it | - General principles<br>- Moments and Phases<br>- Sub, sub-sub-principles<br>- Collective principles<br>- Sectoral principles<br>- Inter-sectoral principles<br>- Individual principles | Curriculum Design | | | | Non-specific transfer – transfer of principles and attitudes. | |
| **Coaches' Transformation of knowledge (Analysis and Representation)** | | | | | | | | |
| **Prepare it** | | | | | | | | |
| 8 | Own it | Critically interpret and analyse the above-acquired knowledge and the newly generated knowledge | | Transformation – Preparation | Economy, Power | | | The organisation of the training process |
| 9 | Segment it | Based on general, collective, sectoral, inter-sectoral and individual principles | *Note: consider the spiral progression of knowledge and revisiting of knowledge* | | | | | |
| 10 | Simplify it | - Common Language (verbal and conceptual) | | Transformation – Selection – Adaptation | | | | Fractals? Complex |
| 11 | Adapt it | According to the latest analysis,<br>According to individuals<br>According to the model of play according to opponents etc. | | | | | | |
| **Plan it** | | | | | | | | |
| 12 | **Sequence it** | - Per players' needs<br>- in line with objectives set<br>- according to periodization<br>- hierarchy of principles | *From Scrutinize it* | Preparation | | | Sequence | Specificity |
| 13 | **Programme it** | - Morpho-cycle / Micro-cycle<br>- Meso-cycle | | | | | | Systematic |
| **Operationalise it** | | | | | | | | |
| 14 | Verbalise it | Coaching cues that simplify each principle may help during instruction | | Transformation – Representation | Symbolic | Power | | PoP, sub-principles, and sub-sub-principles |
| 15 | Demonstrate it | Preparing situations that can be used to demonstrate the principles for better understanding | | | Ikonic | | | |
| 16 | Image it | Together with the above videos and images may aid in instruction | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 17 | Integrate it<br><br>Prepare Exercises | It is only at this stage that exercises shall be designed for each of the identified principles. This assures what in TP is called the principle of 'specificity' | Four windows (further knowledge or other specialists is/are needed) | | Enactive | | | Specificity |
| **Coaches' Dissemination of Knowledge** | | | | | | | | |
| **Deliver it** | | | | | | | | |
| 18 | Deliver | Deliver the knowledge acquired and prepared through coaching sessions, and other methods. | - Model of Training | | Induction – No Premature Symbolisation – Guessing | | | Implementation |
| 19 | Provide Experiences | Through contextualised exercises, with realistic situations, specific to the model of play and individual characteristics. | | | | | | |
| **Facilitate-it (learning)** | | | | | | | | |
| 20 | Apply pedagogical methodology | Using the adopted methodology with a pedagogical interest in learning. | ZPD | Instruction | | | | Model of Training |
| 21 | Questioning and Probing | Allow exploration of alternatives | ZPD | | | | | |
| 22 | Answering and reacting | Always in line with the Model of Play and its PoP. | ZPD | | | | | |
| 23 | Praising and criticising | | ZPD | | | | | |
| **Coaches' Regeneration of Knowledge** | | | | | | | | |
| **Evaluate it** | | | | | | | | |
| 24 | Evaluate | Check what your players have learned, hence your performance as a teacher | | Evaluation | | | | Evaluation & Monitoring |
| **Reflect on it** | | | | | | | | |
| 25 | Reflect | Upon your evaluation, you can review your previous stages, adapt and regenerate knowledge acquisition. | | Reflection | | | | |

**Table 5.1:** The Coaches' Process of Knowledge Generation for CPP. Version 1.2 simplified.

### 5.5.3 A Visual Representation of The Coaches' Process of Knowledge Generation for coaching through Principles of Play – Version 1.2

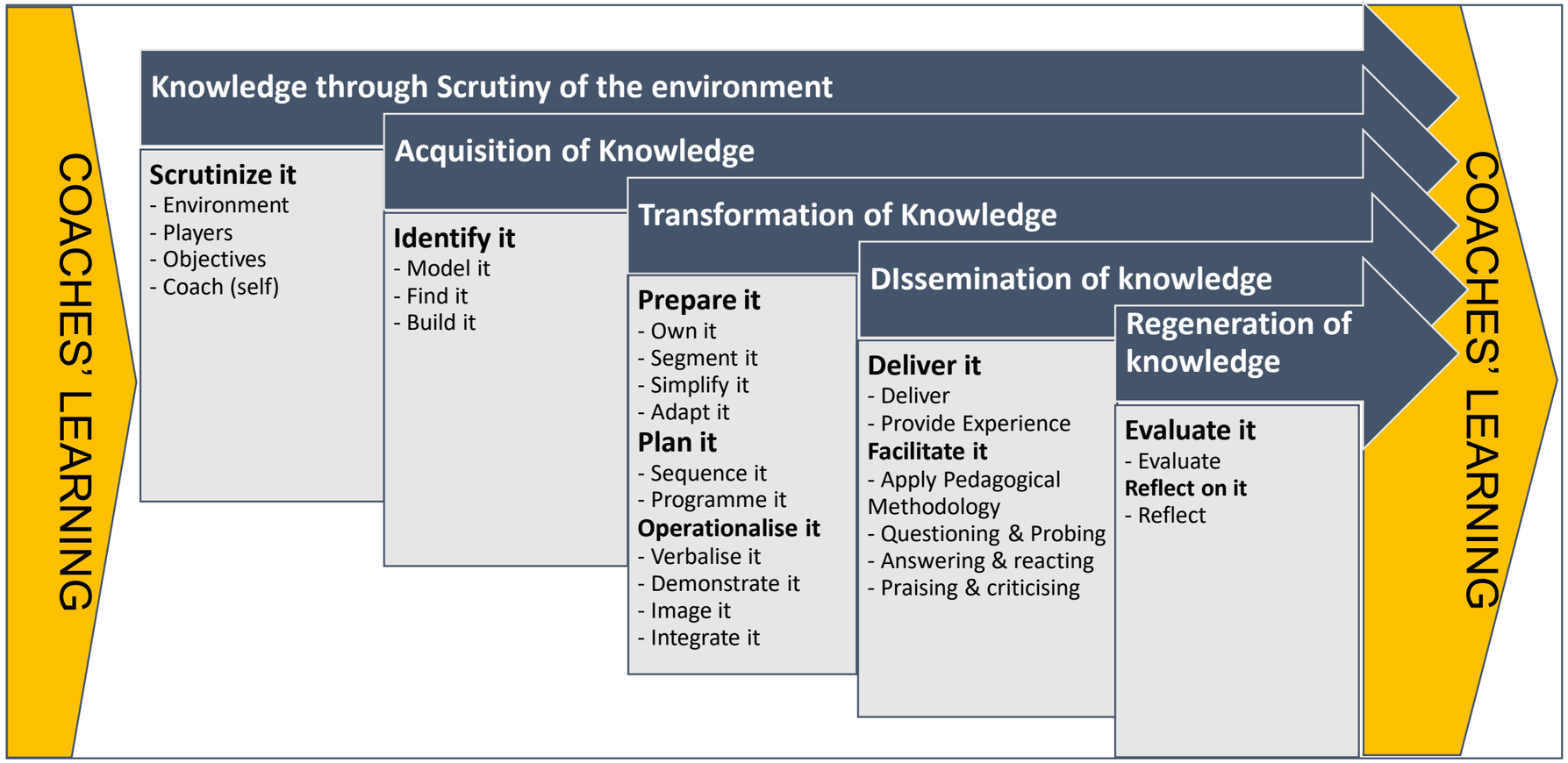



**Figure 5.2:** The Coaches' Process of Knowledge Generation for CPP 1.2.
A Visual Representation.

### 5.5.4 Version 1.2 Explained

This section provides a full description of The Coaches' Process of Knowledge Generation for CPP version 1.2 which complements in more detail both the diagram and the simplified explanation.

#### *5.5.4.1 Coaches' Scrutiny of the Environment*

**Scrutinize-it:** There are various factors associated with the environment and with the individuals that interact in that same **environment**, which have considerable influence on the process of knowledge acquisition (this term was replaced by knowledge generation at a later stage of the analysis) and its pedagogical route. For instance, whatever the depth of content knowledge, the **coach's** (teacher) ability to transform that content knowledge into pedagogical forms, distinguishes the ability of the coach. Adding a further layer of complexity to this already difficult task is the fact that pedagogically oriented content also needs to be adapted to the varying predisposition of learners **(players)** while keeping in line with purposes and goals **(objectives)** (Shulman, 1987).

When considering instruction, we need to think about 'factors that predispose' a learner to learn (Bruner, 1963; 1966). The ability of the coach to assist the player to risk less when exploring alternatives, hence obtaining better results from the same exploration of alternatives, is another important factor that has a direct effect on instruction. All these predispositions have a big impact on the structure and sequence in curriculum planning (Bruner, 1966).

When considering programming, Oliveira (2014a) places even more emphasis on the importance of the coaching **environment**. He refers to the club, those running it and their **objectives**, the club's culture, their facilities, staff, the style of play they are used to, pre-set goals and more. Oliveira also refers to the **players** registered with the club and those who can potentially join or leave. Then he addresses the **coach**'s knowledge and decisions (competitions, training, rest, cycles, content, Models of Play).

Bruner, on the other hand, considers factors that mostly precede the particular learning environment. I believe that these factors do not belong only to the past, but also the present and the future. The process of knowledge acquisition builds on a foundation of factors which are in constant interaction and may alter along the way, changing the said foundation in an ongoing

fashion. The Models of Play is in a continuous state of construction as players and coaches learn and adapt, new players come in and others leave, opponents change, and purposes transform. For this reason, and also because the word 'predisposition' may carry a negative connotation (Oxford University Press, 2016). I decided to change the heading of the first step of The Coaches' Process of Knowledge Generation for CPP to 'scrutinize-it'. It is also important to point out that although this step is presented at the beginning, it is not a one-off process, but continuous, and interacts with all the other components in that process.

### *5.5.4.2 Coaches' Acquisition of Knowledge*

In the beginning of this research journey '*acquisition of knowledge*' was my focus. The same journey led me to shift from looking at '*acquisition of knowledge*' to the idea of '*generation of knowledge*'. It is this philosophical shift, that has also led me into looking for the process, and not only for the content knowledge. However, by the stage when version 1.2 was being developed, the term used was still 'acquisition'.

**Identify-it:** Coaches can start the process of knowledge acquisition by only identifying and most importantly comprehending (Shulman, 1987) their philosophy of the game and the desired Models of Play. This can be done in an introspective approach. Their players' characteristics and the system of play are shaped by their philosophy and by the model of play.

No matter the complexity inherent to soccer (Pimenta, 2014), 'playing' can be studied scientifically (Oliveira et al., 2011) and can be broken down into its elementary operations, in the **model-it** stage. This is what Bruner calls 'economy' within the structure of knowledge (Bruner, 1963). Bruner (1960) also specifies that the teaching and learning of 'general ideas' should lead to non-specific transfer, or as he refers to it 'transfer of principles and attitudes' (Bruner, 1960). These elementary structures or general ideas in soccer are the principles of the game as identified by *Tactical Periodization* (Oliveira, 2014a).

Given that most of the modelling process happens at a conceptual level (within) it is then important for the coach to be able to **find[-it]** 'data' to inform his/her concept and its sub-structures. It is important to clarify that while this knowledge can be systematically identified, it also regenerates continuously.

Therefore, knowledge determined in the present is not absolute, but merely a contribution in the process of uncovering further knowledge in the future.

At the stage when coaches manage to identify and deeply understand the structures of the subject matter (Shulman, 1987) – the general PoP, the sub and sub-sub-principles, and how these interact collectively, in sectors, inter-sectoral and with individual players, in every phase of each moment of the game (Oliveira, 2014b, 2014a) – including its own prerequisites (Bruner, 1963), they will be able to scrutinise and critically interpret the material to first deeply comprehend its 'totality', and then start thinking about transforming it into pedagogical content. When they start considering whether to build[-it] the curriculum, they would need to i) detect what is missing or what is extra, and ii) then segment and structure the relevant content knowledge into forms that are better understood by the same coach (Shulman, 1987).

#### *5.5.4.3 Coaches' Transformation of Knowledge*

**Prepare-it:** The third component of the process looks at how this knowledge is prepared and transformed (Shulman, 1987) for its pure function – instruction. All the body of knowledge identified in the first phase needs to be structured and simplified in such a way that it reaches more 'economy'. It also needs to acquire the 'power' of words (Bruner, 1963). Therefore, it is important for coaches to prepare the full body of knowledge by being critical and analytical in the way they interpret the acquired knowledge. The coach needs to ***own (-it)*** this knowledge, holding a personal interpretation of the same knowledge in the light of the main philosophy and Model of Play.

This process leads the coach to divide all relevant knowledge into segments and structuring it in preparation for instruction (Shulman, 1987). This breaking of complex soccer knowledge into simpler elementary knowledge pieces (**segment-it**), enhances the economy of knowledge as it leads to the creation of a roadmap of knowledge. "This reduction of complexity is done without impoverishing and without taking the behaviours out of context. This creates an articulation between the parts forming a connection of meaning"(Oliveira, 2014b). It is in fact very important that when combined together, these pieces lead to the original complex knowledge, and furthermore, to the generation of new propositions (**productiveness**) (Bruner, 1963). The

**power** of the structure of knowledge culminates when with the use of ideally simple words, complex knowledge is manipulated and shifted from rough intuitive knowledge to clear and specific understandings (simplify it).

After finding the knowledge, the coach needs to own it and then segment-it. By this stage of transformation of knowledge, the coach would have translated the complexity of soccer conceptual understandings into a personal simplified textual representation of the whole. This 'training dossier' as Mourinho would call it (Oliveira, 2014a) is the text that initiates the teaching process (Shulman, 1987).

The coach, who at this stage should know both his/her athletes and the content knowledge, now leads a process of selection to determine which parts (of the whole body) of knowledge that are necessary for the development of the individuals and the group. This knowledge and the way it is represented needs to be adapt(-it)ed to the needs of the learners and the Model of Play. This will be discussed in further detail both in the next level of conceptualisation (2.1) and further in the discussion (Chapter 6). The coach needs to consider the progression of the presented knowledge to spiral athletes' learning. This can facilitate a process by which learners are given the opportunity to revisit previously covered knowledge in order to clarify or consolidate it (Bruner, 1963).

**Plan-it:** By now the coach would have understood all the necessary content knowledge, made it his/hers in terms of understanding, broken it down in pieces which relate to each other in a simple manner, and adapted it to the specific required needs. At this stage, s/he will be able to start thinking about the most economical, productive and powerful (Bruner, 1963) sequence [it] in which s/he will present the material (Bruner, 1966), depending on the characteristics of his/her players. Sequencing should be made in such a way that allows learners (and coach for the matter) to go back to unlearned pieces when needed and to learn at one's own pace (Bruner, 1963). With this sequence in hand, the coach will be able to systematically programme [it] his/her week, month and year of training sessions, and plan his/her sessions accordingly (Oliveira, 2014a, 2014b).

**Operationalise it:** After preparing his/her own document/dossier of playing soccer, the coach would be in possession of all the principles needed

for the teaching and learning of his/her visualised game, including the necessary adaptations, sequence and programme and needed programme. This is the right time for the coach to start thinking about how this knowledge should be made operational to form his/her model of training (Oliveira, 2014a).

*Tactical Periodization* makes the case for a good balance between exercising and information (Oliveira, 2014b, 2014a). Therefore when thinking about preparing for instruction, the coach needs to think about the balance of both verbal (symbolic representation) and practical (enactive representation) instructions. Ikonic representations are the third way suggested by Bruner, (1963) for knowledge representation to the learner. In ***verbalise-it,*** the coach prepares the coaching the coaching verbal-cues that may be used during feedback and explanation in the training sessions. These are necessary to 'simplify' the concept and knowledge of the principles. As proposed by Oliveira, (2014a, p. 71), coaches need "to make a word mean a thousand pictures" through symbolic representations.

Coaches know that the use of **demonstrate[e it]ion** on the pitch and **image**[it]**s** (normally by pictures, diagrams and videos) may also aid in the athletes' processing of information and understanding. For this reason, it is important that coaches prepare the demonstrations they would need to use to explain a principle and its verbal explanation. Preparing pictures, diagrams (coaches' boards) or video captures may also assist in the athlete's understanding of the represented knowledge. Finally, I refer to the 'enactive' representation in Bruner, which refers to knowing by doing. This is evidently an important aspect of soccer coaching.

*Tactical Periodization*, like *A Theory of Instruction* suggests that for knowledge to be converted into a structure that is economical, productive and powerful, hence transferable, it should be presented through 'induction'; through setting up the relevant exercises, the learner meeting the learning concept and having enough time to make sense of it on his/her own (Bruner, 1963, 1966, Oliveira, 2014a, 2014b). This is analogous to allowing the soccer player as a learner to 'guess' understandings about the concept in an autonomous manner, as suggested by guided discovery.

As identified by *Tactical Periodization*, coaching should not prioritise exercises (in form of games) over the learning objectives of the same coaching session. These objectives should be based on the previous stages of knowledge acquisition and knowledge preparation. The principles that lead the game (and not the exercises) should be the leading factors in the specification of learning objectives. Exercises should always only be applied with the intention of delivering knowledge underlined by a specific principles (Oliveira, 2014a). For this reason, before getting to the stage of designing the integrate[it]ed exercise for their training sessions, coaches need to go through a process by which they can internalise the principles which they need to teach in that particular session.

The symbolic – ikonic – enactive, process of formulating coaching knowledge differs to the way in which it would be presented to the players, which is likely better delivered in an enactive – ikonic – symbolic order.

Having simplified the complexity of his/her game philosophy and Model of Play, and having structured, sequenced and programmed the relevant knowledge in a roadmap of knowledge built around the Model of Play, coaching methodology and players' individual characteristics, the coach is at the point where s/he moves to the training pitch and practices his/her teaching.

#### *5.5.4.4 Coaches' Dissemination of Knowledge*

**Deliver it:** Although one might argue that the delivery part of knowledge is unrelated to the generation of content knowledge, I emphasise the proposition that knowledge is generated at all stages. Reflective practitioners are those who have the ability for autonomous self-development and are able to acquire newly generated knowledge from both reflection-in and reflection-on-action (Cassidy et al., 2009). The coach acquires knowledge not only from scrutiny, acquisition of knowledge and transformation of knowledge but also from the dissemination of knowledge. Dissemination of knowledge may potentially provide the coach with enough understanding to enable personal reflection on, and regeneration of, his/her own knowledge. For the indirect, but still important reality of the deliver-it and facilitate-it stages, I have used a different background colour.

### *5.5.4.5 Coaches' Regeneration of Knowledge*

**Evaluate-it, Reflect-on-it:** An evaluation of what the players would have learnt after every training session or a number of training sessions, and an evaluation of the coach's own teaching and presented content in those sessions, is necessary (Shulman, 1987) to understand and re-check the starting position (scrutiny) which shall always be in a state of development. Reflecting upon the findings of such an evaluation shall take the coach through (again) the process of knowledge acquisition, to re-test and regenerate understandings accordingly.

## 5.6 THE COMPILATION OF VERSION 2.0

In applying ***manifest analysis***, I focused on what the participants said in the interview. When participants struggled in answering or were not clear in their answers, I asked for clarifications. Only a few times, I applied latent analysis when I was analysing the coach's inability to understanding the area of discussion.

At the end of the analysis process, I issued a summary (Appendix 4.7) of themes, categories, sub and sub-sub-categories. To obtain further rigour this summary was compared to the Categories Comparison Process chart (Appendix 4.5). Doing this I could make sure that no areas had been omitted or dominated by others. This reflective process also provided me with the opportunity to identify and highlight areas which were suggested should be relocated in the next stage of the compilation process.

This summary (Appendix 4.7) served as a foundation for the design of The Coaches' Process of Knowledge Generation for CPP 2.1 and its components and sub-components**.** Furthermore, the 44 reactions I obtained from the participants when asked to criticise the visual, have also influenced the way The Coaches' Process of Knowledge Generation for CPP looks like at the end of this study.

The four visual representations in Figures 5.3 – 5.6 show how the coaches' interventions further populated the conceptualisation The Coaches' Process of Knowledge Generation for CPP. The summary of themes was used to create the first visual (Figure 5.3). This was revised four times to incorporate all the participants' contributions with regard to the process (Figures 5.3 – 5.6).

From visual representation 4 onwards I started my constructions on the computer (Figure 5.7, 5.8).

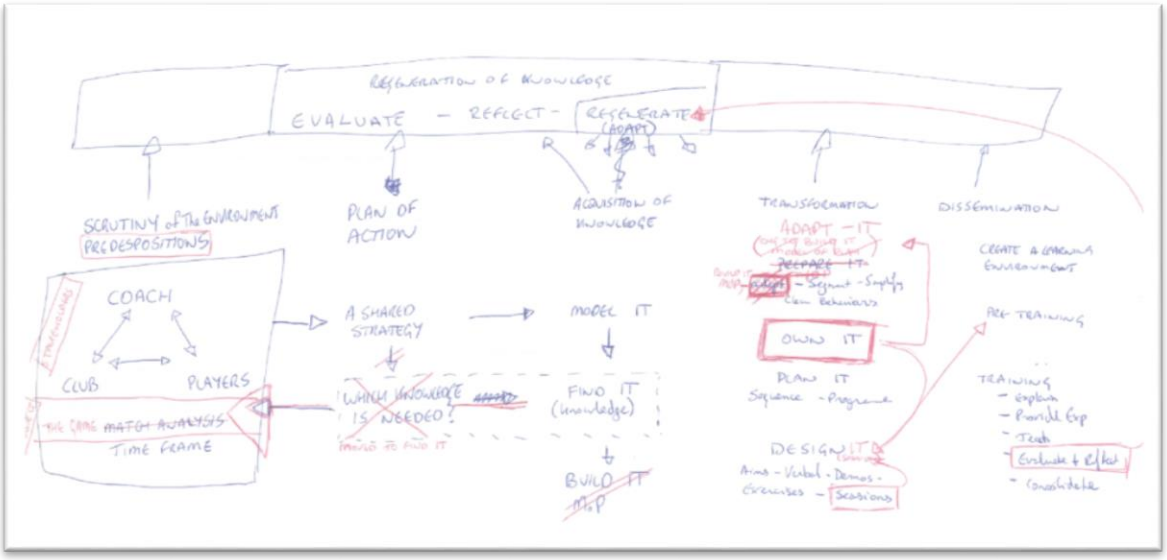



**Figure 5.3:** The Coaches' Process of Knowledge Generation for CPP 2.01. Synthesising the Data – Visual Representation 1.

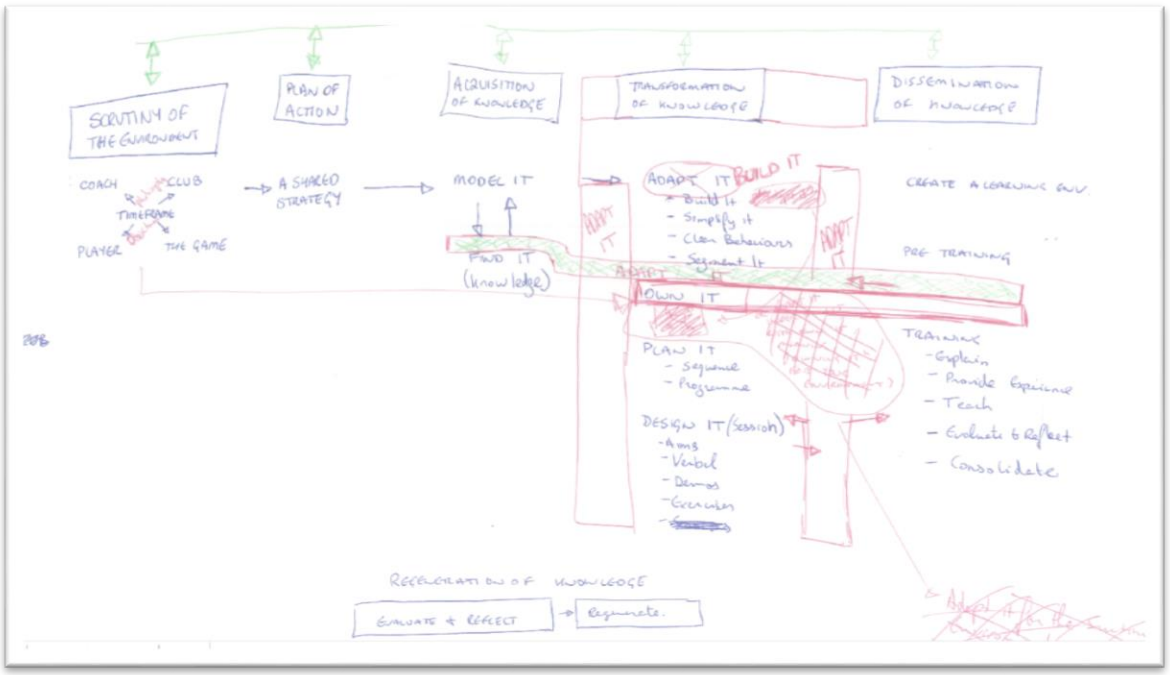



**Figure 5.4:** The Coaches' Process of Knowledge Generation for CPP 2.02. Synthesising the Data – Visual Representation 2.

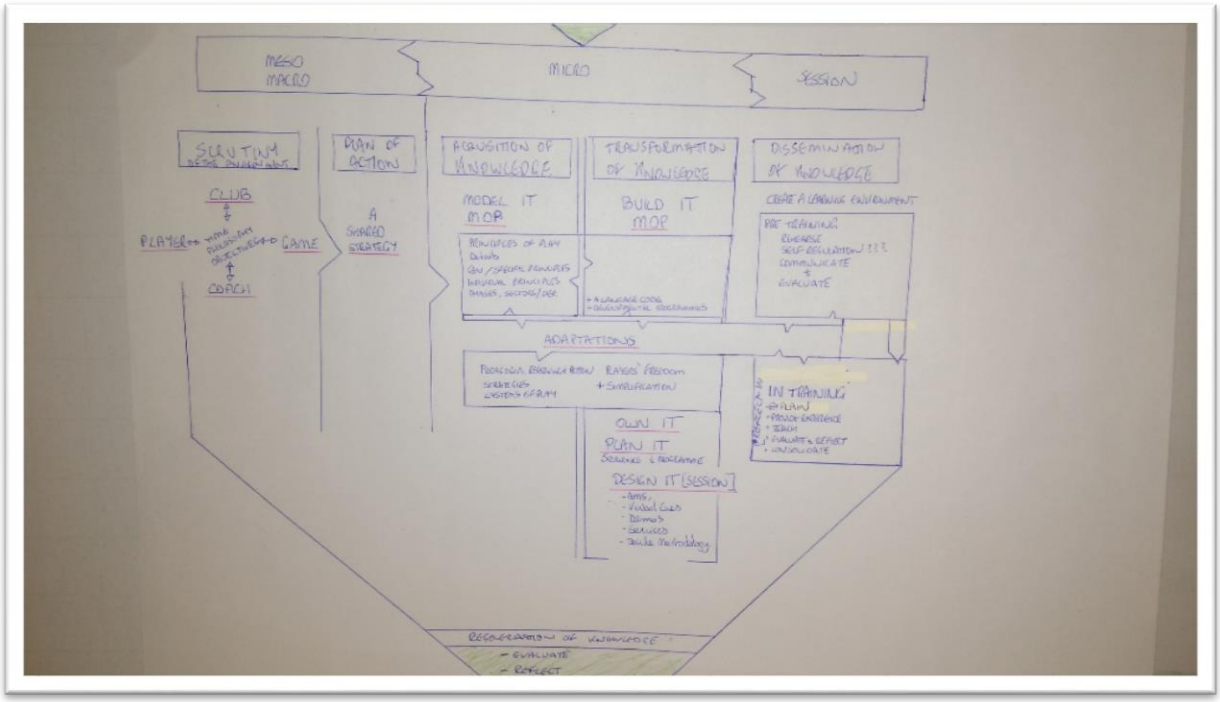



**Figure 5.5:** The Coaches' Process of Knowledge Generation for CPP 2.03. Synthesising the data – Visual Representation 3.

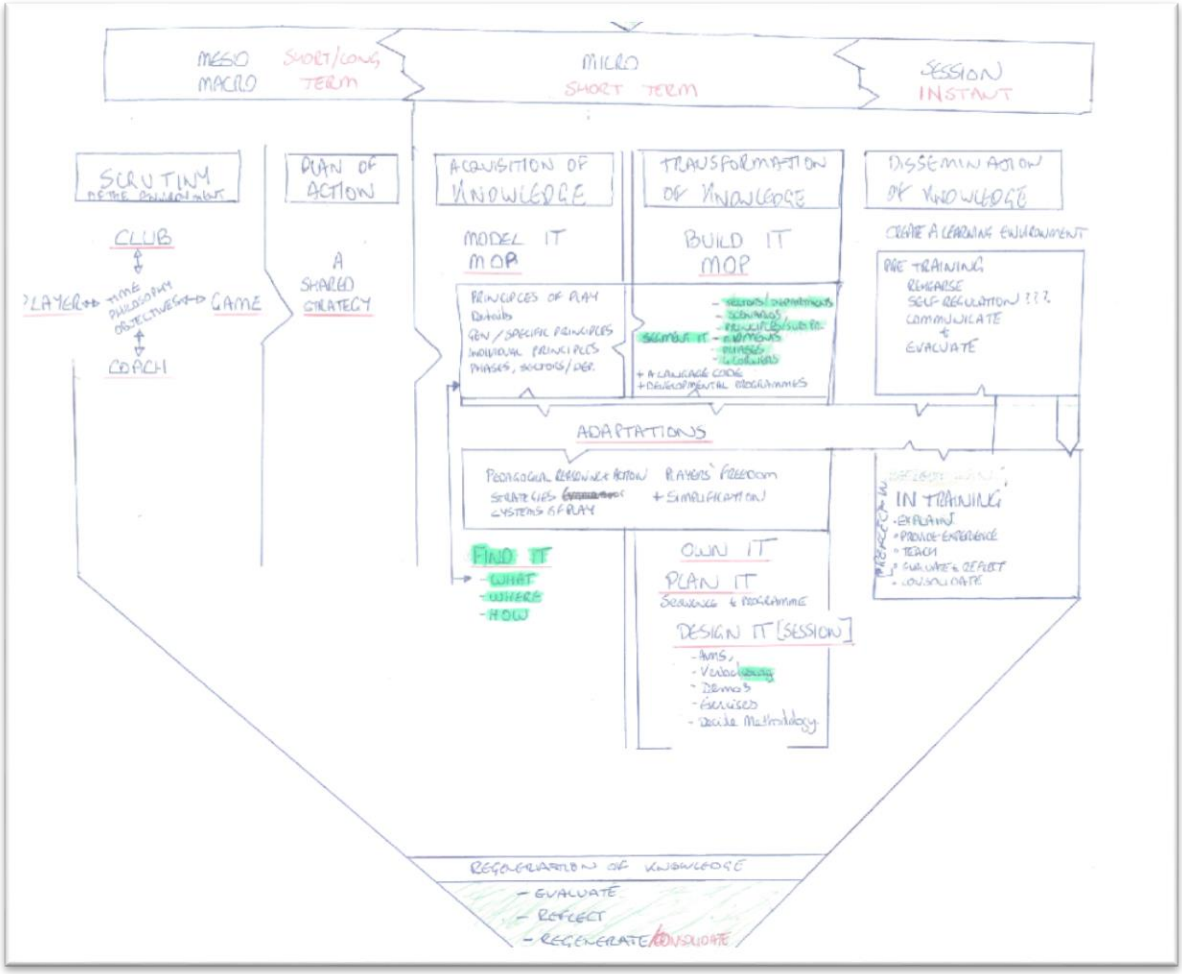



**Figure 5.6:** The Coaches' Process of Knowledge Generation for CPP 2.04. Synthesising the data – Visual Representation 4.

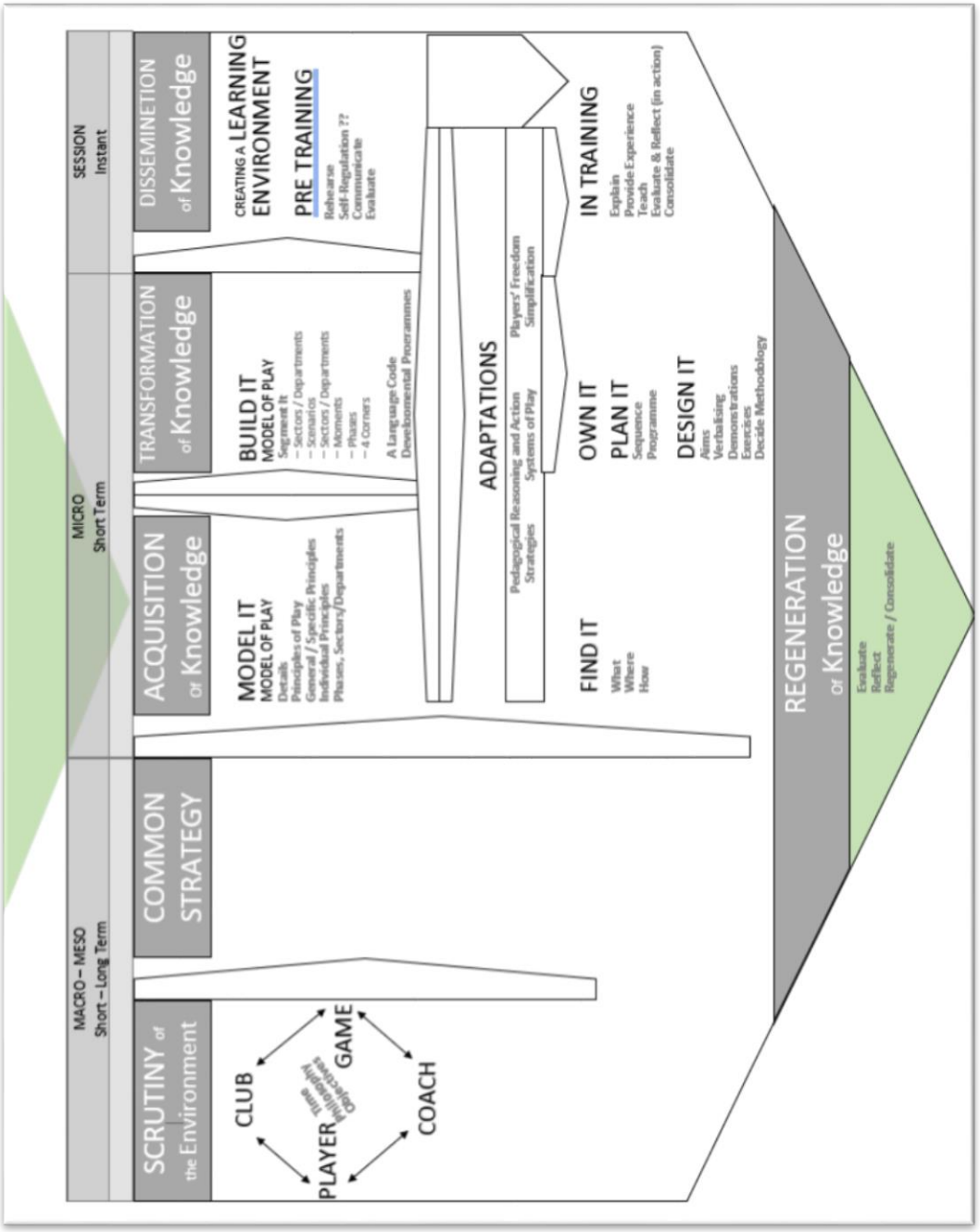



**Figure 5.7:** The Coaches' Process of Knowledge Generation for CPP 2.04. Synthesising the data – Visual Representation 4.

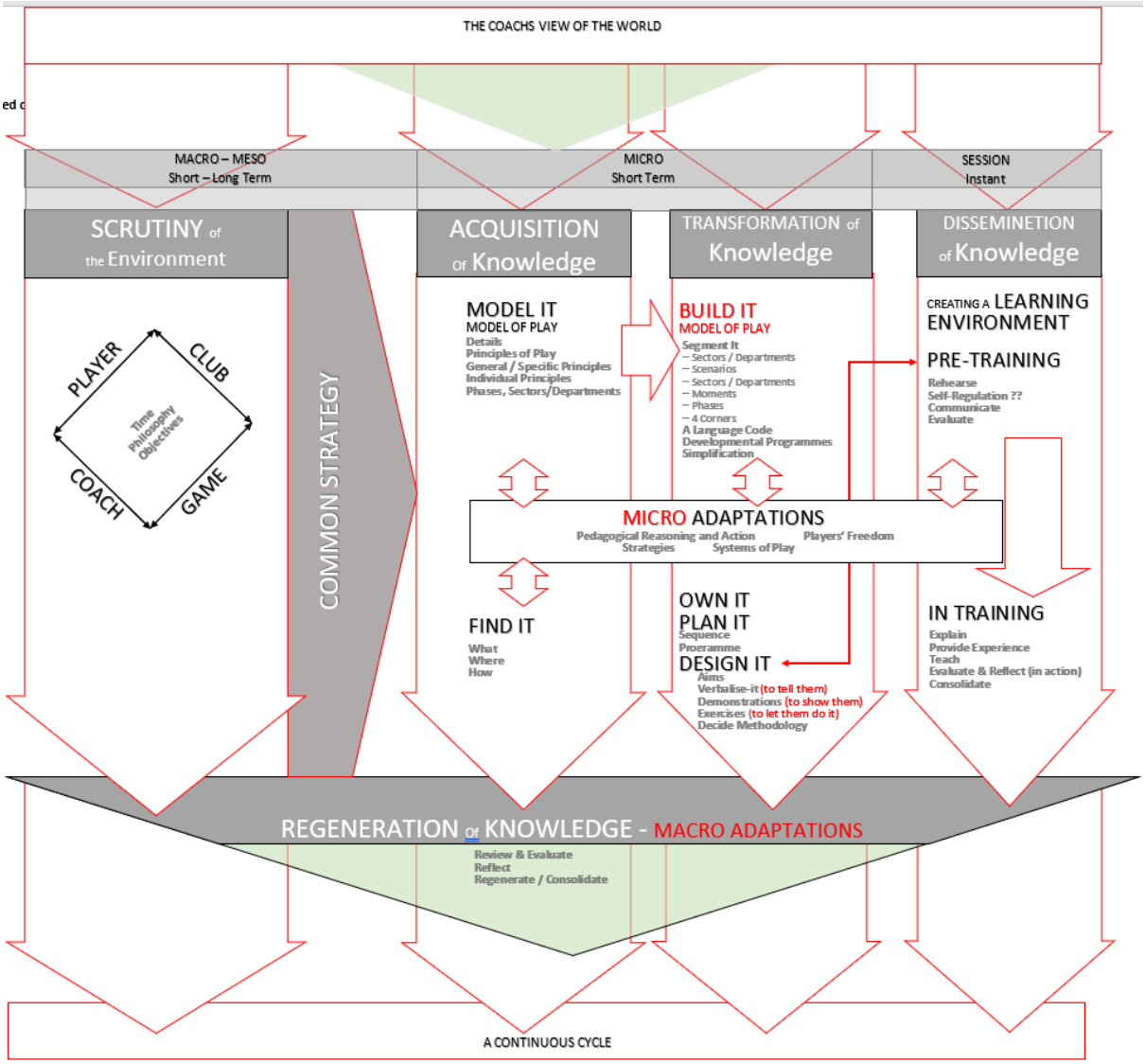



**Figure 5.8:** The Coaches' Process of Knowledge Generation for CPP 2.05. Synthesising the data Visual Representation 5.

## 5.7 THE COACHES' PROCESS OF KNOWLEDGE GENERATION FOR COACHING THROUGH PRINCIPLES OF PLAY – VERSION 2.1

Having presented the first two versions, it is important to clarify that they were part of the conceptualisation process, which led to version 2.1. I felt that version 1.2 was sufficiently developed to be shown to the participating expert coaches, for critique. This (and subsequent sections) focus on version 2.1 the final, main finding of this study. After several layers of analysis, I do not propose this version as finalised conceptualisation of the phenomenon, but as the first (published) version of a possibly more developed conceptualisation attainable through deeper research in the future. As such, it is the end-point and outcome of this thesis, but (like any pedagogical conceptualisation) open to change and development in the light of new information and experience.

In this section I will present the main components that compose this conceptualisation, namely;

- Scrutiny of the Environment
- Conceptualisation
- Generation of Knowledge
- Transformation of Knowledge
- Dissemination of Knowledge
- Regeneration of Knowledge

### 5.7.1 Scrutiny of the Environment

Although presented first here, it is important to point out that 'scrutiny of the environment' is not necessarily the starting point, and furthermore, coaches can be expected to continuously scrutinise the environment. However, it can be an important first step in the employment of a coach, and it can also be a very important catalyst for the rest of the process.

In showing the importance of this component in this conceptualisation, coach Andy uses me with a rough sketch (Figure 5.9). Before looking at objectives and before determining a strategy, coach Andy suggests a thorough analysis of the environmental factors which influence the club and the coach's

way of coaching. He explains that the PoP are the drivers of how to do things. These drivers need to be informed by other factors such as the environment, the players, own barriers and critical success factors. All these factors influence how to set and then reach or fail to reach the set objectives. This idea concurs strongly with the idea of assessment – goal-setting – strategy – implementation – monitoring – adaptation – evaluation, proposed by Sontag and colleagues about self-regulated learning (Ziegler, Shi, & Harder, 2012).

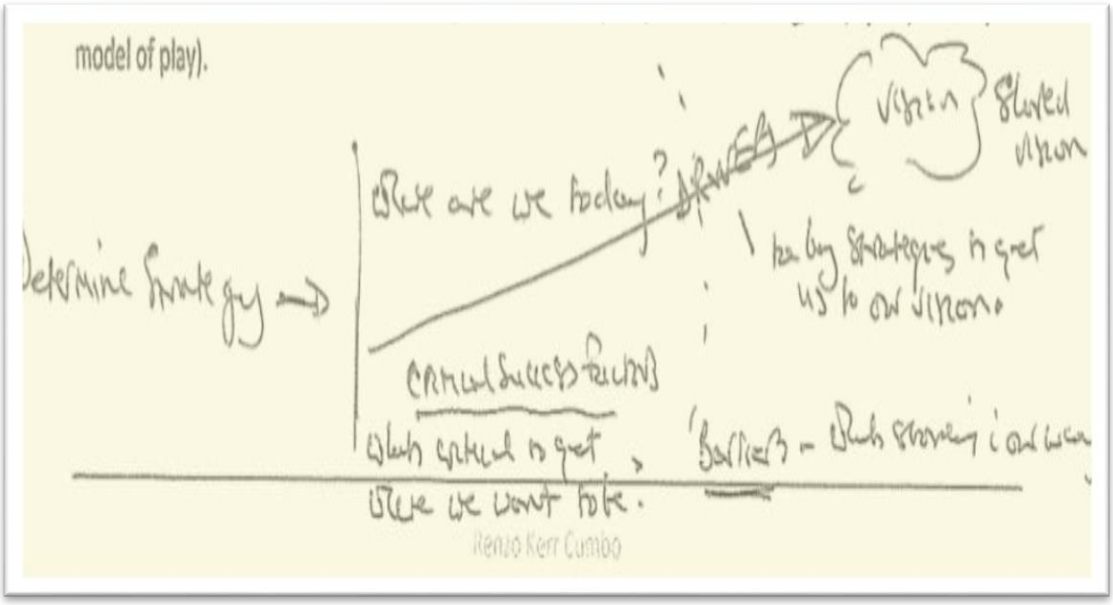



**Figure 5.9:** Rough sketch by coach Andy to show the importance of Scrutiny of the Environment.

With regards to Scrutiny of the Environment, coach Brian commented that, as a younger coach, he used to neglect its importance, however, experience showed him that practised coaches could very quickly adjust to the demands set by the environment, even if this required them to tweak their philosophy to match the needs of that environment. This is how he explains his process:

> I have the Model of Play in my mind, I then go to look at the environment and the players… if I [then] need to make adjustments, instead of a revolution I try to make an evolution. I try to evolve from the situation I am into the situation I want to be in – I try to create my perfect environment from what I find. (Brian)

In agreement about the influence of the environment on the Model of Play, Coach Soldano suggested that:

> …rather than taking that philosophy and put it in place – [the coach shall] first scrutinise the environment and understand the people [he is] working with and then adapt the Model of Play accordingly.

In agreement with coach Brian, coach Soldano commented that the coach would already have an idea, but the Model of Play should be then finalised after scrutinising all factors. This point was echoed in a document which according to coach Soldano was presented to coaches in Italy as part of their CPD (Continuous Professional Development) programme. This document referred to "Analisi Della Situazione" (analysis of the situation), which in concept refers to an idea which is very close to the idea of 'scrutiny of the environment'. Coach Soldano acknowledges that the environment dictates the freedom to work or "… the control the environment has on you".

For coach Paul, understanding the club's objectives was not a one-time job but a continuous occupation as it may change more often than one would expect:

> I need to know what the real aim of the club is…after winning a league in the first year…in the following season the club wouldn't be able to once again, try to support the same 'identity' to win the league, and sometimes I don't even realise.

The **coaching environment** which has been given attention by various authors (see Baker, Horton, Robertson-Wilson, & Wall, 2003; Côté & Gilbert, 2009; Jones & Wallace, 2006; Rees et al., 2016) is much more than the club in which the coach is working. In view of the Coaches' Process of Knowledge Generation for CPP, the participants identify the players' characteristics (Sergio) which need to be understood at the earliest possible, both as players and as individuals (Soldano); the people working within the same environment (Sergio). Data shows that the coach-player-club triangle is critical in the conceptualised process. This indicates the wide dependency of the Model of Play, and the huge challenge coaches may have in orchestrating a learning environment (Jones & Wallace, 2006) which induces the PoP. The following sections use the participants' words to show this.

#### *5.7.1.1 The coach-player-club triangle*

Coach Sergio highlights the concept of “the coach-player-club triangle, and the interactions in between” (Figure 5.10). Implicitly, some of the interviewed coaches contributed to the development of this concept. When talking about the importance of the environment in devising a Model of Play. Coach Andy suggests that getting to “know yourself, know your team (players) and the organisation”, and the relationship between the three, is important because the Model of Play takes into consideration the goals, environment and culture within the club, the available players and what and how the coach wants to coach (Hugo). It also considers:

> …the club’s objectives (winning, developing etc), the technical, tactical club’s objectives, the coach’s developmental objectives and the coach’s game objectives, the players’ developmental objectives and the players game objectives. (Soldano)

However, coach Hugo believes that “the coach should come in front of everything”. This contributed to the decision to coin the term as ‘coach-player-club’ triangle precisely in that order. In accepting this proposition, the process conceptualised in this study does not intend to propose the coach as the “all-powerful leader” but as the “orchestrator” (Jones & Wallace, 2006, p, 60). Supporting the idea that it is the coach who heads scrutiny of the environment, the Process of Knowledge Generation for CPP, concurs with the idea of orchestration as the:

> …coordinated activity within set parameters expressed by coaches to instigate, plan, organise, monitor and respond to evolving circumstances in order to bring about improvement in the individual and collective performance of those being coached. (Jones & Wallace, 2006, p, 61)

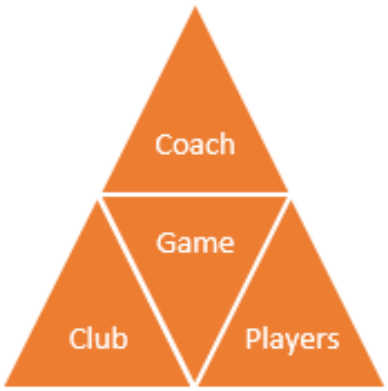



**Figure 5.10:** The Coach-Players-Club Triangle.

### *The Coach (Self)*

Baker et al., (2003) consider coaching as one of the main factors influencing development of Elite Athletes, as his/her ability to devise an environment that fosters optimal learning, and his/her ability to provide optimum instruction are mostly valuable. The coaches participating in this study fully agree.

> I think coaches are leaders. How do you become a leader? Know thy self, first. And how do you get to know thy self? Through analysis, introspection, reflection, discussion with peers, practical activities in a safe environment. And question yourself. What do you want to achieve as a coach, why do you want to be a coach?" (Andy)

All the participants agreed, with no reservations, on the importance of the 'self' as a main stakeholder in the coaching environment, and as an important variable in the development of the Model of Play. The coach (Figure 5.11) needs to understand himself/herself in view of his role (Sergio). "What you are as a person would influence the 'game model'… if you are aggressive or not aggressive, will influence the way the team will do pressing" (Sergio).

Coach Hugo believes that "the coach should come in front of everything". He sees the coaches as having two options; either recognising and attempting to shape the reality of their players and their working environment or accepting and being shaped by them. He emphasises that a coach's beliefs, which emerge from one's experiences and constructed knowledge, can be very influential on players and the environment. "I think, if you are a good coach, you can shape the other things, but if you are not, you will end up shaped by them".

> If I could put some weight, what is a priority, I think the coach should come in front of everything. Even though the players are the main actors, it is you as a coach that must lead them to perform in the way you want and not the opposite. I believe that you could go to a rally with a mini, maybe you do not win it, but you can still compete. (Hugo)

Nevertheless, he also understands that the orchestrators' role is to acknowledge limitations "and not invest as much, where efforts are not likely to bring rewards" (Jones & Wallace, 2006, p. 61) as he claims that as a coach "you won't turn shit into gold. You just make the shit smell a bit better".

According to the participating coaches in this study, a coach's own experiences are the factors that influence the self. The coaches mentioned five factors: philosophy, knowledge, experience, role and leadership, and objectives (in that rank order of mentions, which may suggest that philosophy and knowledge are top priority issues for the coaches).

***Philosophy:*** "As coaches, we all have our philosophies, our identities and our preferences of how we would like to play…" (Brian). Coach Andy, for instance, looks at himself as a philosophical coach, who goes beyond soccer and looks for a life lesson, and who sees players as human beings. However, when referring to the ***soccer philosophy***, I tend to agree with how coach Andy puts it; he talks about the game style and the philosophy which guides that style, and which serves as a means of direction, "…a framework", which paradoxically provides more flexibility. This framework allows coaches to be both creative and structured at the same time. Without this philosophy that guides one's coaching, the coach "will become like a weather compass" changing at any little hiccup (Andy). The FA has recognised this and in fact created the England DNA (The FA, 2015) to guide coaches to form their soccer philosophy (Ray). This philosophy guides one's Model of Play and its "core principles in terms of how one believes the team should play… it is fundamentally at the basis of everything else" (Brian).

Scrutinising one's own soccer philosophy, and the club's soccer philosophy, the coach will be able to determine if s/he fits that coaching environment (Fannar). If following the scrutiny of the two philosophies, the coach determines that he cannot do things as the committee wants, then the coach shoud not take the job according to coach Mark. There seems to be a

consensus. Coach Hugo stresses the importance of a strong self (personality) for one to stick to his/her believes. He states that, “If you really believe in a style of play, either you do not take that job, or you need to be a believer that you can change that environment.” Coach Hugo expands on this by saying,“If you are a big coach (in personality) you can shape other things, but if you are a small coach, you will be shaped by them.” Coach Paul supports this approach as he confesses that he has never accepted an offer which did not fit his own principles. Coach Brian adds to agree when confessing that he would never stay at a club if he does not like or agree with the style of play that club promotes or requires.

Like coach Hugo, coach Brian used to believe “that you could change the environment… but with experience [he] got to realise” that it was not possible. That is why now he selects the environment that suits his philosophy. However, pragmatically, he also thinks that coaches need to be able to adapt to the situation (Brian) and be catalysts for change through small revolutions rather than a total evolution (Brian). It would be interesting in view of this, for future research, to look into how coaches adapt according to the contexts they work in.

One’s philosophy incorporates the adopted coaching process explains coach Hugo; “I think the strongest point is that you as a coach, you are in charge of the process, in what process do you believe?”

***Knowledge:*** Coach Paul does not think “that soccer is in a book … it is in many ‘books’, and then it is up to you (the coach) to identify what parts you want to adopt”. Therefore, he believes that “although a coach might be one who always starts from the PoP when planning, every coach has different ways of implementing them (PoP) especially in terms of sequence” (Paul). Initially, a coach’s credibility comes from (Andy) the way s/he constructs knowledge of the game. It is then strengthened by the coach’s ability to coach that knowledge (Andy), which as coach Andy explains, goes beyond simply delivering a session as planned, based on the PoP. It is important for the coach to be able to facilitate the learning of the same principles. It is important for coaches to be aware of this “so that when planning and delivering we could provide each learner with what he needs to learn… and that way we (the coaches) can teach” (Andy).

Hugo believes that a coach cannot take a dualistic approach (Lincoln & Guba, 2013) and identify tactical knowledge as either right or wrong. He does not consider possession as better than long balls (or vice versa) for instance. He stresses that it is subject to personal belief, and if the coach really believes in something, it becomes easier to share that knowledge with everyone else and shape the environment. He concludes that coaches can shape the players and the environment, and this can change the objectives.

Coach Paul reminds us that, in terms of knowledge, every coach has his/her strong points and it is important to acknowledge these. He claims that at the highest level, it is not about the coach not knowing something but about knowing something better. Like coach Sergio, coach Paul confides that he always starts with what he knows best.

This is what leads coach Brian to believe that it is important for coaches to know what they do not know, a quality that very few people have. According to him, this ability directs one's search for new knowledge towards the 'weak' area. Coach Brian also adds that:

> …the fact that (as a coach) you are aware of these deficiencies it means that you are confident in understanding your environment in terms of your coaching, context and in terms of your own knowledge.

Coach Ray suggests that we look elsewhere for knowledge; "often football coaches get blinkered because they only know football", but we need to remember about all the other transitional invasion games, which can contribute a lot to the definition of one's PoP. Some of the football coaches he worked with in the professional setup in the UK, came from different sports and, coach Ray commented that they brought with them "different views on systems of play, how you react, how you adapt and what you learn".

In a lifelong learning approach, it is important, as coach Paul suggests, that the coach always looks back and always realises how much less he used to know the year before.

***Experiences:*** As one coach puts it, "as a coach you depend on what level of coaching you are at… coaching for the first time is different from coaching your fourth or tenth season" (Sergio). The novice coach finds it difficult to break the game down in simpler pieces while the experienced coach can

break it down according to his/her way of seeing the game (see. DiBernardo, 2018), in phases, which will then inform the whole system of play. This puts the inexperienced coach in the cognitive stage, with the seasoned coach in the autonomous stage (Fitts & Posner, 1967) of learning (Andy). The coach's own experience in CPP will always take him/her back to those PoP to guide him/her in the development of a Model of Play or perhaps to a required solution during a game (Hugo). Coach Hugo explains that when talking about experiences, one should not only think about those gathered on the soccer pitch. He recalled as an example how a TV interview by Ibrahimović influenced his (Hugo's) way of thinking about his Model of Play.

***Role and Leadership:*** Understanding all sides, one would be able to apply leadership that touches the heart, which as coach Andy says, adds to one's credibility with his/her players. This is reiterated by another coach who says that"…before it was telling them what they got to do, now you have, to get them on board, you have to get them believe in your plan." (Mark). As Mourinho suggests:

> …players at this level do not accept what is told to them just based on the authority of who says it. You have to prove to them that we're right. (Oliveira, 2014a, p. 44)

Andy finds this process of "thinking about what [one's] vision as a coach" is to be self-developing. He interprets this as thinking about your best self as a coach. A coach should think about where s/he is at present, and about his/her ideal self. Only then, it would be possible for the coach to close that gap. It is therefore important for the coach to give himself/herself time to practice new skills and new behaviours in a safe environment to try to close this gap (Andy).

***Objectives:*** Through the development of their 'football philosophy', when CPP, coaches contribute to the development of their own game objectives. If these objectives fit those of the environment, then the coach will be able to set objectives that give direction. Coach Soldano explains that these objectives answer the question "Where do I want to take them (the players)?"

> The objectives are the targets the learner needs to obtain following particular received teaching. For this, objectives need to be always clear and defined and in sync with the group. (Soldano)

The objectives do not stop at the tactical level. “The Model of Play takes in consideration the goals of the club, of the team…” (Hugo). It is important for the coach to understand his/her own objectives as much as the club’s and his/her individual players’ objectives (Mark).


**Figure 5.11:** The Coach.

### *The Players*

Having a clear understanding of the self, the coach needs to compare himself/herself with his/her players (Figure 5.12), their characteristics, objectives, and how these players relate to the desired Model of Play.

For clubs to avoid the “mistake of not doing their homework in selecting the right type of players…”, they should abide by “a strategy of talent management and talent recruitment…[to] acquire them, keep them, develop them”. The Model of Play can help in identifying the type of players the club would need (Andy**).**

Hugo recalls an interesting anecdote which has influenced him and the way he recruits players in view of his Model of Play:

> I remember Ibrahimović asking one thing to Guardiola… *why did Barcelona spend 50 million on a guy like me and then I arrive here and ask me to play a totally different way. It does not make sense, the reason why you pay 50 million is for the way I play, so why do you change all that?*

Similarly, Mourinho spoke about Chelsea players not fitting his planned game model, and the fact that he needed to work on both players and model (Happel et al., 2014)

Away from the elite setup, coach Soldano specifies how important it is to get to know the players. For him "…it is not only about them being left footed or right footed". That is why to get to know the players, he does not only use training sessions, but also sets one-on-one meetings to talk "to their previous coach, teachers, parents, colleagues". Coach Andy works on building trust and relationship with the players as from the first day. He looks at the whole process as a multi-year process, which allows him to "engineer to remove those players" who won't fit the philosophy. "… some you can change some you cannot, depending on the personality of the player and the readiness to accept change" (Andy). This long-term approach is considered as an important factor that leads to coaching excellence (Nash, Sproule, & Horton, 2011)

***Characteristics:*** Players' characteristics (Baker et al., 2003) have a huge influence on the Model of Play (Hugo). To understand the 'game related' characteristics of his players, a coach can use two methods (Sergio). One can "do a lot of game situations, 8v8 even 11v11…at the beginning of the season…to check the quality of the players [and] to test them in different positions". Otherwise, one can:

> …give the general principles, then test them in a friendly match. After that, the coach starts working on the specific principles. And then s/he just continues modelling match after match. (Sergio)

He concludes that this process "is never ready" (Sergio). This assessment of the players' characteristics in view of the coach's Model of Play should take a central position when CPP. Crespo (2011) shares the exact idea when talking about *Tactical Periodization* in tennis.

In order “not to ask a fish to climb a tree”, coach Hugo believes a coach needs to be flexible in terms of style and Model of Play.

> At the same time, if you end up adapting too much to the players, you end up losing what you really are as a coach... and like it or not, the game idea has to come from you. (Hugo)

He believes that at the end of the day, no matter what, as a coach “You need to ensure that they are thinking the same way as you” (Hugo). Thinking about the anecdote about Ibrahimović at Barcelona, he goes back to the principle of being flexible:

> …in a way you have to make sure how the players can influence your Model of Play. But how do you adapt to your players because you still need to make sure that you use their characteristics, their main potential so that your model does not 'close' them.

This underlines the need for balance to be established within the coach-athlete-club triangle.

Coach Joseph strengthens the importance of balance. “If a player is limiting the Model of Play I have in mind, I can help him to adapt to my game… I can also counteract by other means” (Joseph).

> If my fullback is not good to attack, but I want to attack with my fullbacks, I would still attack with the fullbacks, but adapt my game in a way that I cover that issue. For instance, if the issue is recovery, then I ask my holding midfielder to do preventive coach Marking in that area... If my goalkeeper is not good or not comfortable with his feet, at the end of the day he might get a goal from a mistake… so I try to make him understand my ideas, but I need to make sure that I do not break the players’ confidence because I force them into a model they cannot fit into. (Joseph)

In a very pragmatic manner, he exemplifies how coaches need to be sensible at forcing their Model of Play; “You cannot have a short striker and play a crossing game” (Joseph). Coach Mark, to the contrary of the previous coaches, states very clearly that “the personnel (the players) decide the game model”. He says that with some time spent with the players, you can scrutinise their characteristics. Then you would need to take some decisions. “If I don't have a

playmaker how can I play it? If I do not have a holding midfielder, how can I play with one midfielder?".

This view of the association between the players and the Model of Play, which was also covered by Oliveira (2014a), will be discussed in further detail at a later stage.

At this stage, it is important to note that when talking about players' characteristics, coaches did not only think about the way these characteristics influence the Model of Play. The coaches' ability to understand their players' personality (Irvine, 2012) has been taken to a wider perspective. Coach Ray**,** for instance, spoke about the importance of getting to know the way players deal with criticism, so that a coach would know how s/he can intervene with the different characters. Andy, states that it is important to look at players' attitude and whether that fits your style of play. "If I have an aggressive attitude, hard work, fast game, I don't want a negative half bottled player who does not have the necessary characteristics" (Andy). When going to a new club, the players are not yours, so as the coach you need to remember the difficulties and the time it takes "to make the team a reflection of you, a reflection of your principles and system of play". When recruiting players, coaches (and clubs) should ideally recruit for attitude and skills, rather than skill on its own (Andy). "In the perfect structure, you have a psychologist…" to help you in this area. When coach Sergio was at Bruges in Belgium, he worked with a psychologist, who, "had a fantastic model" through which he used to inform the coach about the personality of the players and show him videos to understand this further. These views point to the importance of the coach getting to know him/her self (Irvine, 2012), to the level that s/he can understand how the players' personalities and characteristics (Crespo, 2011) fit or not with the coach's own ideas (Oliveira, 2014a).

Understanding the language characteristics and the barriers and opportunities it may provide is also important. Coach Andy applies common soccer language such as "pressure, close the ball down, challenge" with his players. As an English coach in Maltese soccer "where fingers become toes and toes are fingers" he had to take care of language barriers as these would influence one's communication. He also takes responsibility for communication within the team and explains that:

> …the meaning of communication is the response you get - if I do not get the response that I wanted; it is not the player that hasn't understood me. It is me. I need to find a new way. (Andy)

This importance about language and its influences on coaching has been highlighted by Carlo Ancelotti (2016) in his own autobiography.

Doing a SWOT analysis of the players, based on the characteristics mentioned (Andy) might be beneficial to compare the SWOT of your players with the existing Model of Play, and a good way to identify the necessary changes in the Model of Play to specifically cater for the three areas; the coach, the club, and the players.

***Age*** is another players' characteristic which is influential on the club's objectives. If the club aims to bring young players into the first team, then "the objectives to win the league is much less, from a club that bought a lot of players" (Mark). Age also influences coaches' expectations. When stating that in competitive soccer, he expects his players to fit his model, coach Hugo implicitly shows that he differentiates his approach according to age as well.

An interesting notion which came up during the interview was that age (developmental age is maybe more appropriate here) is an indicator of the principles that should be introduced, and of the way these should be introduced in the 'smaller game' depending on the number of players playing per side.

> If I am playing Under 13 soccer at an elite level, it is 9v9. So how do I get similarities in 5v5, 7v7, 9v9 to lead to 11v11? If I am planning for 11v11, but make the pitch smaller for 9v9, 7v7, 5v5, I can use the same playing characteristics…just change the size of a pitch. That familiarity allows the principles to be embedded and adapted as the pitch gets bigger and the format of football (soccer) we play changes as well. (Ray)

***Objectives:*** While acknowledging the importance for players to have their personal objectives (Mark), and while coaches should know about them at the beginning of the season**,** it is imperative for coaches to make sure that the players are on board with the objectives set by the club and the coach (Andy). Players should either get "to a common agreement or get off the bus" immediately.

***Players – Model of Play Relationship:*** Having the Model of Play so central to their coaching, the participants show their concern (17 times) about the way their players would fit the Model of Play (Crespo, 2011; Oliveira, 2014a). For them, getting to know the players, their characteristics, and how they fit the Model of Play is imperative (Fannar). The Model of Play influences players recruitment during the transfer coach Market (Fannar), as much as the players may influence the Model of Play. Coach Paul explains that it is only when he knows "what kind of players [he] will be having from a technical, tactical and character point of view... that [he] will be able to dictate [his] PoP" (Paul). This sentiment is shown by many other coaches:

> Do we need to get some players in? This was a big discussion for me and the coaching staff. Do we have the players to play in this formation?" (Fannar)
>
> I want to strengthen my principles with certain signings. (Paul)
>
> I have a model, but again I will be very flexible with it because I will learn things as time goes by, with my players, what they can do what they can't do. Sometimes you think a player could do something and then you realise he can't do it so well. Then you have a problem in that position or put someone else there. (Mark)

This sub-component is considered so important that one of the coaches claimed that with the aim of winning the next league, he sacrificed the European competition games (in summer) to evaluate how his players fit his Model of Play (Mark).

A very debatable point is what and who needs to be flexible and to what extent. "…do you adapt your model for the players, or do you adapt the players to the model?" asks coach Andy, who immediately answers himself by saying that "it is a bit of both". "The players decide your game model," says coach Mark. "Why do I play with three if I only have two good stoppers?" he continues. He explains how Chelsea could play with two pushing centre-backs at their back-three defence. However, he adds to explain that although that is a good option for Chelsea, it does not fit every team's characteristics, even if in his philosophy the coach has that kind of game.

> In Chelsea's case, they found a very clever way, where the two outside defenders who are very good on the ball, go forward. So, if you have three defensive strong men, then, you cannot do that, but if you have three players who can play, and they are good on the ball then you can do that. (Mark)

In agreement with coach Mark, coach Paul says that when he lost two important players in December, he had to adapt the Model of Play and the Style of Play rather than the PoP. “Still, the principles were slightly amended as well, as the missing players might make a big difference,” he says.

In view of using the transfer coach Market, or having the players fit one’s Model of Play, coach Paul is very realistic.

> My principles need to change… I can change the players, but we need to be realistic. It is very easy to say I want this and that player, but it is very difficult to get exactly the players you want. Also, I do not believe players can change. Perhaps I could get to change his approach a little, but that is all. And on the physical side, there is a ceiling, do not expect more. (Paul).

Coach Paul continues to discuss levels of work expected of players, and concludes:

> If in midfield I have players who cannot give me a certain work rate, I cannot have principles that ask for a very high work rate. I cannot ask for an aggressive team when my players cannot take a certain level of physical loading or cannot at a certain level of intensity. (Paul)

What appears to be very debatable at first, becomes very clear after some reflections by the coaches. While as mentioned earlier, coaches like coach Hugo would start thinking that “the coach comes in front of everything”, perhaps driven by the fear that “if you end up adapting too much to the players, you end up losing what you really are as a coach...” (Hugo), like coach Hugo himself, coaches came to a common agreement that “at the same time, you have to be flexible enough not to ask a fish to climb a tree” (Hugo). This paradigm shift in one’s thinking seems to be quite common between coaches who might have an internal struggle between their ego and coaching practicality. Coach Brian, in fact, follows coach Hugo’s argument and first says “I think players can change”

but in the same sentence he continues “but most players I couldn't change”. He goes on to say that “there are very few individuals, with an open mind, and willing to change, but the majority of players won't change” (Brian).

Brian seems to be able succinctly to explain this complex reality and find a fair equilibrium between the self, the players, and the transfer coach Market, by saying:

> I evolve my model to suit the set of players, and over time, if I have to, I will teach and change the players (that can change), and replace others, to suit my long-term model.

Coach Fannar takes it to yet another different level sharing that he picked his latest club “because they were playing similar to how [he wants] to play”. This was somehow easier for him as he did not need to “throw out what they did in the years before” and he could work on taking the club to the next level:

> So, I did not take anything out, but I changed. I changed the formation in the midfield, I changed the defenders’ responsibilities, I changed the runs of my strikers. I took it up a level, I think. (Fannar)

In agreement with coach Fannar, coach Brian states that he does not think he is willing to stay in a club that wants to play the long ball. He states that as a young coach he used to think that he could change the environment, but as an experienced coach he now realises that it is much more important to try selecting the environment that matches your philosophy. In clarifying this idea, he states:

> I think environments in football clubs are very difficult to change. I think that players can change, but when they get to a certain age, I do not think they can change. (Brian)

He concludes that experienced coaches would adapt the model to suit the environment (Brian) or else they would not join the club.

Like all the previous coaches, who seem to have agreed that the integration of their Model of Play with their players must take an evolutionary instead of a revolutionary approach, coach Soldano explains how Allegri worked at Juventus:

> After a coach who has won everything, and who has insisted on the 3-5-2 (Antonio Conte), Allegri came in, maybe with a totally different idea. He was intelligent to continue with the 3-5-2 like Conte, but he was then intelligent to start putting his own things. Not with very different things, but with little things that improved what was done before, and he has also chosen another 2/3 players for a different formation that he had in mind (4-4-2). He brought Khedira, he brought Dybala, he kept Mandžukić but with the idea of changing his idea and use him externally, as he got Higuaín, a better scorer. (Soldano)


**Figure 5.12:** The coach and the players.

***The Club***

Organisational culture in sports clubs is known to be influential on various levels (Reilly & Williams, 2003). This is perhaps why the participating coaches highlight the importance of a holistic scrutiny of the club (Figure 5.13). They find it very important to get a deeper understanding of the composites and characteristics of the committee and its members, the history and culture, league level and coaching domain, philosophy, objectives, facilities, setup and staff available. Considering that some clubs impose the coaching methodology, two of the coaches also emphasised the importance of understanding what kind of freedom or imposition are provided in the area.

***Coaching Domains and League Level:*** Getting to know the "battlefield" (Paul), including "…the league you are in" (Brian) is an important step.

Coach Sergio shares the difference he experienced between a club like Benfica which exerts a certain amount of pressure to winning, and soccer in Senegal which allows freedom for experimentation in a more developmental approach. Coach Joseph believes that the PoP applied in the premiership are mostly identified by direct soccer. The age group, including how many aside they play (11v11, 9v9, 7v7, 5v5) influence the PoP adopted and how this, bridges from one composite to the next (Ray). In the developmental coaching domain, PoP are more stable, while changes might be more frequent in the case of a performance environment (Ray) (Lyle, 2002).

> If you are focusing on a development team, I will not change the PoP but probably would tweak some positions and specific things. But if my team is to win, I would probably change things to get the win. (Ray)

***The Committee:*** Like Ancelotti (2016), coach Andy believes that getting to know the committee and their own views of the game, may have an influence on the style of soccer but may also be an important knowledge capital to influence the committee, with the aim to gain trust and relationship.

> If you do not have trust and relationship you have no credibility…if you are stubborn and ignore the stakeholders, you start losing credibility and you start losing points of influence. (Andy)

It is important for the coach to know what the committee are looking for. That way, the coach will be able to maintain power of influence. "We talk about losing the dressing room. It is the same with the president and the board" (Andy).

***The History and Culture, Philosophy and Objectives:*** Cultural factors have been recognised as the epitome of influences on the development of expert athletes (Baker et al., 2003). This study confirms that historical and cultural factors influence the Process of Knowledge Generation for CPP. "The atmosphere and the environment, the expectations of the club and the fans impact your coaching philosophy" (Brian). "The Model of Play takes in consideration the goals of the club and the team", which have a direct influence on how the team is coached and plays (Hugo). In partial agreement coach Paul sustains that the club's objectives have, but an indirect influence on the PoP.

He gives the example of a coach aiming to sign a player who could assist in the implementation of a model and style of play. Whether the player is signed or not by the club will influence one's PoP.

Coach Ray suggests that the coach shall get to know the "environment" and not simply the objectives. It is "the environment that dictates" what the team is for. A coach should not only "want to know what they want" and "how they want it" but it is also important for the coach to know "what the club is about" (Mark). A club would "want [the coach] to be successful, but … successful in the way the club has always perceived itself" (Mark**)**. If the club aims at staying in the division, but not necessarily win the league, it provides flexibility (Andy).

> …if it is a club that believes that the young ones should be brought in into the team…then the objectives of winning the league are going to be less. (Mark)

One of the teams that coach Brian managed, was expected to win every game and play in style. If they won 3-nill and didn't play a nice game, then people weren't happy. That affected the coach's view of the game and the principles to be adopted. Coach Andy shifts between understanding micro and macro-cultures of clubs. While he believes that as a coach "you need to know the club's philosophy and club's history" (Andy), as an English coach in Maltese soccer, he felt it is important to understand the 'environment' in its wider scale. His understanding of the culture of the country and of soccer in that same country has influenced the way objectives were set and understood, and the way soccer was played (Andy).

Influenced by this input from the participating coaches, the process conceptualised in this study considers the club's history, culture, philosophy and objectives, as it became evident that they all have a huge influence on the objectives.

This contextual influence on the objectives was sustained by coach Sergio when he explained how at Benfica, he had no space for experimentation as he was expected to follow the club's philosophy. On the contrary, in Senegal, he was allowed freedom to experiment since through its history the club did not construct a culture of rigid philosophy. Coach Paul reminds us of the influences of the supporters on a club's objectives. Coach Brian agrees with the wider view

of those factors influencing a club's objectives. He zooms in and focuses on the closer contextual realities, such as table position. When he arrives at a club, he tries to establish what the club's objectives are.

> I think the objectives are framed by the context, so if the club is at the bottom of the table, the club's objectives will probably be to challenge to get to mid-table. (Brian)

Reference was also made on the challenges in understanding a club's objectives. "The club is not always clear with its own vision for that season" (Paul), sometimes due to a deviation in the long-term target happening due to unexpected changes (Paul). In view of this, coach Paul indirectly emphasises the importance for coaches to get a clear understanding of the club's objectives. He also highlights the importance for clubs to make the right choice and go for a coach who would fit those objectives before they engage one.

For the importance of understanding a club's objectives within its micro and macro-cultural realities and within the intricacies existing in such structures, coach Mark believes that one needs to hold a "relationship with the club's committee and the president". He believes the two sides need to engage in a continuous clarification of what is wanted (objective) and how that can be achieved, and then come to a consensual agreement about it. While he suggests that flexible and compromise is needed, he also believes that if he does not fit the club's vision, then it is important for him not to take the job. Coach Hugo**,** who at the time of the interview had just started a coaching job experience in a new country, shares a similar view. In his own words, he explains:

> …the club has a set of guidelines, which are 80% of what I want. So, I am ok to work here, so I must build a Model of Play based on the limitations, restrictions, priorities that the club imposed on me. But I want to build a Model of Play that can be 99% agreeing on what they are saying, but which has some variance that could lead the game to the game I like.

***Methodology:*** Certain clubs carry a huge history and a very specific philosophy. Barcelona for instance "has achieved its self-defined model where players are made for the[ir] system" (ECA, 2012, p. 34). Similar to what coach

Sergio said about Benfica, coach Soldano explains how both Barcelona and Ajax have specific trademarks in their coaching methodology. The club's philosophy has strongly influenced their coaching setup and applied methodologies (coincidentally, Johan Cruyff has managed both teams).

***Setup:*** Children at Barcelona train at 7:30 pm to avoid issues with schooling (Soldano). When Dennis Bergkamp was the main coach of the Ajax boys born in 2002, he was also responsible for training the attackers. In his coaching staff, there is a goalkeepers' coach, Reisinger who works with the external players, Yong who works with the midfielders and Stam who works with the defenders (Soldano).

Coach Sergio explains how all his staff members would "all understand what he wants as a methodology". Having everyone talking the same language makes it possible for everyone to contribute to the methodology and its development, he explains.

Coach Sergio confirms the influence of the technical staff and shifts attention to the importance of the physical environment. Facilities influence the development of a team's game. In an amateur environment where coaches do not necessarily get the full-sized pitch every day, it is difficult to work on width and depth simultaneously and in a realistic manner (Joseph). Sometimes coach Joseph coached 11-a-side teams in a 7-a-side pitch and had to turn his pitch around according to the focus.


**Figure 5.13:** The coach, the player and the club.

Coach Soldano who has worked in both the professional and amateur setups, including junior national teams coaching, explains the difference it makes to have the right physical structure in place. For instance, he mentions the 'gabietta' on the Juventus facilities which facilitates the coaches' adaptations when they want to work on high-intensity pressure in a 1v1 or 2v2. He adds that these kinds of setups save a lot on the coach's psychological energies and empower the coach to work better. Coach Joseph brings up the importance of staff members responsible for areas such as equipment, facilities, sportswear and injury rehabilitation referrals. In amateur setups, it might be that the coach needs to take care of all the areas himself/herself, hence s/he needs to continuously scrutinise every little detail.

### *5.7.1.2 The Game*

The game (Figure 5.14), without any doubt, is an essential part of the coaching environment. Participating coaches have referred to own team analysis, opponents' analysis, and analysis of top teams. By watching 5 to 6 games, HB says he manages to obtain a good understanding of the league level and his new team's performances within that league level.

***Analysis of Own Team***

The main aim of analysing ‘own team’ is to identify strengths and weaknesses which can be built upon or improved respectively (Carling, Williams, & Reilly, 2005). This seems to be a very important element in developing the Model of Play. As coach Soldano puts it, “The match, and the training session [are] a verification of the work being done”. This is why it is important to use “the match as own team’s analysis and the base of the next training session” (Soldano).

This approach is not only fruitful at the beginning of the season, but also along the season. The importance of this sub-component in the conceptualisation was emphasised by coach Mark, who sacrificed the European games and used them to understand his team more. Coach Sergio would watch his players playing in a game and observe how they adapted to specific moments, thus informing his next training sessions. In the 'developmental' project he was working on in Brazil, he was preparing and testing the team against different opponents and asking for different things from his players from game to game. He used his friendly matches to focus on different aspects. In the first one, the focus was the defensive discipline and attacking transition. In the other game, he asked players to care more about possession and defensive transition. In another game he wanted them to play wide, to bring the opponent to one side and to search [for] the other corridor. In the other game, he asked them to play more vertical. Through these variations, he was using the game to scrutinise his team's abilities and see how he should conceptualise and structure the Model of Play for the needs of his own players. "...I want to test them, and this can influence the way I will be working in the following weeks" (Sergio). Analysis of one’s own team is also important as a method to train the team in changing from one plan to the other. “So, if Plan A is not working, we need to adapt and go to Plan B. And we cannot do that unless we have the match as practice” (Ray).

Following the Italian football federation with its national teams, coach Mark, records training sessions for analysis purposes, to see the developments of his game model and to show players their own improvements or lack thereof. This method is also fruitful for the coach to observe how principles are being implemented in training sessions. The creative use of technology for this purpose has also been emphasised by coach Ray who suggests the use of

technology, videos and analysing tools, to aid the coach by increasing the ways of seeing the game, in contrast to only seeing it from the sidelines. "What do the players see? A ‘Go-pro’ can give me a much different view of what that centre-half can see, as opposed to what I can see from the side - space recognition, distances from players, predicting passes...”. This can be an alternative perhaps more informing way of using technology to build on existing knowledge.

From a *Pedagogical Reasoning and Action* point of view, it is important to use recent performance to generate feedback.

> How was the performance? What was the result? Could it show some strength and weaknesses that I need to plug, and so although I have planned to do this part of my model this week...hey, I need to go back and do that bit now. (Andy)

The importance of analysing the team could be as important during the season as much as it is before you take a job.

> I did not know anything about the division and the club and the team, when they approached me, [so] I said ok before I need to see 5 or 6 games from last season. (Fannar)

***Analysis of Own League and opponents***

The idea of watching other teams in the same league, as presented by coach Fannar is also shared by coach Soldano who works according to the next opponent, and coach Andy who defines his strategy by doing a competitor analysis to seek possibilities (Carling et al., 2005). This indicates how important it is for coaches to generate a “comprehension of purpose” (Shulman, 1987, p. 15) by, but not only, by obtaining “knowledge of educational ends, purposes, and values” (Shulman, 1987, p. 8). While when CPP, the focus is on the team, and how to develop the right principles to apply an intended Model of Play, opponents are still a very important factor. Coach Fannar explains it this way:

> I try to get as much knowledge as possible about my opponent. Of course, my focus is my team, but we try not to ignore other teams. Of course, they’re going to stop us from what we are doing, and they have players that can hurt us, and we need to be aware of that. How do we take care of their wingers? How do we prevent that they get space to run into a long ball to come in there?

Coach Joseph looks at it very similarly:

> Although I always work on my game, the opponent is important. If I know that when the opponents' winger does not defend, I need to make sure that I do preventive coach Marking on that side, but at the same time make use of that situation.

Understanding which team, you are playing against next, is perhaps a better indicator of what principles you will be spending time on during the week.

> For example, if it is a low team, we are going to spend a lot of time in our attacking half. We are going to look at, for example, getting in behind, what kind of runs, what kind of cross, and preventive coach Marking. (Mark)

With another example coach Mark explains how he prepared for his direct opponents as league contenders:

> For the next game, we are building our game plan on transition. When we know what they do, we set ourselves for that. We are seeing where they are weak and in transition, they are lazy, so we are setting our game plan so that the transition happens. We know that they are going to play a long ball for example, and they are going to knock it down, so we are going to try to win that second ball. So, we are practising out that if the opponent wins the ball and playing the long ball, we shall all follow that ball.

This adaptation of how a game is approached, based on own team's and opponents' strengths and weaknesses should not give the impression that the general PoP are 'works in progress'. As coaches coach Hugo Vicente and Sergio Raimundo explained to me, the Model of Play, which is the 'working' concept, is composed of general principles which are relatively stable. The lower-ordered sub and sub-sub principles, however, are more adaptable and can help in applying them to approach a game different strategically. Furthermore, one needs to understand that while general principles may be the same all the time (unless the coach decides to change them altogether, for instance changing from zonal defending to man to man defending), the way they are applied within the different phases in every moment of the game could make a huge difference. For instance, in the defending moment, a general

principle could be that of pressure-cover-balance. In phase 1 of defending (high up the pitch) and in phase 3 of defending (closer to own goal) the general principle of pressure-cover-balance is always applied. The sub-principles however, that is the way the general principle is applied and who will do what and where, will obviously change due to the clear differences.

***Analysis of Other Teams in Other Leagues***

Coach Fannar shares that watching other teams playing helps him brush up his PoP. When watching a soccer match on TV or at the stadium, he needs to take a decision on how to watch that game. I have:

> …two glasses [of] how I watch soccer. Entertainment or analysis. When I am watching Guardiola's games, I am trying to learn, and there I look for the pattern in their play…but when I am watching Man United, then I am watching it as a fan. (Fannar)

Coach Fannar also recognises the human limitations should be taken into consideration:

> I cannot take notice of everything that goes on. Lately, I was watching City I've been looking at David Silva… the spaces he is finding between the midfield and the defensive line. That is interesting for me because we are using the same method in my team…I look for how the inside winger is finding the space, how he is observing the game when the ball is played in defence.

Coach Fannar also explains the limitations of analysing through watching matches on TV:

> Of course, sometimes he (the player) is not in the picture, so I am sometimes seeing him (the player) coming in the corner [of the screen] and I am thinking 'where is he looking, why is he looking over there? (Fannar)


**Figure 5.14:** The coach, the players, the club and the game.

### *5.7.1.3 Timeframe*

Although only two coaches spoke about time and its relationship to the scrutiny of the environment (Figure 5.15), it seems important to identify it here as a potential focus of future research. Coach Joseph shedd light on the fact that while scrutiny is a very important ongoing process, there is a difference between scrutiny at the beginning of the season or at a later stage.

> Later in the season certain things are not necessarily thought about. The training pitch remains the same, the physical environment remains the same unless minor changes like weather take place. (Joseph)

Coach Ray looks at an even deeper level of timeframe and explains that:

> …the timeframe one has for evaluation and reflection is dependent on the environment. We've had a game…we did well in some areas, not so good in some other areas. How long do I have to reflect? Because my next match is in two days.

This shows the challenging limitation time may place on a coach who is working with a team that competes in European competitions.

Coach Ray also reflects on the importance of time in relation to the coaching domain, asking, “if you are trying to make a difference over a stretch of time... are you judging me on that stretch of time or is it a game to game

situations?". By this, he differentiates between performance coaching and developmental coaching (Lyle, 2002). The former is very limited, and the emphasis is on obtaining results. The timeframe for making a difference in this case may vary between 2 days and 7 days during season period. Conversely, I suggest that coaching in developmental programmes should have a long-term timeframe.


**Figure 5.15:** Scrutiny of the Environment.

### 5.7.2 Conceptualisation

Although the components presented do not necessarily come one after the other, the participating coaches felt that ***conceptualisation***, ideally follows a good ***scrutiny of the environment***. Only then they would feel comfortable to come up with a conceptualised Model of Play that follows a shared strategy.

#### *5.7.2.1 Shared Strategy*

Three of the participating coaches made their thinking very clear that coaches cannot just focus on designing their soccer principles without taking care of ensuring that they have everyone on board. This could be attributed to the existing power struggles experienced in coaching environments. Due to this limited control over other stakeholders, coaches might consider looking for a level of consensus (Jones, 2006). As coach Mark says, it is important to:

> …have a relationship with the club, the president and the committee, the board, and agree on what we [you] want to achieve, and then we [you] got to agree on how we [you] going to do it.

This consensus is only possible when both parties, the coach and the club discuss, and come to a common agreement on their objectives (Mark, Fannar).

Although the bigger picture of the shared strategy might have a top-to-bottom approach, it is important to have players feel that they own the strategy. It is when "it becomes their idea, [that] you have a shared vision, a meaningful vision which is common to all" (Andy).

Coach Andy explains that "people want to be part of something meaningful", and for people, it would be only meaningful when "it hits the heart". He offered this anecdote:

> I wanted to win the league within 3 seasons, we wanted to play attractive soccer, we wanted to play with a back four.... that was our vision and that was brought down into words. The question was, what is it that we want people to say about us? What do you want the headlines to be like? 'Aggressive, passionate, high tempo team'. (Andy)

It would be unwise for a coach applying this conceptualised process, not to remember that the Model of Play needs to be contextual, that is, taking the history, culture and goals of the club, the coach's soccer vision, players characteristics and all other influential factors into consideration (Hugo). A special emphasis was put on the group of players, the potentially recruited players and the coach's abilities (Soldano). The principles informing the Model of Play and the style of play may be steered by either the club's history or the coach, or by the influence of both together (Ray). This is very well explained by FC Barcelona's history influence on their game, and Johan Cruyff's influence on that game, together with Guardiola's influence in the last few years (Albertini, 2013; Lucchesi, 2011). Coach Soldano explains how Massimo Allegri, the Juventus coach was wise to take into consideration the contextual reality when he moved into a team which had just won three consecutive leagues in the last previous years. "He has put what he had, with what the previous coach has put in. He replaced some players, changed positions to some players..." (Soldano). All these factors may have a huge influence on the strategy. Their influence

may justify why Jones and Wallace (2006, p. 53) claim that ‘consensus’ goals “between coach and athletes, may operate at only a superficial level”.

### *5.7.2.2 Model It - Model of Play*

The model of play is an idea, the coach’s idea (Oliveira et al., 2011; Oliveira, 2014a). Coach Soldano strengthens this idea, when he tells us that Italian coach Menotti once said, “The coach is an idea, we are all an idea, which should not be betrayed at the first adversity”.

The Model of Play makes the Knowledge Generation for CPP a Process of *Pedagogical Reasoning and Action*. It is the Model of Play that guides “comprehension and reasoning, transformation and reflection” (Shulman, 1987, p. 1) within this process. It is of no surprise that the Model of Play is considered as the coaches’ ‘soccer bible’ (Mark).

That is what makes ‘conceptualisation’ within the Coaches’ Process of Knowledge Generation for CPP, so important. Without it, the process would be incorporating a scarce level of pedagogical reasoning. It is this that differentiates any other coaching process from this process.

#### *A Model of Play*

The importance of the Model of Play is confirmed by eight of the ten participants, who explain what a Model of Play is.

Coach Paul recognises a good coach when his players would always know what is expected of them into the most detailed level; “for instance, the players understanding the changes needed with each particular substitution”. This is only possible when coaching is based on a Model of Play, which acknowledges soccer as chaotic, but at the same time is in control of every situation as it provides a “clear understanding of what the coach wants from his team at every moment of the game” (Hugo).

> When going to the training pitch, the coach has a clear understanding of what he wants from his team at every moment of the game. So, I think when the coach designs his Model of Play, even though he needs to be aware that soccer is chaotic, still you need to be control freak, in a way that you know all the answers for all the situations that can occur. (Hugo)

The Model of Play incorporates a detailed plan of a soccer idea (Oliveira, 2014b) starting:

> …from the very broad principles of soccer through to the idea of the major objectives, within each moment of the game, the sub-objectives and sub-sub objectives, down to the individual skills within each position and the group skills. (Andy)

> If I want to play from the back through midfield and getting to the attacking third with a number of solutions, I have to start to build-it up. (Andy)

A Model of Play is not about the formation (4-4-2, 4-3-3 etc) (Mark, Soldano), as much as it is about:

> …how we are going to play – the where and what the midfielders are going to do, and what the striker is going to do, and what the fullbacks are going to do. (Mark)

"This 'bible' has to be flexible. It must be ready to adapt and to change". It provides a foundation for every situation, "but then you stretch it, adapt it a little" (Mark). The same Model of Play needs to be applicable to at least two different formations (Mark, Soldano).

This view of the Model of Play as the coach's idea which provides organisation through a set of principles is shared by many authors in the field (Delgado-Bordonau & Mendez-Villanueva, 2012; R. Oliveira, 2014b, 2014a)

### *Principles of Play*

When designing the Model of Play, the coach starts looking for the PoP (Delgado-Bordonau & Mendez-Villanueva, 2012; Jankowski, 2016) which are specific to the players' game within their own position and the expectations arising from them (Soldano). These deep principles, which are based on the scrutinised environment (Hugo), are descriptors coaches use to explain consistent behaviours, that in the end are expected to happen in the game (Ray). These descriptors allow the coach to have principles that guide his/her decisions instead of coming up with solutions randomly when a problem arises (Hugo). Table 5.2 provides examples given by the interviewed coaches.

| Coach | Principle | Notes |
|---|---|---|
| **JOSEPH** | "width and depth" | "The way we do that can vary. For instance, using the winger for width, or using the fullback while the winger goes in". |
| **JOSEPH** | Receiving with the right angle and looking vertically | |
| **PAUL** | Getting aggressive when our opponents get into our middle third | |
| **BRIAN** | The 13 seconds rule – keep the ball, no panic. | Aimed at introducing the idea of patience in his team, when attacking. |

**Table 5.2:** An example of PoP.

Coach Paul explains how the principle of play links with the training session itself and how this has nothing to do with systems of play (formations). He explains it as follows:

> **Principle**: I want my team to become aggressive when my opponent gets into my middle third.
> **Training:** So, in training, I need to create situations where when they get into the zone, I need to be aggressive.
> **Principle:** When in possession, as soon as we lose the ball, we apply the 'few seconds rule' and we press immediately in that same zone where we lose the ball. We do not just run back.
> **Principle**: If we are in our own third, as soon as we win the ball there, we play early forward.
> **Training:** I need to create situations in training, by which I tackle each of the principles. I am not yet talking about a formation I can then decide if I do that in my 4-3-3. I am not yet talking about a strategy, of how to use my lateral players based on each principle etc. I do not believe in a game being played with numbers. (Paul)

Having PoP guiding one's training session does not necessarily mean coaching needs to be deductive. To the contrary, coach Joseph makes it very clear that he does not ell players what to do but allows principles to guide their decisions. For example, he makes it clear that it is within their style of play that they "always build up from the back", but he still makes it clear that there is a principle that guides the ball holder to decide. "The receiving player needs to be with the right angle to the ball and looking at the ball". Hence, he clarifies, "if the

receiving player is not with the right angle to receive, not looking at [the passer], then the principle does not apply" (Joseph). When working on build up from the back, the coach does not say "this player stays here, or this player stays here". He allows them to guide their decision based on the principle of providing the right angle, which allows the player to see the ball and look forward (Joseph), receiving in an open body position.

***Sub-principles, sub-sub-principles, and individual principles***

The Model of Play stands with the **general principles**, which provide "the whole picture in general terms" (Andy). These may help to explain the main concepts of play to your players on the first day of training (Joseph). After the general principles, coaches would "need to go deeper – starting from the individual" (Paul), followed by the sub and sub-sub-principles (Soldano, Paul).

Coach Mark determines:

> …the position of every player and what is expected of every player tactically, mentally, physically…for example, the fullback needs to be quick, strong, able to get up and down, able to defend but also able to cross the ball.

These basic characteristics are only a start. Those are followed by the general principles, and then by the deeper sub and sub-sub-principles, and at the individual principles (Paul). The sub and sub-sub-principles explain how to work as a group. The individual principles focus on how players need to function on an individual level.

It becomes very evident that CPP is about detail. Coach Paul identifies what kind of pressing he is talking about. "Pressing the man, pressing in the zone, pressing to eliminate the pass? Pressing them to make them play long?" The detail can be obtained through sub-principles, which look at deeper details such as "a diagonal run" and how to "go in and out" (entrare e uscire) (Soldano) and the deeper understanding of how these can be done (Soldano). "The general principle is the big picture; the sub-sub-principles are massive…they are the foundation" (Mark). The sub and their sub-principles, together with the individual principles are the "pieces needed to get to that bigger picture" (Andy).

> You got your PoP where you have the 4-3-3, this one should do this and this one should do that. But then we have the sub-sub-principles when I

> am on the ball, should I play short, or play long, should I run with the ball into space? Create 2v1 situations. Where? At all times. If I go forward, I should support forward and think about behind because I can lose the ball. So, within each principle, there are so many sub-principles and sub-sub-principles, that you must coach during the week within small-sided games. The movement is important but for me the details - if I pass a square ball, I must drop five meters to create an angle, not only to get the ball and support but if he loses the ball, I am in a better position now to defend. (Mark)

***Moments and Phases***

It is important to have PoP for the whole team, for the departments and for the individuals, as it is these principles that guide all training sessions (Paul). There seems to be a general agreement that a Model of Play is divided in “attack”, “defence” and the transitions in between (Ray) which as explained by coach Paul are the moments when the team is in possession or loses possession, when the opponents are in clear possession of the ball, and when the team wins the ball (Mendonça, 2013). In view of appreciating the chaotic reality of the game, this is a way for coaches to decompartmentalise the game, “while trying to depict it in the whole” (Joseph) reality of the game. This will not only clarify “where every player needs to be in every phase of the game (when)” (Andy), but it will also specify how, why and what kind of behaviour is expected from each player.

***System of Play and Tactical Strategies***

Once the Model of Play is set, (with its principles, sub-principles and sub-sub-principles for the attack, defending, transition and set pieces), the coach can then teach two or three systems of play (Andy) which incorporate the same principles, to allow him/her flexibility through their variation. This need for more than one system of play (formation) is also expressed by coach Mark, who however suggests that formations are not changed too often to allow players to settle and master a formation (Mark).

Various coaches hold the idea that PoP stand, no matter the strategy. One might, for instance, start “by pressing for the first 30 minutes and then recover [physically]” (Soldano). The general principles of pressing or attacking

remain the same, even though strategically the coach might change the line of confrontation in pressing, or the players used to attack different spaces (Joseph).

#### *5.7.2.3 Conceptualisation - Adaptation*

"…As coaches, we all have our philosophies, our identities and our preferences of how we want to play" and this is an important influence on the Model of Play. But as coach Brian continues to explain, coaches need to be pragmatic and be willing to adapt to suit their environment. In full resonance, coach Sergio shares that in the past he used to bring his philosophy with him to every club. After 10 years of experience, he learned how important it is for him to adapt to the needs of the environment. He continues to explain that you always start with some of your ideas, but then, after you scrutinise everything, you continue working on the contextualised Model of Play. "There are some things you can introduce from the first day, and then through deeper scrutiny, you can decide the complete Model of Play," he says (Sergio). Notwithstanding this, he still makes it very clear that he starts working on the principles from the first day. "If you know the players you can start with basic general [principles] and [then] start working on smaller principles" (Sergio). On the other hand, if the environment is totally new, he starts "working on the big principles that can apply the big idea. Then [he] start[s] working on the specifics with the finishing of the game model in the next days" (Sergio). Assuming that not all coaches are experts and that all are continuously learning, coach Sergio explains that coaches can engage in this ongoing learning process even when conceptualising the Model of Play.

> Scrutinise the environment, go in training, start including general principles if you don't know them enough, or more specific if you know them better, then keep repeating this process until you get into detailed specifics. (Sergio)

Many of the participants talked about the strong influence of the self on the Model of Play, but they also agree on the importance of adaptation to the needs of the environment. This has been identified by Delgado-Bordonau and Mendez-Villanueva (2012) when they discussed the factors that influence the design and construction of the game model.

The Model of Play is adapted to suit the environment and the objectives set by the environment (Brian). While a Model of Play may be written over a couple of days or weeks, in real fact 'the game idea…is in a continuous evolutionary state' (Hugo). This is confirmed by coach Fannar when saying; "I have been working on how I want to play soccer for five to six years". Coach Brian confirms this continuous evolution:

> I have my philosophy document, so a lot of my modelling has been done, and that is why I am saying, when I go in, I scrutinise the environment, I have my model, and then in preparing that I only adjust. (Brian)

The Model of Play needs to adapt to different styles of play and formations as to be able to provide a framework that allows a clear understanding of what the team needs to do in different situations (Mark). Coach Mark states that he aims to coach "them and teach them how to adapt to different situations". He mentions an example when his team played against a 3-4-3 formation, "so they [his players] ended up having to deal with a wing-back and a wing". This shows how important it is for the coach to introduce a Model of Play which is flexible in its adaptation to both attack and defence (Mark).

Being aware of the adaptation that one needs when working with new players at the same or at a new club (Fannar), Coach Fannar decided to move to a new club which has players with the right characteristics to play his game. Still, he admits that to improve the game, he needed to implement changes to his midfield update, to the responsibilities of his defenders, and to the runs of the strikers (Fannar).

The need for adaptation as expressed by the participants clarifies that they have implicitly or explicitly recognised the process as one which is problematic. It also shows the level of *Pedagogical Reasoning and Action* these soccer coaches engage into, when working on their Model of Play. Coach Mark confirms that he structures a model but keeps in mind that he needs to be flexible with it, not only for new players, but also because "[he] will learn as time goes by with the players, what they can do or what they cannot do". Coach Paul confirms that coaches need to be realistic and accept that principles may need to change. "It is very easy to say, I want to play this way, but it is not always easy to get the players you need for that kind of game". Hence, coaches need to be ready to "set the principles and adapt them to their players" (Paul, coach

Brian) and then over time, teach the players who can potentially change. If it is necessary, those players who do not fit the Model of Play would need to be replaced (Brian).

I find this section best concluded with a statement by coach Soldano:

> The balance between - keeping the model to suit the players, getting new players to suit the model, changing the players to suit the model - changing the model to suit yourself.

### 5.7.3 Generation of Knowledge

"Extensive knowledge is considered a primary characteristic of those who become expert coaches" (Côté & Gilbert, 2009, p. 309). Professional Knowledge (Collinson, 1996) which gathers the declarative and procedural knowledge about sports science, sport-specific knowledge and pedagogical knowledge (Abraham et al., 2006), has rightly so been identified as insufficient on its own (Cassidy et al., 2009; Côté & Gilbert, 2009). In fact, Côté and Gilbert (2009, p. 309) for instance follow Collinson's categories of professional, interpersonal and intrapersonal knowledge when defining effective coaching.

While the focus of this study are the PoP, hence declarative sport-specific content knowledge, in the conceptualisation of the Coaches' Process of Knowledge Generation for CPP, it becomes evident that professional, interpersonal and intrapersonal knowledge (Collinson, 1996; Côté & Gilbert, 2009) become very important.

"Expert coaches evaluate their personal characteristics (what they can and cannot do)", they evaluate the athlete's "characteristics and level of development" and "the contextual factors, to have an estimation of [athletes'] potential". "This estimation is then used as a basis to define which knowledge is important for use in the competition, organization, and training components" (Côté & Salmela, 1995, p. 73).

Coaches look for marginal gains and improvements in their teams. Marginal improvements in their own knowledge as coaches contribute to the team's improvement. Not looking at other teams' strategies amongst others and tactics (for instance), may lead coaches to become static (Brian). Henceforth, the continuous generation of knowledge is imperative in the Process of CPP, as it is confirmed to be an important characteristic (Côté & Gilbert, 2009) for

coaches to continuously generate (Côté & Salmela, 1995) pedagogically specific knowledge (Oliveira, 2014a; Shulman, 1986).

#### *5.7.3.1 When do coaches need to generate knowledge?*

One “might start the season with a game idea, but the environment might make [him/her] change…” perhaps “not totally, but part of the game” (Hugo). This constant changing process leads coaches to an ongoing process of deliberate knowledge generation. Coach Paul confirms this idea of knowledge generation as “an ongoing process”. Even if he is comfortable with his knowledge in an area, coach Paul keeps refining it.

Undoubtedly, the fast evolution of the game, asks for continuous generation of the principles that guide the game, which is why it is important for the coach to be able to generate knowledge and to acknowledge knowledge as fluid. This resonates with Côté and Salmela's (1995) findings.

#### *5.7.3.2 What type of knowledge do coaches generate?*

According to Côté & Gilbert, (2009 p. 316) “Effective coaches in any context integrate three forms of knowledge; professional, interpersonal, and intrapersonal knowledge”. In understanding what these three knowledge categories are made of, it becomes very clear how difficult the task can be.

Coach Hugo highlights the importance for coaches to know what knowledge they are looking for. The community of practice, or the ‘tribe’, as coach Hugo calls it, is very influential on what one looks for in terms of knowledge.

> If I wasn't in my tribe, in my element (community of practice) or if I did not read a lot, maybe I would not have the theory that makes me look at things in a different way. I would not be able to look for things and identify them if I did not know them or anything about them. (Hugo)

When talking about CPP (Jankowski, 2016; Tamarit, 2015), and the necessary Subject Matter Content Knowledge (Côté & Gilbert, 2009; Shulman, 1986), coaches look for the big principles of the game and the more specific principles that inform the bigger ones (Sergio). Match analysis (Carling et al., 2005) are useful to look for “patterns” (Fannar), for “lines” for “routines”. Watching games,

coaches try to understand what the teams are trying to do, to possibly use it in their own games (Joseph). They try to understand:

> …what is a routine what is by chance…What is the move, the right fullback (for example) does every time the ball is at the central-back? How does that move change depending on the pressure of the opponents? Because everything makes it a new situation. (Sergio)

A coach would need to identify which PoP apply to his team (Ray). That is why it is important to analytically observe tactics and find out whether they can be applied to your team or not (Mark).

Coaches also look for individual principles such as the way “this guy is always screening the space around before he gets the ball – Iniesta” (Hugo).

> If a player does something good, even if it is not a routine, you can say, 'oh this is the way to do it' … you can create a routine from that’. If he does a right decision, you can say, look that is something good, if I have the right player for it, and it makes sense in my model, I can put it in the model. (Sergio)

### *5.7.3.3 Where do coaches acquire knowledge from - in developing their Model of Play?*

Coaches Andy and Sergio remind us that the internet is used by many people to look for content knowledge in coaching. Coaches look for knowledge in soccer coaching related documents such as The England DNA (England DNA, 2015b, 2015a; The FA, 2015), which presents principles as descriptors of what one should expect at the foundation stage (5-11 years old), youth development (11-18) and performance stage (18-23) (Ray).

In generating knowledge to develop their Model of Play and brush up their PoP, coaches consider coaching education (Cushion et al., 2010) as the first formal option (Andy). Besides providing content knowledge explicitly, coaching courses contribute to widening one's horizons (Paul).

As Côté and Salmela (1995) explain, the **'self'** (the coach himself/herself or his/her philosophy), hence intrapersonal knowledge (Collinson, 1996; Côté & Gilbert, 2009), is a catalyst in the generation of knowledge (Paul). This includes the way the coach sees the world and people, and how he interacts (Sergio). The coach's experiences gathered from daily situations, such as a chat with the players, are also one of the main sources for knowledge generation (Paul). The self is very influential in the development of the Model of Play and its informing principles. Coaching experience is also seen as influential in the understanding of the game, and in the ability to deal with every possible scenario (Brian).

> I would know how I want to play; I would know how I want to use my players. I think I can quickly identify the players at my disposal and within my philosophy adopt the strategy and style of play that suits my players. (Brian)

Hugo agrees that "theoretically [the coach] knows how to solve everything beforehand", hence he agrees that knowledge can be generated within the self.

> In the way, I see the training and the way I conceive the game, and, in the way, I have segmented it in my head, when that moment occurs, it's already archived in the phase of play in the moment of the game in the game situation (in my mind). So, when I do a general exercise I am thinking on a situation (present or anticipated problem) and work on

> possible solutions (which might be switch play) and not thinking about a solution (switch play) without the situation in itself. (Hugo)

Coach Fannar continues to strengthen the position of the self. Although he watches a lot of games to learn from, he allows his own philosophy to influence his learning. Perhaps in contrast to his previous admiration to certain parts of Guardiola's game at Manchester City (2016-2017), he states, "I do not agree with Guardiola because he has too much pride in his playing style". He shows the importance of his philosophy as a coach, and it influences his knowledge generation. He says that differently from Guardiola, if the opponents are pressing with six players, he would "just play the ball over the first pressure and you are through". On the other hand, he shows approval of Jurgen Klopp and his pressure style, when he tells me "I adore it". He concludes by telling me, "yes I [learn] many things from many coaches", 'but only those things that fit well within my own philosophy as a person and as a coach'.

Coach Paul adds to explain that the search for knowledge finds its space not only in what s/he knows but also in what s/he does not know. "I always start with what I feel is my strength - not that you would not know other things, but you'd know the strengths" he explains. This shows how both the self and the surroundings may catalyse a process of knowledge generation.

Mullem and Mullem (2014) found that 66.1% of coaches in the United States use ***trial-and-error*** to generate knowledge. This method was also found to be important by coaches participating in my study. "Being ok to fail is sometimes important as it allows the coach to learn" (Ray).

Watching other coaches' training sessions (Sergio), looking for knowledge from colleague coaches (Ray), coaches 'outside' your immediate environment (Brian), and coaches coaching other teams (Brian) is also a way to generate own content knowledge. The bringing together of like-minded people, and the sharing of information (Trudel & Gilbert, 2006) creates a community of practice which contributes to coaches' learning and development (Cassidy et al., 2009; Cushion et al., 2010; Kirk & MacPhail, 2002; Kolb & Kolb, 2008).

The immediate world like "your own team" can be an important source of knowledge (Ray, Paul).

> Sometimes, you go to the players, ask the players… boys we have a problem, I am giving this solution, but things are not going well, what do you think, what solutions would you suggest? (Joseph)

Referring to Ken Robinson, coach Hugo mentions the importance of being "'in your element', in your zone, doing something you love". He explains how this results in the coach:

> …being with people who share the same love, so you end up discussing soccer less as a fan but more as a coach. Then when you are trying to think something, you find it here (in your brains).

The coach links the community of practice to informal learning, as he explains that they "do not have a defined (official) coaching discussion. It is just that [they] have 3/4 coaches watching a soccer game and discussing it". Coach Joseph reminds us that the community of practice (Wenger, 2000) can be as close as your own technical staff. He believes in having people of trust, with whom the coach can discuss and analyse, and through whom feedback can be collected and then acted upon. Coach Brian explains how one may find new knowledge during games when the coach needs to adapt his game to outplay the opponents.

Coaches obtain knowledge from a more distant world, like history and tactical changes, from the Barcelona of Guardiola, from Mourinho winning everything and from Arrigo Sacchi changing the game in Italy (Sergio).

**Watching games** is the obvious knowledge source (Sergio, Joseph) for coaches (Carling et al., 2005). Coach Fannar manages to draw a distinctive continuum of the different realities of watching games. He watches his own team playing and through the analysis of these games, he acquires knowledge, or he identifies knowledge gaps that need to be addressed. He also watches other teams playing, "premier league, champions league, 16-year olds playing", and from these games, he tries to "see something they are trying to do" which he can apply in his Model of Play (Fannar). Coach Mark emphasises the importance of watching the best in the world:

> If I were an author, I would need to see what the best writers are doing... now we have Conte, we have Klopp we had Leicester playing 4-4-2 with

> counter attacks and winning the league. That is where I get the knowledge from.

Looking at successful teams is exactly what one needs, in order not to get static as a coach (Brian). Coach Mark continues to clarify that when looking at successful teams, we need not focus only on the big teams, but those who are closer to your club's reality and are successful in their approach. He gives an example of "Bournemouth or Southampton who manage to stay there although they lose three to four players every year".

I was surprised by coach Hugo saying; "I do not really watch many games" (Hugo), but he corrected himself clarifying that "…although I say I am not watching soccer games, I am" (Hugo). He acknowledges the fact that when he was an academy director in Braga for three years, he was watching a lot of games, and all with a coach's perspective. In an informal approach, he was intentionally learning by allowing the club's Model of Play leading the learning process and looking at it to determine if it was being fulfilled or not and to see what problems they needed to tackle (Hugo). He only watches 'big' games a few times when for example "people are talking so good about the zonal defence of Napoli", and wants to check that out. This is once more an informal but intentional manner of looking for knowledge. This time, his Model of Play would not be central as he would allow himself to look at the game, and then try to identify the important knowledge that might be forming part of Napoli's Model of Play. In acknowledging the importance of watching games, coach Hugo set a target to watch a top game per week from different leagues. He continues to express that reading was an important source for knowledge generation. Despite him saying that he did not watch many top level games, he concludes that watching games and analysing them, no matter which games they are, will make a coach better in seeing "the ants crossing the pitch" (Hugo). He says that the main problem with this is that visualisation, seeing things happening in the case of soccer coaching is very important. However, he also believes that not watching so much soccer, can explain why he thinks outside the box. He explains this nicely, saying that:

> Everybody wants to put the number 6 (HM, 4 in certain countries) playing back next to the CB now because Guardiola did it to play in a 3-4-3. And sometimes I am wondering if the number 6 (4) can receive the ball in

> front of the strikers, why is he coming down? Why do we have one man less in our build up? Why are people doing this? Sometimes I think most of the coaches do it because it becomes a trend, not because it makes sense for them. (Hugo)

In conclusion, as coach Paul expressed “I do not think that soccer is found in a book. It is in a lot of books” (metaphorically speaking and not). It is then up to the coach to see how to adopt the knowledge found according to his/her own philosophy and adapt it to the needs of his/her athletes in view of the context they are working in (Côté & Salmela, 1995). This leads us to the question addressed in next section.

#### *5.7.3.4 How do coaches acquire knowledge – in developing their Model of Play?*

Before deciding which kind of representation to apply, it might be helpful to get to know how your learners learn best (“VARK. A Guide to Learning Styles,” 2017). As the VARK theory explains, representations can be done **v**isually, **a**uditory, through **r**eading/w**r**iting, and through **k**inaesthetic experiences. This will be discussed and explored further in this chapter. Like all learners, even coaches learn through different methods. The VARK theory (Cassidy et al., 2009; Fuelscher, Ball, & MacMahon, 2012; “VARK. A Guide to Learning Styles,” 2017) is useful when discussing how coaches acquire and generate knowledge.

**Visual:** Knowledge generation could be done while watching a training drill and taking a note of it on your coaching notebook (Brian).

When learning through watching soccer games, coaches need to differentiate between watching soccer for analysis or entertainment (Fannar). In a very human and realistic approach, Coach Fannar explains that it is very difficult for a coach to be watching a game and to be in a position to take in all the information the game is producing. He employs what I refer to as *‘selective analysis’*. He allows the gaps present in his Model of Play to guide him. For instance, he would focus on “David Silva [and] the spaces he finds between the midfield and the defensive line…that is interesting for me because I am using that with my team”, he concludes.

Pragmatically, he explains challenges met when analysing games on TV. When looking at the inside midfielder, analysing how he finds space and how he

observes the game when the ball is played in defence, Coach Fannar makes sure to keep his focus on that player. When the same player is out of the screen, he waits for him to come back in the picture and then focuses on “where he is coming in and why he is coming in that position?” (Fannar).

As coach Ray emphasises, the use of technology can be used in an even more creative manner to inform our knowledge even better. He believes that what coaches manage to see in the game is very limited. Hence, he finds the use of technology as an important solution. “… videos, analysing tools, overhead videos. A go-pro can give me a much better view of what the players see. Space recognition, the closeness of players, predicting passes”.

**Auditory:** Knowledge can be acquired in an auditory manner when discussing with colleague coaches (Ray, Joseph), or coaches from outside your coaching environment (Brian), or your own players (Ray, Paul, Joseph).

**Reading/writing:** Reading about coaching exercises, models of play or PoP on the internet (Andy, Sergio) or books (Hugo, Sergio). As coach Ray explains, sometimes you go to a club where there is no history and no template of a Model of Play. You are given a blank piece of paper, and full trust to develop the PoP and the Model of Play for that team. Of course, in this case, you are learning by writing, but you are probably also referring to the other ways of learning.

**Kinaesthetic**: Mark gives an example of how one can learn PoP by doing. For example, referring to the Liverpool’s game, he would go to his player and say “did you see how they did that? Do you think you can do that? I think you are like him (the Liverpool Player) at our level”. It is only then, after trying it out, with his players, that the coach would be seeing if that knowledge is valid for his needs.

### 5.7.4 Transformation of Knowledge

In coaching, “comprehended ideas must be transformed in some manner if they are to be taught” (Shulman, 1987, p. 16). Following the scrutiny and the consensual conceptualisation, the coach needs to start transforming the generated knowledge (Figure 5.16) for the needs of his athletes and his training sessions.

The participating expert coaches mainly talk about 4 sub-components that form their transformation of knowledge. In-**build it – model of play**, they suggest a contextually constructed curriculum (Brooks, 1987), which is segmented and simplified as per the needs of the learners (athletes). As explained earlier the participants believe that the coach needs to own his/her curriculum, to be able to start planning it in the right sequence and programme and designing-it in training sessions.

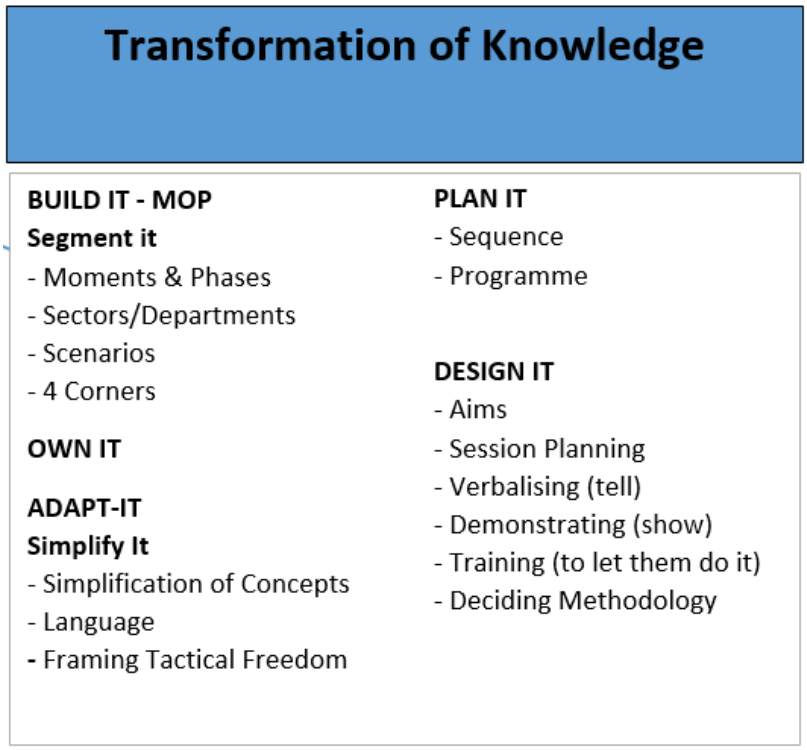



**Figure 5.16:** Transformation of Knowledge.

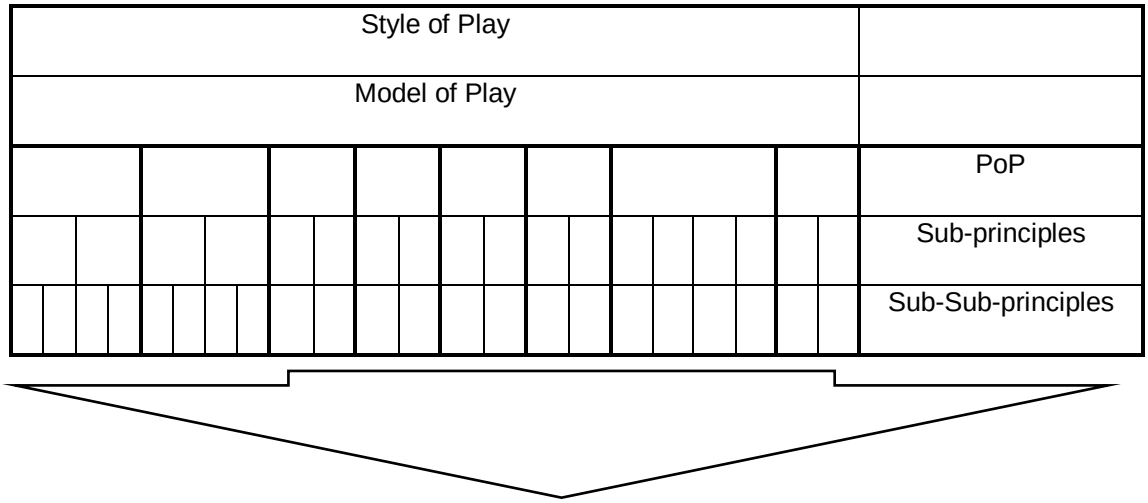
### *5.7.4.1 Build it – Model of Play*

The Model of Play also referred to as the coach's 'bible' (Brian) or the 'curriculum' (Mark), is the manual (Mark) that includes the coach's game philosophy (Brian). It "captures the details of how a team plays across specific contexts, in the five moments of the game, plus all of their sub-phases and beyond" (Peraita, 2016, p. 4). Coaches who CPP make sure that it includes all the necessary details, as it is the foundation of every training session (DiBernardo, 2015).

To get a clear picture, some start from the strengths and weaknesses of their own players (Fannar). They make sure that:

> [all the] players know when they are in certain position, they know all of their defensive responsibilities, all their attacking responsibilities, where they should look according to the ball… and this is written in the document. (Fannar)

The coaches would have the big plan in the form of a document or a Microsoft PowerPoint presentation which shows all the movements (Sergio), and which includes the style of play, the Model of Play (Peraita, 2016, p. 4) and the PoP informing them (Sergio). This provides the big picture and its details, which is then broken into sessions and exercises as shown in figure 5.17 (Brian, Sergio).




| Session Plan 1 | | | Session Plan 2 | | | Session Plan 3 | | |
|---|---|---|---|---|---|---|---|---|
| Exercise 1 | Exercise 2 | Exercise 3 | Exercise 1 | Exercise 2 | Exercise 3 | Exercise 1 | Exercise 2 | Exercise 3 |

**Figure 5.17:** Transforming a Model of Play into exercises.

### *5.7.4.2 Segment-It*

A Model of Play may start from “descriptors for defending, midfield, attacking and goalkeeping behaviours or characteristics” which build the underpinnings of the curriculum (Ray). This can be written for one team, or for all age groups across all the steps of the developmental model of sport participation (Côté, Murphy-mills, & Abernethy, 2012).

The generated knowledge, conceptualised in a Model of Play can be segmented according to the moments of the game and their phases, taking in consideration the teams, the sectors and the individuals, and also considering

the different scenarios of the game (Mendonça, 2013; Peraita, 2016; Tamarit, 2015) and the 4 corner window (Meylan et al., 2011; Premier League, 2011). Some of the participating coaches claimed that they have this written down in the majority of the cases (Appendix 1.1 is an example). Others, however, have implicitly shown or explicitly stated that this 'transformation' is based on tacit knowledge "which can be abstract and unarticulated" and "which is routinely used and taken for granted" (Nash & Collins, 2006, p. 466).

***Principles of Play for every moment of the game***.

The participating coaches show that the document (or their tacit body of knowledge) could be divided into principles, sub-principles and sub-sub-principles for all **the moments of the game**, which are in possession (attack), loss of possession (negative transition) out of possession (defending), gaining possession (positive transition) (Mark, coach Hugo) and set pieces (Brian). Every tactical detail will go "under its higher order principle" (Andy).

***PoP for every phase in every moment of the game***

*Tactical Periodization* (DiBernardo, 2015) refers to three phases in each moment of the game (Hugo). The phases (Figure 5.18) are important for coaches as they identify the location on the pitch:

> We have pure guidelines if we are winning the ball over there. Where do we move the ball how do we move the ball, so that we are on the overload side? (Fannar)

While some would start working on attacking from the 3rd phase, some other coaches would prefer to start from the GK when attacking (phase 1) and from the attackers when defending (phase 3) (Joseph).

I suggest that one can be flexible on the number of phases, depending on how one perceives the game. While DiBernardo, (2015) divides the offensive moment into three phases, I divide it in four. I agree with him on build up and on the midfield phase where the team tries to create imbalances. However, before the finishing and scoring phase, I look for the penetrating phase which allows me to work on getting the ball forward in the pitch for the players to have a chance at goal in the final phase (fourth phase for me). While it is not directly related to the phases as we know them, Guardiola helps his defending and

attacking organization by dividing the pitch into 20 areas (DiBernardo, 2018). That gives him a more detailed micro-insight of every part of the pitch (Wilson, 2018).

***Team-Sectors-Individual***

When coaching through PoP coaches take different approaches. Referring back to his example on how Ajax divide their coaching in departments coach Soldano tells us that in Italy, this idea of departmental segmentation (Joseph**;** goalkeeping, defending, midfield, attacking departments) which allows the coaches to look at both the big picture and the small picture (Joseph) and work on a principle with the whole team and then shift to working in sectors (Joseph) is called 'scorporare' (meaning 'unbundle'). He gives an example of Allegri the Juventus coach who would "put the defence and put the attackers attacking them as if it was the Barcelona attackers" (Soldano) to work on one part at a time. This is what in English jargon would be called the whole-part-whole (Reed, 2004) coaching method (Soldano).

This is the same concept of the "sectoral, inter-sectoral and individual" (Sergio) as found in *Tactical Periodization* (Oliveira, 2014a). As coach Paul explains, a coach can work on the main principles with the whole group but needs to go deeper – "starting from the individual" and moving to the sectors and the whole team once again. Coach Soldano reminds us that AJAX coach different departments and the Italian unbundle their work (scorporare) when they work in departmental segmentation with goalkeepers, defenders, midfielders and attackers.

***Scenarios:*** Normally coaches have "Plan A and Plan B" and would also look at many different scenarios (Ray). Coach Fannar says that he segments his Model of Play by scenarios. "I have a picture on XPSS for every scenario". He looks at scenarios such as having one man down, where they play 4-3-2. He creates a lot of playbooks for his players. He explains that for the players to get to know these scenarios, he uses activation sessions to go over scenarios of what could happen. "So, it is always a reminder", he explains. Sometimes he applies a questioning approach (see Cassidy et al., 2009), in a way that while working on these scenarios he asks his players questions like "Ok what are we

going to do if we are winning 1-0 against this team? The pressure will be on us, so where do we put the ball?"

***The 4 corners***

While, like coach Ray, most of the coaches would include individual principles in the Model of Play (Paul, Sergio, Soldano etc.), others may also create a document in which they plan "what is expected from the individuals technical, tactical, physical, psychological" (Mark) aspects (the four corners).

An aggregation of evidence from the participating coaches led to Figure 5.18 which includes the 'moments' of the game, the 'phases in moments' the team-sectors-individuals, game scenarios and the four corners. All these areas are covered in separate sections in this chapter.

Figure 5.18 includes a visual of the structure of a Model of Play which includes all the areas as suggested by the participating expert coaches. It is first segmented in moments of the game, as the PoP change drastically according to the moment of the game (Mark). It is then divided into the three phases of each moment (Hugo), and then "the four corners [which] come into everything" (Mark).

### *5.7.4.3 A continuous evolving process*

While the process of developing a Model of Play has a defined beginning, it seems that it does necessarily have a defined end. "The construction of the game model arises through a process that operates among the coach, players and the team itself" (Delgado-Bordonau & Mendez-Villanueva, 2012). This leads to the concept of an evolving process, which is expressed by coach Hugo who explains that the continuous process of scrutiny and knowledge generation leads to a naturally evolving process (Hugo). In a simplified way, he explains that from an environmental point of view, factors such as players' injuries, players' transfers (Hugo), players abilities (Fannar) and different opponents, influence the general game idea and lead coaches to "just add to their curriculum" (Mark), which is what puts the Model of Play in a continuous evolving state (Hugo, Fannar).

| MOMENTS | PHASES | 4 CORNERS | PRINCIPLES | SECTORAL, INTERSECTORAL, INDIVIDUAL | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Goalkeeper | Defenders | | Midfielders | | | Attackers | |
| | | | | 1 | 2/3 | 5/6 | 4 | 8 | 10 | 7/11 | 9 |
| Defending Principles | Phase 1 | Tactical | Principles<br>Sub-principles<br>Sub-Sub-principles | | | | | | | | |
| | | Psychological<br>Technical<br>Physical | | | | | | | | | |
| | Phase 2 | Tactical | Principles<br>Sub-principles<br>Sub-Sub-principles | | | | | | | | |
| | | Psychological<br>Technical<br>Physical | | | | | | | | | |
| | Phase 3 | Tactical | Principles<br>Sub-principles<br>Sub-Sub-principles | | | | | | | | |
| | | Psychological<br>Technical<br>Physical | | | | | | | | | |
| Positive Transition | | | | | | | | | | | |
| Attacking | | | | | | | | | | | |
| Negative Transition | | | | | | | | | | | |

**Figure 5.18:** A template to construct the Model of Play.

Red area will take the same format and sub-divisions of the upper part. Coaches may conceptualise the game differently. Guardiola divides the pitch in a grid of twenty boxes (DiBernardo, 2018). I look at the attacking phases as 4, and not three.

With reference to adaptation according to the opponents, coach Ray highlights the importance of having Plan A and Plan B …and C and so on. He says that "if Plan A is not working, we need to adapt and go to Plan B, and we cannot do that unless we have the match as practice". While he acknowledges the need for adaptation according to the opponent, coaches Sergio and Joseph agree that the general principles do not change according to the opponents but the small things, the sub-principles, change (Joseph).

Both coaches Sergio and coach Hugo seem to agree that the Model of Play keeps evolving along the years. coach Hugo works on the document every year, in order not to get stuck in the same idea. While he always takes some things with him, coach Sergio makes it clear that a new environment requires a new Model of Play. Henceforth he updates it every time he changes club.

Differently, from the case of senior football, the Model of Play in youth developmental football can be more fixed in a way that it serves as a progressive curriculum:

> I think in terms of youths you can be much more fixated on your philosophy and develop your players - in youth football. In senior football you must work with the players you have, so you must be pragmatic and flexible. So, with youth players, you can stick to your model and your philosophy 100%. (Brian)

Coach Ray refers to the England DNA which provides PoP that carry similarities in how you play across the whole football pathway (England DNA, 2015b, 2015a) – "from the bottom to the professional game, to the national game. Similarities of how you play…". He continues clarifying that when coaching the Under 13's, the coach needs to ask what the Under 14 coach would want his/her players to know, next year and that "…to get to that is then my curriculum" (Ray). He believes that "in the development phase [we should] build a more complete curriculum with various options… to provide a foundation for all options in the future" (Ray).

#### *5.7.4.4 Own-It*

As a VET-expert myself, with experience in writing curricula, I differentiate between writing a curriculum and owning it to the extent that you can teach it, or better, facilitate its learning. Owning the Model of Play means that "you start

understanding the whole complexity", which is the only way "to see your fingerprints on the team ['s performance]" (Fannar). It is only then that you will be able to simplify it. That is why own-it, is very essential. "If you cannot explain it, you still don't own it…" (Hugo). It is so essential, that as said earlier, coach Paul always starts with what he feels are his strengths first. Coaches would want to know if they are "sure and right", they would need to know if they can put that knowledge across, hence they would need to know the stuff thoroughly (Andy).

Making 'your bible' your own (Mark), is a process which may see the coaches going through "mental rehearsals or doing the magnetic board". Some would also go early to training to visualise the session and the movements and the patterns (Andy) so to make sure that "the players will [not] laugh at you" as you will be dominant on what you are presenting to them (Sergio).

Hugo rationalises the knowledge in his own mind, to make it his own. Sometimes he tries it on the pitch to understand it better. This is very well explained in detail by coach Andy, who claims that he would try to get all the knowledge in his own 'team specific language'. This is made of single words or short phrases that within the team convey a shared meaning. An example of this would be 'ding, ding, ding' and 'line of four' which I used at Mdina Knights FC in season 2017-2018. In the team's captain's words, these are their respective explanation. "Keeping the ball patiently and weaving triangles to wait until the opponents are caught out of position to release the perfect storm" and "time to regroup and withhold pressure by diligently keeping positions and waiting for the right time to win over possession":

> I would want to know I am sure and right. So, I would rehearse, rehearse and rehearse. So, when I am writing my curriculum, my mind is going... I am thinking ok can I put this across, I need to do that, I need to go back to that. I am thinking all the time. So, preparation is going on all the time. Until it comes down to the fact that, tomorrow, next week, I am going to deliver the stuff myself, so I will prepare in such way that I will be also rehearsing. I need to know the stuff. (Andy)

> You have to rehearse it mentally. So, I've watched it on a video, I've read it, now I have diagrammed it, I 'moved it on the board'… I've seen this idea, then I try it, test it, keep playing it, keep modelling it on my board. I

> would also visualise it. I tend to stand around, close my eyes, mentally think what could go wrong. Then I plan my session, go through it again, and I arrive early, and if you see me sometimes you'd see me in the centre of the pitch, and there I visualise it, then think it out with regards to management, then walk it, jog it, and then when explaining it to the players, I will do that slowly for them and myself. (Andy)

> This is an ongoing process, so you do it without thinking. The year after, when you re-design your way of playing, your principles, probably you also take into consideration that you tried and did not work well, and those that worked well, without thinking. So maybe to own it, you need to understand it, and to understand it you need to live it. I think that theory makes you understand the practice, but you need the practice to re-create the theory. (Hugo)

#### *5.7.4.5 Adapt-it*

"The Model of Play needs to be very adaptable. The emotional state of the team, team's performance, opponents coming up" are all factors that require adaptability within a Model of Play that possibly also includes "the second tactical system of the model" (Sergio).

In agreement with coach Paul who believes that "adaptation would go everywhere…", I have included an 'adapt' feature in the centre of the process. I also believe that when generating knowledge coaches would already be taking their context into consideration, hence adapting the knowledge generation process to the pedagogical needs they have (Andy, Fannar). However, at the stage of building the Model of Play and moving towards the design of the training sessions, coaches would still need to enter an adaptation phase, as "an if-then loop. If not adapted before, adapt-it now" (Andy). Moreover, it could be that even if knowledge generation was adapted, the development of the Model of Play would need to be re-adapted due to certain contemporary changes in the environment.

Most coaches would "never go to a job with a written document" (Fannar), as they would "build a new one every year" (Hugo), "when [they get to] know what players [they] have" (Fannar), and therefore adapting it for the new coaching adventure. Furthermore, although coaches do write the Model of

Play as needed by their club and team (example is provided in Appendix 1.1), I believe that knowingly or not, they all start from what they feel is their strength (Paul). Even if they genuinely start afresh, I would still argue that they all have their own preferences, and all have a 'mental image' of their preferred Model of Play. This is very implicitly present in the explanation by coach Sergio. He tells me that he does have a written curriculum for every club he worked at (Sergio), but he also shares that although he writes it, he only writes a few sentences "…you know, it is not that you write a model again" especially when you are still at scrutiny stage (Sergio). This is also presented in the way he introduces the first training sessions, in which he "first start[s] with all the general principles", probably portraying his mental image, and then after better scrutinising the environment better, he "continue[s] with deeper and more specific content" (Sergio). Similarly, coach Hugo shares with us that at the present club, he is "trying to build a Model of Play that which [sic] (99%) agrees with what they are saying, but that it has a variance that leads to the game" he likes. For this the coach would need to be able to adapt that 'mental image' into "a Model of Play based on the limitations, restrictions, priorities that the club imposed on" the coach (Hugo). This ongoing adaptability leads to what a constructivist curriculum should look like (Brooks, 1987).

While the Model of Play is intended as a detailed curriculum of the game as seen by the coach, it is at the same time a document that needs to be user-friendly to lead to the design of training session. In fact, it needs to be adapted in a way such that it can be easily shared with the players and peer coaches (Hugo).

***Simplify-it***

Coach Sergio suggests that the process "should not show simplification and adaptation as if they are separate or consecutive" because "simplification is an adaptation in itself". However, while they are not separate or consecutive, I believe that adaptation is the mother of simplification, with other areas under simplification or adaptation.

Some coaches prepare the complex original version, and then issue the lighter version, 'a players' simplified document' which is more players' oriented (Brian) and which is segmented and adapted to the players' needs (Brian). Coach Hugo differentiates between 'preparing a document for himself' and then

'preparing something for his players', be it a presentation, a session or a video. Coach Andy creates what he calls the competency framework, which "is written in language that players can understand". He uses this version to help players to assess themselves (Andy), which shows an approach which moves from a controlling teaching to a more facilitating autonomous learning approach (Ryan & Deci, 2000).

**Simplification of Concepts:** While the coach needs to understand the game in its complex way (Cushion, 2007), s/he cannot explain it in that complex manner (Hugo). However, from an inductive perspective, coach Hugo suggests that the coach needs to "find a way to explain what behaviour you expect from your players, without really telling them what they are to do". Only because the game does not allow players time to think, the team needs to have clear simple behaviours (Hugo), which continuously answers an if-then looping question (Hugo).

In his "Competency Skills Framework," coach Andy starts from "the broad idea of soccer to the sub-objectives and sub-sub objectives, to the individual skills and group skills". He looks at this as "a process of simplification", and that considers "segmenting is an important simplification process" (Hugo).

Coaches agree on the importance of simplification. They all apply it at different stages of their coaching process. Coach Andy says that if he was to simplify the complexity of the Model of Play he wouldn't do it at this stage, as he can simplify a principle when he is planning and delivering the session. However, if, like coach Brian he had to consider providing a document which "is written in a way that players can understand" and asking them "to assess themselves" (Andy), he would need to do it at this stage of the coaching process.

**Language:** The use of common language is important for those working in soccer to have a common understanding. This is rather challenging to say the least (Zunino, 2013). Ancelotti (2016) dedicates time to express his ideas about the importance of language, both as nations' language, and as 'jargon' used. "In coaching, we need to make people understand. If we confuse them, we don't get where we want" (Mark). For this reason, "the way we communicate with

players" (Hugo) is very important. Be it presentations, team talks, individual talks, or exercises in training sessions, coaches need to make sure they are being well understood (Hugo). Coaches need to "switch language to the level of what players would understand…" (Sergio):

> You start playing the exercises, and you don't even say this is for the first moment of pressing – no you say the three up front put pressure – this is the simplified language. (Sergio)

"That is adapting also. Coming out from the way you wrote it in the model, to the way everybody would understand" (Sergio). Coaches like Massimo De Paoli go as deep as creating a 'codico' a language code which makes our language common and clear for everyone (Soldano). This concept which will be discussed more (in verbalise-it in the design-it section) is mainly about using "trigger words" (Brian) to create a "common language" where everyone has "one word with one meaning" (Joseph), for instance "channel" (Joseph). Coach Hugo explains that it is important for coaches and players to be on the same page. Coach Fannar shows them a slide with a lot of words and says, "these are the words that you need to know" and understand "what stands behind them". This way, "they know what I mean by 'pocket', 'overloading', 'spacing' etc." he explains. Testing part of the process conceptualised in this study with my club this year, we have created phrases like 'ding-ding-ding' or 'line of four' which became an understandable code for all the players in the team. This code presented a behaviour which is more complex than the words themselves. Hence it simplified the way we could communicate about a complex reality of the game.

### *Framing Tactical Freedom*

Paradoxically a model or a framework provides freedom. Various coaches believe that they should allow "freedom for the players to decide, analyse and execute based on what they believe – even though it is based on what you believe" (Hugo). While it is true that the Model of Play frames the complexity of the game, it needs to make sure that "players are free to decide within [that] frame". This freedom is given by the way the coach adapts the Model of Play (Hugo) for the needs of his/her players. This view is expressed by Delgado-Bordonau and Mendez-Villanueva, who explain that:

> …definition and creation of a clear game model should not be perceived as something that will require players to act as “robots” following a predefined plan. On the contrary, the main purpose of having a clear game model is to reduce players’ uncertainty, which should give players more time to use their creativity. (2012, p. 29)

Freedom of execution is also important from a strategic point of view. The Model of Play and its guiding principles cannot limit the coach and the players from applying different strategies depending on the opponents. Slight changes in the way one plays to beat an opponent are important in soccer (Brian), unless you are so “confident in your team and in your PoP that you [decide to] push your style of play on the opposition and not let the opposition dictate their style of play” (Brian).

Although it might sound counterintuitive, it may be also possible to apply strategic freedom without making changes to the principles guiding your game. “If I have a principle of attacking and being more aggressive if I play against Barcelona, I press in one way, and if I play against Juventus I press differently. The Principles remain the same but the where would change” (Joseph). That is why, “players, need to understand your main concept of play on the first days [of training]. Then adaptations according to the opponent will follow day by day” (Joseph).

The pre-designed frame (Model of Play) needs to allow strategic freedom as training sessions need to be adapted “upon last analysis and next opponent” (Hugo) to say the least. Scrutiny comes in continuously because adaptation might also reflect one’s reflection on the previous session. In fact, “planning is adapted after every session” (Hugo). Finally, adaptation of the coaching methodology applied is also important:

> Many of the sessions are intended at ‘teaching’, hence sometimes you might need to be a bit ‘boring’ cause of drilling. Then it is the ability of the coach to keep the athlete engaged, from a psychological perspective, and feel it is fun, important etc. (Paul)

### *5.7.4.6 Plan-it*

Once the Model of Play is written, the coach needs to make decisions about what comes first and what follows (sequence) and what needs to be covered by when (programme), which is basically planning. The participating coaches speak about this sub-component 63 times. They divided planning in sequence (33) and programme (30). As coach Soldano suggests, “segment-sequence-programme… cannot stand without each other. You need to be able to segment, to set a sequence of all pieces and to fit them in your own programme”.

#### *Sequence-it*

“A coherent and logical sequence of training and game patterns” is very important (Oliveira, 2014b, p. 10), in a pedagogical process which considers the “sequence of a curriculum” (Bruner, 1960, p. xxi). When talking about the sequence of how they would introduce the PoP to their athletes, the coaches managed to dig deeper and determine that, when thinking about a sequence, coaches need to think about various areas. Therefore, coaching becomes very personalised and dependent on a coach’s philosophy, as coach Paul stated: “Even if coaches would set the [same] PoP as the foundation of their training sessions, still their sequence would be very different. You cannot say how and where they start from”. First of all, the coaches’ philosophy has a huge influence on sequence (this is explored further at a later stage). Secondly, this is because although the sequential plan will be on paper, coaches would be “going backwards and forwards, depending on performance and depending on the next game” (Andy).

Coach Sergio tells me that he includes all the [general] principles every week.

> There is no such thing as I will start with this content this week and then next week another – no. It is all the principles, all the moments of the game in one week, all the moments in the next week…”

This does not mean he does not set a weekly sequence.

While he agrees that this is a very sensitive area, where coaches need to be very careful, coach Mark pragmatically states that he works by departments, starting from the back and moving forward. He also makes sure that his

sequence is progressive in its complexity. “First, I will show my defenders how to defend, and then I would add things. Yeah it comes complex at the end, but in the beginning, it is simple” he says.

While these two coaches show clarity in the way they set their sequence, coach Joseph, on the other hand, shows that he has an implicit sequence, but he is not clear about its explicit application. He feels he needs to dig deep and think how he sequences his work within his very tacit planning and delivery approach. It became apparent that he does have a sequence which, however, is not written. “At least I try, because it is not easy to say, ‘next month I want to do this’. But yes, I normally know what I need to introduce first and after” coach Joseph says.

Through the discussions with the participating coaches, it becomes clear that segmentation and sequence go hand in hand. The segmentation of all the PoP within the Model of Play allows the coaches to sequence their work based on the principles of progression and based on all or any of the following:

- Principles’ Hierarchy Level,
- Departments (Individual, Sectoral, Inter-sectoral or Team)
- Moments and Phases

These three will be discussed in relation to the data.

**Principles’ Hierarchy Level:** Coach Sergio covers all the [general] principles and moments of the game every week. He starts with the general principles, and then he goes deeper. “Example you go deeper on detail with your full backs after you see some games”.

**Departments (Individual, Sectoral, Inter-sectoral or Team):** Some of the coaches show that sequencing can progress from a 1v1 to 2v1 moving on to a sectoral approach with for instance the back four, to inter-sectoral, where the back four is linked to the midfielders and then as a full team (Andy). This view is also shared by coach Mark who says that for him “the priority is as quickly as possible to get them (the players) to work as a team”. However, he still starts with individuals, moves to sectors and then to the whole team as he says, “Hence each individual needs to understand his role, then each sector needs to understand their role, then you start getting them (sectors) together”. Coach

Brian who seems to work less with the individuals, and starts immediately with the back four, moves to the defensive midfielders and then go up step by step.

Coach Soldano shares with us his idea of having different coaches working on different sectors (like what happens at Ajax) and then working on the whole game by bringing all the parts together in the same session.

**Moments and Phases:** The moments of the game (DiBernardo, 2015; Tamarit, 2015) define the sequence for many coaches. As his philosophy is not to concede goals first, coach Brian starts with defending. He starts working on attack only when defending is solid. With a different philosophy, Coach Fannar says he still starts with defence, but only because that is how the team can win the ball to start attacking. Coach Mark's philosophy is different as he believes that in today's very well organised soccer, the transition is a priority. He takes it a step further and explains how sometimes it is the second transition that is the most important. It is interesting to note that coach Mark used this approach in a very important match, that led him to win the Maltese Premiership title in 2016-2017.

Many soccer coaches divide each moment of the game into three different phases (Oliveira, 2014b). Phase 1 is normally the one closest to the defended goal, Phase 2 is the middle part, and Phase 3 is the part closest to the post being attacked. Coach Joseph clarifies that he believes that attacking starts from building up from the back, from his goalkeeper (Phase 1), while defending starts from the attackers in Phase 3 (Figure 5.19).

While the above guides the way, sequencing is set. It still needs to be adapted around the emotional state of the team, match analysis and upcoming opponents to mention few of the factors that may influence sequence. It also depends on whether the focus is on the 1$^{st}$ tactical or 2$^{nd}$ tactical system or on both (Sergio). "Sequence…is an idea, which is open to adaptation" (Sergio). "Sequencing and programming can be [even] more important in developmental projects - having a model for each age group" (Sergio).

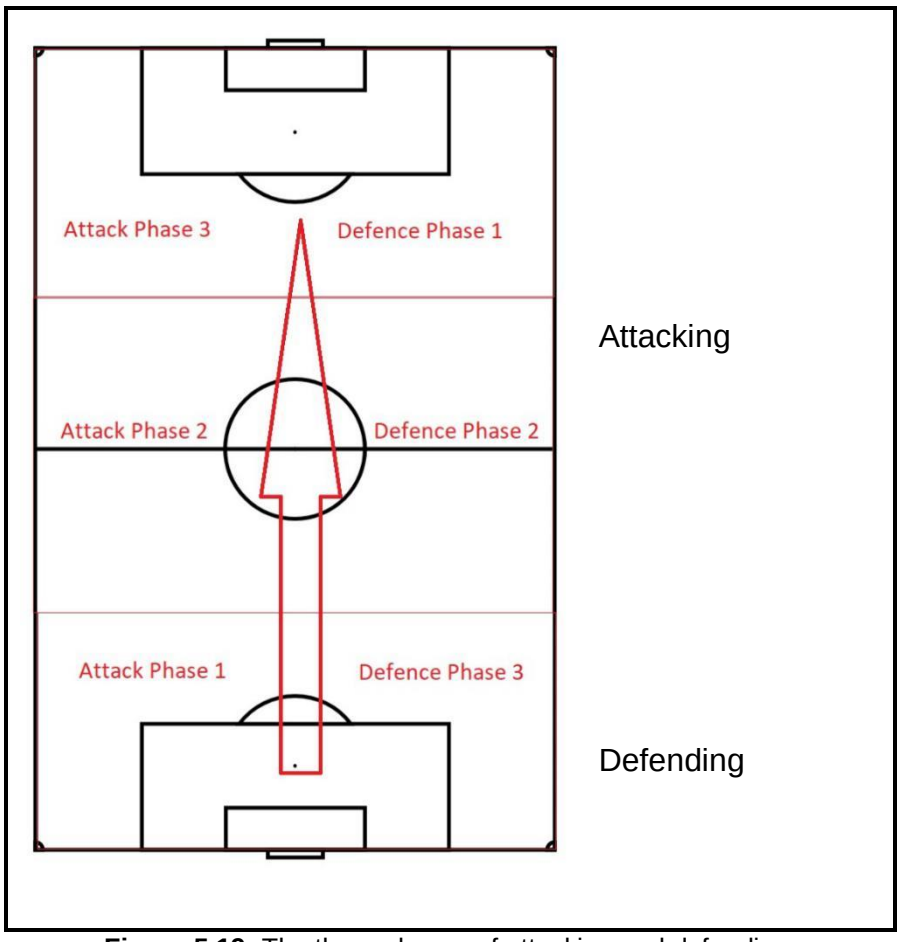



**Figure 5.19:** The three phases of attacking and defending.

**A Progressive Sequence:** In training methods, the acronym SPOR refers to specificity, progression, overload and reversibility ("Physical Education: Principles and methods of training," 2014). While it is not in the scope of this study to cover SPOR, it is to be noted that besides specificity, which is obtained from the scrutiny of the environment, the Model of Play covers progression as well. In setting a sequence, the coach would normally "start slowly and gradually increase the [level] and keep overloading". These two principles follow the principles of specificity and of complex progression in *Tactical Periodization* (Mendonça, 2013).

While it is almost impossible to teach all the principles to all the individuals, coaches shall start working on one piece at a time (Paul). It is very important to understand how to move "from one to the next, from one to the other" (Joseph). Although it can be incremental in complexity (Mark), some coaches believe that progression is not necessarily about working from one part to a harder part, but it is one-part building to the next (Joseph). Rather than

complexity, some other coaches would look at progressing into deeper and more detailed work.

Coaches look at different levels of progression. They have an idea of how things will sequence along weeks (Joseph, Sergio) and through a training session (Sergio). Coach Sergio talks about “progression in session” which he calls ‘vertical progressive sequence’ (Sergio) and “in season” (Sergio). He (Sergio) explains that ***in session*** he has three groups of exercises, “like the Vickers (with reference to Joan N Vickers – Simple to Complex (Vickers, Livingston, Umeris-Bohnert, & Holden, 1999)), less complex to the most complex”. He explains that his exercise is normally:

> …a more general exercise of a 1v0 or 1v1. Even if there is a 2v1. Fullback with the winger, they have 1 opponent and you want the run to be, whenever the winger is outside with the ball, run of the fullback inside, whenever the winger is inside with the ball run of the fullback outside. This is also a principle, to be honest. Then you go for more complex and more detailed 8v8 or 8v6 (for instance) on the 3rd exercise. (Sergio)

The concept of sequence in sports strategy and skill instruction has been given attention in other settings (Rink, French, & Graham, 1996).

*During the season*, when coaching soccer through PoP, coach Sergio starts with the general principles and then continues with deeper and more specific content. He explains that:

> …If you are in the beginning you give less, as you want them to get functioning in the first game, and the first game comes after one week, so it is not far. Then you maintain that information and you start adding content. It is not a block; it is a vertical progression throughout the sessions. It gets more detailed at a later stage. (Sergio)

While findings show that coaches take sequence seriously, it is also evident that they do not always manage to keep to the planned progressive sequence (Joseph). For this reason, it is important for coaches to ‘programme’ steps forward and steps backwards for their players. This way, if they achieve the level you move forward, while if not, you move a step back and continue

(Sergio). This shows the importance of understanding the sequence of the content knowledge from a *Pedagogical Reasoning and Action* approach.

While coach Sergio claims that he does not work with blocked learning (introducing one piece after the other), sometimes coaches might find it difficult to move on when the first part is not learned well enough. At that stage "you would need to forget it… but then you cannot build up on to the next" (Joseph).

***Programme-it***

Programming needs to be taken in context. The programme – the model – the objectives [coach's, players', club's] are in a constant relationship (Andy). So are segmenting and sequencing with programming (Soldano). Together with the sequence, the coach needs to understand how much time s/he would like to spend on each of the parts, hence s/he needs to **Programme-it**. Only in this way would it be possible for a coach to "teach everything in pre-season and re-cover everything after" (Andy) in a competitive team, or to programme a long-term soccer development programme in developmental coaching (Andy). This shows the strong random relationships existing between the components of the conceptualised process. This part clearly shows that Programme-it cannot live without timeframe in Scrutiny of the Environment.

The ***flexibility*** of the programme takes centre stage once more. Studies show that expert coaches use "flexible planning strategies" within their detailed routines, to allow themselves space for contextual improvisation (Jones & Wallace, 2006, p. 62). Being flexible to adapt according to the needs is a crucial point for all coaches at all stages, which continues to strengthen coach Paul's suggestion that adaptation (Paul) should be central to the process developed in this study. Coach Fannar for instance has a sequence set, but he is not so rigid with the 'when' and 'for how long' (programme) and he moves to the next level according to when he perceives the achievement in the current one. "I know what I want, and I know where I want to get to, but I would like to meet someone who can say 'we will get there by Christmas'" (Mark).

Although he is influenced by *Tactical Periodization*, coach Sergio claims that he is not as rigid as *Tactical Periodization* suggests. He explains "[I] always [work] on PoP, but the programme is not a [rigid] programme that you repeat every week. It always depends on the weekend before and the weekend after".

The *factors* influencing a CPP programme are various. Those identified by the participants include the stage of the season and the situation of the team (Andy, coach Mark), data obtained from match analysis (Andy) of both the opponents and your own team (Sergio), the different learning processes of the athletes, having “those who get it and those who don’t” (Mark), injuries (Mark), the experienced and less experienced players (Paul), the need for consolidation before or even after you move forward (Paul), and the emotional state of the players (Sergio).

Although in the UEFA PRO course coaches are expected to prepare a 10-week programme, coach Mark believes in the flexibility of the programme and implements a 10-week programme, during the season. “…but this is how I do it” he explains. “I plan and then after the sessions I write what I've done... we will spend more time after the session writing what we changed”. This shows that there is always a variance between the plan and the delivery.

“Segment, Sequence, Programme” says coach Soldano who explains that parts can be done with the assistant coaches while the whole can be covered in the same session to join parts together. This in-session programming shows how programming of the development of PoP can take a yearly – weekly – daily – inter session programming approach (Soldano), which fits the periodization principles of in session-micro-meso-macro-cycles approach, without one excluding the other. Coach Brian programmes his sessions including the tactical development of his sessions, for seven weeks of sessions, including the tactical development of his sessions, and then on the 6$^{th}$ week, he programmes for the next seven weeks. Coach Brian even programmes how his session would progress from department to department, and how these are to be integrated in the same session.

On the other hand, coach Sergio programmes the technical, mental and physiological aspects, but not the tactical aspects, for which he normally only programmes for the first week:

> I have all the principles in one week. There is no such thing as I will start with this content this week and then next week another. No. It is all the principles – three phases of attack, three phases of defending, set pieces

> and transition moments[1] -, all the moments of the game in one week, all the moments in the next week…and what I say on the second week is deeper, like, moving one meter or position of the feet or whatever…you can adapt. (Sergio)

This is because like coach Joseph, coach Sergio believes that programming should not exceed one week, since consideration needs to be taken of the previous and the next game. He also believes in having a Plan B in place, which also needs to be integrated in the programme.

Back to a deeper pedagogical insight, coach Andy explains how he considers the programme as an informative tool which can be used for feedback purposes. He says that at the end of the season one can look at the programme and check which objectives (learning outcomes) have been achieved. He also highlights the importance of the programme allowing the coach to be 'forgiving' in areas that are not yet covered, when giving constructive criticism to the athletes (Andy).

### *5.7.4.7 Design-it – the Session Plan*

Designing and running a session plan, is an everyday task for a coach (Abraham et al., 2014). It is what anyone would think about when talking about coaching. However, it is shown in this study, that designing, and then delivering a session plan comes much later in a coaching process that has *Pedagogical Reasoning and Action* at its core. There are many factors that influence the design and implementation of a session plan.

The participating coaches give insight in the design of training session plans. They refer to 'the aims of the session', the design of possible 'demonstrations', 'pedagogical knowledge', 'session planning process' and the use of 'verbalisation'.

Having a Model of Play informed by PoP, all written down, during the week of training, coach Sergio only works on the development of the exercises that will compose the session plans.

While he agrees that planning a session is beyond the design of exercises, coach Hugo shares that he never gives this point too much thought.

[1] This is evident in Sergio's Model of Play, which is presented in Appendix 1.1.

When he plans, he does not think too much on his 'pedagogical' position on the day. "I do not say today it will be watching or giving feedback" he explains, whilst conversely, coaches coach Andy, coach Ray and Sergio emphasise the importance of pedagogical knowledge and attention to it.

***General Pedagogical Knowledge***

Pedagogical knowledge is "the underpinning educational theory of factors that affect student learning" (Côté & Gilbert, 2009, p. 310). For coach Andy**,** this type of knowledge is a priority. He believes that, "if you do not know this stuff you will struggle. But if you know this stuff you can be very inventive". For coach Soldano general pedagogical knowledge is what influences the organisational choice of the structure and organisation of methods used. It leads to conscious coaching, where everything done by the coach has an idea and a reason. This is how a plan is systematically and strategically set in action (Andy).

Coach Andy emphasises that knowing the phases of skill acquisition, cognitive, associative and autonomous (as in; Reilly and Williams, 2003; Wellisch *et al.*, 2013), and the Four Stages of Competence, which were attributed to Maslow and/or Burch (1970) (also known as the stages of learning - unconscious incompetence – unconscious competence (Crosbie, 2005), would allow the coach to adopt effective coaching methodologies and teaching techniques:

> I am a qualified teacher and from there I got involved in adult learning and did several courses in accelerated learning and so on. So, then my mind starts thinking about all of this, and starts mapping this to a process of accelerated learning. How people can take information. (Andy)

If the coach knows what s/he wants to teach, and s/he also knows what his/her players know, s/he would not need to repeat what they already know, and in that way, s/he will accelerate learning. Furthermore, coach Andy also explains that coaches can accelerate learning by understanding that people learn differently, and they might all need different input, it being visual, auditory or kinaesthetic (Andy, Ray).

He believes that having pedagogical knowledge, the coach would be able to design his session plans appropriately, depending on the needs of his players to reach the aim of the coach (Andy). Pedagogical knowledge

emphasises the importance for a coach to get to “know each player…because each player would have different ways [of learning]” (Ray).

### *The aims of the session*

Aims or goals “are what you want them to learn” (Sergio). Coaches find it important to inform the players about the global aim of the session (Andy), and the objectives of each of the exercises so that they will know what they will be doing and why they are doing that (Sergio). The aims may be influenced by the upcoming game, and the way it needs to be approached (Mark).

It is important to start by clarifying that, perhaps differently from what a novice coach would think, the exercise is not indicative of the learning that is being planned in that same session. The same exercise can “have different objectives…I can use a 4v4, [for] dribbling, possession [or] pressure” explains coach Andy.

It is important for coaches to be specific about their aims and objectives. “Having more possession within our system, or create occasions from the sides, or defending well, or the distances between players” (Sergio), or “not leaving gaps in between midfield and defence” (Mark). In contrast to certain coaching education courses, which suggest having one aim for each session, coach Sergio says that sometimes he has three different exercises with three different aims:

> Remember we have attacking 1,2,3 and defending 1,2,3 and then we have attacking transitions and defending transitions then set pieces. If you do one goal per session you won't cover everything. Also, I do not teach attack or defence. The goal might be defending, and you have the assistant coach correcting the attack. Or you correct two things in the same time. (Sergio)

He also explains that a coach might set a specific goal for some players and less specific for some others, during the same session:

> You would have 1 CB, defending against 2/3/4 attackers working on specific principles. The CB who is on his own, has no relation to his team mate hence he would probably be working on General Principles. (Sergio)

***Session Planning***

Session planning normally follows the coach's plan (Brian), and is when part of the complexity of the Model of Play is transformed in session plans aimed at helping players learn (Andy). Coach Andy shares that it takes up to three hours for him to plan a session as he thinks deeply about his delivery and his players reception. "Where, what and how am I going to put my emphasis, and what do I expect to see, so that when I see it, I would know that I've seen it?" he explains. Different coaches ***structure*** their sessions differently and apply different methodologies. Coach Hugo, for instance, makes it a must to start with an exercise that focuses on the general behaviour of the players. Coach Sergio applies three exercises in one session, which progress from less complex to more complex. Coach Soldano adapts a method similar to the GAG (Csabai et al., n.d.; "The Grassroots Soccer Session,"); he explains that after warming up, he normally includes a technical exercise, moves to an analytical practice (for example, 1v1 with oriented control), to a global game (for example, 7v7 with oriented control and goal) and to a final game at the end, before cooling down.

Rather than using 'general themes' like 'switch play' and creating exercises based on that theme, coach Hugo explains that he focuses on the problem. Only if the problem in the players behaviour needs 'switch-play' as a solution, he will be working on switch play. He would recreate the problem, on the pitch, in the exact location, and within the same specific moment in the game. He will refer to the Model of Play and works on exercises which lead to the behaviours that is dictated by the Model of Play.

From a pedagogical point of view, I find the prior method, which is themes directed, to be very similar to academic curricula which have pre-set learning outcomes (Grima, 2014), and which guide the teacher's performance. Conversely, the method presented by coach Hugo, is more context based where learning is based on the learner's performance and does not follow a pre-set curriculum. Coach Hugo's believes in a curriculum which is "adapted to address students' suppositions" (Thompson, 2001, p. 6). The Model of Play then, makes it possible for the coach to structure learning around the primary concepts, by relating the PoP to the contextual emerging problems.

Coach Hugo continues to explain that while he plans every detail, including where the ball will be starting from in every exercise, he seldom thinks of what he wants to achieve. He explains that he would be sure of what moment of the game he is working on and what he wants to simulate, but he would not have a unique solution to that situation. Rather, he would be more interested in what the players come up with. This is how the concept of the Model of Play in a Process of CPP, resonates with Dewey's idea of a curriculum which is not established before instruction but "gathered, used and constructed during instruction and inquiry" (Noddings, 1995, p. 37) , as it should be in a living constructivist curriculum (Brooks, 1987).

Once the issue is identified, the coach creates *exercises* on the training pitch which allow that issue to re-appear (Hugo), and which match the PoP (Sergio) as identified earlier in the Model of Play. Similarly, coach Soldano says that exercises design is based on the evaluation of a player's or a team's dysfunctions in view of the model, and re-integration sessions that deal with those issues.

PoP shall guide the session design, and then it is up to the coach to apply any coaching and teaching methodology he deems fit. As coach Hugo says, most of the times, the general principles of how [they] play, need to be always in the operationalise it (which has been changed to design it in version 2.1).

In his planning, coach Ray makes sure that he uses the VARK method ("VARK. A Guide to Learning Styles," 2017) of teaching (Andy). That way he makes sure that no matter the different learning styles, everyone will have the opportunity to understand in one way or the other:

> I could use my assistant coach, I could use YouTube videos, cut an image, I could ask them to read, write something etc. But it is important to use the VARK to make sure of transformation of knowledge. It is foolish to isolate one or two of them. (Ray)

The VARK concept will be revisited in the next sections.

### *Verbalising*

The need for the development of a common language (Ancelotti, 2016; Zunino, 2013), "common words or sentences, to which players can relate" (Hugo), has

been expressed by many. While they do not go into detail about the area, Abraham et al., (2014, pp. 23-24) include the importance of what they call “vocabulary” in their session planner. Coach Hugo takes it to the extent of preparing a document, which includes “keywords, to help communication”, and coach Andy creates “a reminder of content. Not a 10 pager, but it could be language that we agreed upon. ‘Get close, be aggressive’. That is enough as a reminder”. Coach Fannar shows them:

> …the slide with a lot of words, and I say these are the words that players need to know what stands behind them… so that they know what the coach means by ‘pocket’, ‘overloading’, ‘spacing’, etc.

“If everyone knows the common language” no one needs to think too much about them, and it will also reduce talking time (Sergio).

Coach Soldano believes that the coach should create a language code (codico) which helps the players to use common words, or as he calls them in Italian, ‘parole codifcate’ as Massimo De Pauli calls them. Coach Paul explains that he does not plan these words, but they are part of his constant language. Through repetition of words within the coach’s “vocabulary” (Mark), players will get used to them (Joseph). Coach Paul does not prepare these tools, but he uses them as it is his everyday language. “They are in my toolbox all the time” (Paul):

> So, if today I am working on aggressiveness, then today I am going to show aggressiveness through the exercises, and I will also, always use the same word. For example, I do not use the word 'aqa l'ura' (literate translation: fall back) because it is not a term I use. But when I need a similar concept for example, I use the word 'scappare' (escape). (Paul)

“Channel” (Joseph), “Width and Depth, recover quickly” (Mark) are “words that are directly related to the principles”. When such terms are used, players normally know exactly what the coach wants. If the coach asks them to put the opponents 'outside' he knows that they will understand him (Paul):

> Perhaps I do not prepare them - but these are ‘my words’, I use them all the time. However, then it is the exercise that will show what I mean by 'put the opponents to the outside.' (Paul)

In explaining how important this is, coach Hugo tells me that:

> …us coaches talk about the players who need to improve communication, but we do not tell them what we want them to say. 'Guys you need to talk' but talk what? (Paul)

> When you design the session and the exercises, sometimes you need to write them down (the keywords) not to forget them. Sometimes you would know them because you would have been doing them for so long. (Hugo)

Coach Paul tells me:

> I want my team to understand me when I say, 'play the second ball'. So, when I do a tactical session, and I am explaining the case, and showing it in an exercise, then I always use the same term which is in line with my Principle.

Hugo brings up an interesting anecdote exemplifying the importance of common language:

> …the link between the defence and midfield was not being so successful. The coach was saying 'grab the game' (in Portuguese makes more sense). In half time, I asked the coach, what do you mean with 'grab the game' and does the player know what you want to say with that. The coach said that it meant that the player needs to go a bit lower and receive the ball a bit lower, and they worked on it in the sessions. So that they verbalised it and created a common language there.

Pavlovian conditioning (Schunk, 2012), links these keywords, commonly used within the team, to an automatic behaviour linked to the principles of the game.

> ’Man on’, if I am with the ball, means pass back, or beware cos you are with heavy pressure behind you in case you did not notice it - and that has to lead to a different approach to the situation if you were alone. (Hugo)

Interestingly coach Andy brings up another important point. He uses this “soccer language, [this] common language like pressure, close the ball down, challenge’”. However, as a coach in a foreign country, he is very careful due to culture. “I was an English coach in a Maltese culture, where toes are fingers” he explains.

From a pedagogical point of view, coach Andy looks at a question of how people learn. He explains that, according to him:

> …the meaning of communication is the response you get. If you do not get the response you wanted, it is not the player that hasn't understood you, it is you who needs to change approach in language used.

If a player or the team does not understand, coach Andy suggests exploring a new terminology and get to an agreed common language.

**VARK - Auditory:** It might be safe to say that coaches mostly verbalise their communication. This is what happens when coaches explain the sessions, or correct, or give feedback. Hence, it is very often taken for granted that players understand best by listening. Sometimes verbal communication is also used by coaches for complex learning such as explanations intended at portraying a tactical situation (Hugo).

**VARK - Reading / Writing:** Discussing the Model of Play in the classroom (Andy) could be a method used to have the players discussing and writing principles that guide their game in a workshop setup.

> “Normally I try to be very clear in all. Don't put more words than you need to. The most important of the session for me is the time you practise it. So, if I have 10 seconds explanation and more time for them to try it is better” (Sergio).

Coach Sergio presents a different thought as he reminds us of time constraints (Sergio) and cold weather (Sergio) as two enemies of on the pitch demonstrations. He suggests that players can be helped to ‘see’ it through exercises, as there is “no time, and sometimes it is too cold, for demonstration” (Sergio).

***Demonstrating***

The term demonstration in coaching has an inherent understanding of showing an exercise on the pitch. This is what I understand whenever Cassidy et al., (2009) for instance, use the term. However, the coaches participating in my study make it clear that there are various methods of applying demonstration.

Explaining the general understanding of the term ‘demonstration’, coach Paul says that he ‘shows’ rather than ‘tell’. “I believe in showing it through

practice**"** he concludes. The Model of Play and the principles leading to it can be presented to the players in form of a demonstration. "…you can help with ***visual*** messages, but it boils down to real practice", coach Paul continues to explain. Training exercises are the main part of CPP, hence "the coach focuses on the pitch… but then he re-adapts, if he feels the need for a demonstration or an image in the dressing room etc" (Paul).

Demonstrations, in view of the PoP, are sometimes even used during games. "One of Paulo Souza's assistants at Barcelona used to edit the important clips exactly before half time and use them in the half time talk" (Soldano).

Coach Hugo distinguished between "pre-demonstrations" and "live demonstrations", before and during training session respectively.

> You could be talking with the player that made a mistake, and you remind him about what happened in the game [pre-training]. And then in the training, you want to trick him in the area that was an issue. (Hugo)

One might argue that this is not a demonstrating (showing) anything, and this would be true linguistically. However, by demonstration, coaches tend to refer to methods by which they can get their players to visualise the PoP or the mistakes within those principles.

**VARK – Visual:** As said in the introduction, various coaches use visual demonstrations; videos (Fannar) of the game (Joseph) and what our team does, videos of what other teams do, a coaching clip (Andy) on the board, or a PowerPoint presentation (Sergio) showing all the movements. Differently from coach Andy, coach Joseph does not believe in showing them how another team (Juventus) does it if his team is of a lower level. However, he can decide to work on a similar concept or movement with his team but doing it on the pitch, kinaesthetically. Coach Brian explains that when he was trying to introduce the principle he calls "the 13 seconds rule" he used a DVD showing all the goals (20) his team scored in less than 13 seconds.

This idea of first showing it visually, then on the pitch, and then making them do it (Kinaesthetic), was consistent along the way (Mark, Sergio). Moving away from the traditional on the pitch demonstration, coach Sergio tells us that he does a visual demonstration "on PowerPoint and Video" and then moves

directly to the exercise, without a traditional demonstration. “We showed it to the players” (Fannar, **this is** continued in the section on Kinaesthetic):

> …we had a problem in the game, and I have the video. We can go through the video first, to make the players think what went wrong and what we could have done better. (Hugo; continued in Kinaesthetic)

***Training***

When describing how he uses the PoP inductively, coach Hugo says:

> …I do not believe that if I am going to work on high pressure, I need to say how they need to do pressure, because that does not create it as a behaviour in your players.

He starts the week by bringing the behaviours out, and then, organises them along the week; “I do not organise the behaviours before I bring them out”. He shows that there is a strong relationship between design it and in-training, evaluating and reflecting in the version 2.1. Once the coach realises there is an internalised behaviour, then he can start going deeper in sub-principles and 'organise' the behaviour. Conversely, coach Joseph explains that he thinks about the problem and its solution before he decides what and how he will be demonstrating them to his players.

To explain the principle, sometimes it might be important to use the whole-part-whole approach (Reid, 2003), to unbundle (scorporare) the general principles (Soldano), into more specific sub-principles. In a more inductive approach, rather than providing immediate answers to explain certain principles, coaches make use of certain conditions. As coach Joseph puts it:

> …for example, in order to work on build up from the back, the GK has a condition that he 'cannot' shoot up, to force the GK to play it close and for the players to give good options.

**VARK - Kinaesthetic:** Coach Paul believes that a coach should ‘show’ not ‘tell’. With ‘showing’ here the coach is talking about letting them do it. He believes that it is through practice that players learn most. I think it is important to keep in mind that while it is true that everyone learns differently, players need to express themselves in a kinaesthetic manner in the match. In fact, coach Hugo explains that he always looks for game situations which lead players towards

intended behaviours. It is in the moment that all the players start applying the same behaviour to the same situation (Hugo), that the team would have reached a kinaesthetic common language.

Coaches talk about showing a problem (Joseph) and working on its solution, on the pitch:

> Most of the times, my demonstrations happen during the exercise. Most of the times, I know it is an issue, so I create situations on the pitch and then I remind them about what happened in the game. (Hugo)
>
> …I do not tell them the solutions; I only tell them what we are going to do. Then I try to create exercises that will lead to that same situation we had in the game and see what kind of behaviours come out from the players. (continued from Visual, coach Hugo)

Hugo uses a very inductive approach through a guided discovery approach, and instead of putting players in a problem and providing a solution, he simply provides a pre-planned issue which should lead them to his predetermined solution:

> Most of the time you try to coach for example 'switch play'. Some coaches use a simple ball possession and then they use the argument, if here is closed, switch. It is not wrong, but for me that is more technical than tactical. So, if switch play is a tactical problem, I like to try to make it as realistic as possible, so I can create a game situation where this usually happens? So, I try to create a situation in that phase and in that moment of the game, to try to pop up the behaviour in the most realistic way possible. (Hugo)

Coach Brian works a bit differently. For instance, when working on his 13-second rule' principle, he first organises:

> …an exercise which requires his players getting from their box to the opponents' box in 13 seconds and scoring. Once they understand they can do that, then he works on it tactically. (Brian)

In an alternative way of applying the reciprocal method, rather than the direct (Cassidy et al., 2009), coach Andy explains that kinaesthetic work for him could include players showing what they think on the board. "They are doing

something. Then, of course, the ultimate is on the pitch. I am working on the internalisation of learning. I teach you, then you teach him" he explains.

### *Deciding Methodology*

While it could be that certain coaching educational programmes, or schools of coaching and coaching cultures (Albertini, 2013; Ancelotti, 2016; Roca, n.d.) may give the impression, or request that coaches should stick to one method of coaching, I argue that teachers do not use one teaching methodology. They all allow themselves to use the existing methods of teaching, depending on the situational requirements, and so, coaches should do the same. Thus, I believe that coaches can draw on various methods of coaching, such as the Global-Analytical-Global (Csabai et al., n.d.), whole-part-whole (Reed, 2004), Tactical-Periodization (Tamarit, 2015) or any other variant such as an adaptation of the Teaching Games for Understanding (Webb & Pearson, 2008, 2012).

A coach can use different tools, "reminders, little quotes, videos of players doing well. Using every part of technology…" and different methodologies to facilitate learning (Sergio). Coach Hugo is very clear about the structure of his sessions. He explains that they are divided into three stages:

1. Technical/Tactical exercise - General to work the behaviours in a general way.
2. Game situation to correct and organise it.
3. Finish with a game to 'check' learning.

Coach Sodano explains how Ajax and Barcelona use two totally different methodologies. He also reminds us that the coach needs to know and be able to apply the deductive versus inductive approach; "[Do] you give problems to solve or [readymade] solutions?"

This approach generally supports the idea of inductive coaching which leads the players to learn what behaviours are needed in different scenarios, rather than the coach deductively telling them what they need to do (Hugo). With a Guided Discovery approach to coaching, coach Brian believes that most of the learning is done by the players themselves. In line with Nash et al., (2011) it becomes evident how important it is to create an environment that induces learning. "You create the environment for the players where they can

learn and be challenged, but you want them to solve the situations" he says. Coach Fannar explains how he applies an inductive approach. When going over things in the beginning, he does not tell them all the solutions. He normally uses questions to see how his players would solve the problem. Despite having solutions, he does not pre-empt the players because he wants them to be (feel) involved in the decision making.

As shared by coach Hugo earlier on, coaches may lack self-awareness (Millar et al., 2011) which may lead to a shallow realisation of what coaching methodologies they have implemented or plan to implement. However, I argue that the design of the session, the way principles are introduced is influenced by the method of teaching one applied in the session. For coaches to be flexible in the coaching methodology they apply (Cassidy et al., 2009, p. 33), depending on the situation, I believe it is imperative for them to have a high level of General Pedagogical Knowledge.

The next section, Dissemination of Knowledge, exposes more aspects of the coaches' methodological approaches.

### 5.7.5 Dissemination of Knowledge

It was interesting to note that most of the participating coaches were, without realising, discussing the coaching process through a dissemination perspective. It was very evident that they thought about the training session more than anything else, and it is the training session that guides their coaching world.

Therefore, it is important to clarify that the dissemination does not only happen during the training session. Coach Andy, for instance talks about classroom explanations, before he moves to the pitch for a training session. The three major sub-components coming out of my interviews with the coaches were:

- the creation of a learning environment,
- the pre-training
- the in-training sub-component.

These are each discussed in the following sections.

### *5.7.5.1 Creating a Learning Environment*

“You cannot have effective learning or problem solving without the learners having the courage and the skill to explore alternative ways of dealing with a problem” (Bruner, 1963, p. 526). Therefore, the creation of a safe learning environment (Andy) is a priority in the development of a coaching environment (Nash et al., 2011).

Implicitly coach Sergio shows the importance of creating learning experiences. It shows that he, like coach Andy, believes in learning as a process to generate meaning. He does not believe in providing the meaning, but in helping them to generate meaning, through challenges, through guided discovery, by providing them experiences. This view is explored by Cassidy et al., (2009, pp. 35-37) and Bruner, 1966, (pp. 43-44) amongst many others.

This shows the importance of differentiating between the idea of transfer and productivity, (Bruner, 1966) which will be discussed in further detail in the next two sections.

#### *Productivity instead of Transfer of Learning*

> If training is to be of benefit to the players, it is absolutely essential that they can transfer what you have worked on from Monday to Friday onto the pitch on Saturday. If they can’t do this, then you really are wasting your time and energy. (Jones, Armour and Potrac, 2004, p 26)

At first glance, the coach’s desire to provide his/her players with instructions and learning that are **directly** related and transferable to situations they meet in matches may look conceptually accurate, as it highlights the importance of the design of a powerful learning environment that produces transfer (De Corte, 2003).

However, this contradicts the constructivist view of learning, which acknowledges the contextual complexities of learning, within an equally complex environment (Zuccolo et al., 2014) like soccer. In this conceptualisation of learning, it is imperative to consider the reconceptualization of transfer or transmission.

Direct transfer looks at knowledge as static. It does not consider the ability of the learner to manipulate and reconceptualise the acquired knowledge

to new forms of skills for the arising necessities of new situations (De Corte, 2003). Similarly, transmission, talks about reproduction of knowledge. It looks at knowledge production, conveyance and reception, in a unilinear manner (Lusted, 1986, pp. 2-4). Those coaches who coach through drills and analytical exercises assume a direct-application theory of transfer (Bransford & Schwartz, 1999) as they expect their players to repeat that same movement during the game.

> As one moves along the be behaviourist—cognitivist—constructivist continuum, the focus of instruction shifts from teaching to learning, from the passive transfer of facts and routines to the active application of ideas to problems. (Ertmer & Newby, 2013, p. 58)

Complexity within the game calls for coaches to look at a pedagogical approach that does more than narrowly conceiving transfer as the independent and immediate application of previously acquired knowledge and skills to a different setup (De Corte, 2003). The soccer player needs to be able to generate understandings and be able to apply that newly generated knowledge to ever-changing situations. In soccer, knowledge needs to be produced “in the consciousness, through the process of thought, discussion, [writing], debate, exchange; in the social and internal, collective and isolated struggle for control of understanding” (Lusted, 1986, p. 4).

Rather than aiming for learners to repeat what they have learned in context one (training), to context two (game), the concept of ***preparation for future learning*** (Bransford & Schwartz, 1999), which resonates with Bruner's (1963) concept of ***productiveness***, expects the learner to be able to generate new propositions from previously acquired knowledge. Hatano and Greeno (1999) have proposed replacing the term ‘transfer’ with the term ‘productivity’ as they look at the degree to which learning in one kind of activity can be effective in successive different activities.

In following De Corte’s (2003) suggestions, I challenge researchers and coaches to reconsider soccer coaching in a way that makes it (coaching) enhance players’ productiveness.

***Productivity of Principles of Play in Soccer Coaching***

As early as 1960, Bruner (p.17) had suggested the concept of ***transfer of principles and attitudes*** as a way forward to increase productivity. He explained that “nonspecific transfer…consists of learning initially not a skill but a general idea (principles and attitudes)”.

It is this line of thought that brings me to the idea of CPP. Rather than using a conventional or an integrated tactical approach, the Process of CPP underpins a coaching process which advocates the concept of having soccer players introduced to a general idea (principle) ”which can then be used as a basis for recognising subsequent problems as special cases of the idea originally mastered” (Bruner 1960, p. 17).

Learning soccer should not be directed at a destination, nor should it be aimed at getting the subject across (Bruner, 1966), instead, it should provide us with the tool to regenerate learning all over again (Bruner, 1960). This applies to both coaches and athletes as learning participants.

This method of *preparation for future learning* (Bransford & Schwartz, 1999) is intended at increasing non-specific transfer (productivity), which is what is necessary for the random nature of soccer.

Mastery of the fundamental ideas in soccer does not only involve grasping the general principles. It also leads the learner to develop an attitude towards learning through inquiry, guessing and looking for solutions on one’s own (Bruner 1960, p. 20). In a constructivist learner-centred approach, one cannot expect anything beyond the learner becoming self-regulated.

While it is not in the intention of this study to prefer one learning strategy over another, one recognises that learning strategies such as Problem-Based Learning (Hubball, 2003) may fit this pedagogical view. In this approach, the coach does not provide solutions at every stage of the players’ learning process. Instead, the coach provides the athlete with specific situations and instructions that guide him/her to the understanding of the general case, by which the player will be able to regenerate that understanding in understanding “other things like it” (Bruner 1960, p. 25) at a later stage.

***Self- Regulation***

Coach Andy takes self-regulation (Ertmer & Newby, 1996) very seriously. A coach who works on creating a learning environment equips the players with the skills to perform self-learning through the reflective process (Andy), and through a dialogue of reflection with the coach (Andy). To be able to get there, he believes that one needs a long-term project (more than one year) as s/he needs to teach players about learning in order that they are able to accept these methods of 'teaching' (Andy):

> If you teach them about learning, they can accept your 'teaching' methods. I can teach them about learning and make them self-regulated when they are older players. But you need to set the environment and the conditions for that.
>
> Set it up, show them what will be expected, as from the onset. Talk to them about the pitch when you meet them for the first time, about the classroom etc… show them that it is ok to learn by drawing, by walking it through, to see it, to try it out. (Andy)

He explains how this process of reflection and self-learning can lead the athlete to a continuous process of gap analysis, where the player can assess his/her level against what his/her ideal self. Through this understanding, s/he can understand how to close that gap and what time is needed to practice on closing that gap (Andy). "This gets into 'delivery' as part of my dissemination of knowledge I need to teach my players to be self-reflective, self-regulated" (Andy).

> I got this idea of reminders. I got the idea of teaching players to be reflective at the end of the session. So that I can hold them accountable in training…So my coaching feedback and support, you know you are going to get feedback, 1on1, as a team. And it is constructive, and it is specific and clear. I know this and build it in collaboration where we (player and coach) are working together because you want to improve. (Andy)

Andy refers to his 'competency framework' which as he says, covers "the broad principles of soccer, the major objectives and sub, and sub-sub objectives, down to the individual skills and in-between group". "Written in language that

players can understand… it is split into technical, tactical, physiological and mental" (Andy). Referring to this 'competency framework', he also explains its importance to this component. "Why is it important? Because I want the players to be self-regulated. Assess yourself now and we'll discuss your competency, based on your own self-analysis" (Andy).

Finally, coach Andy concludes that this would not be possible without teaching "growth mindset". Referring to Dweck (2012), he explains that if the players have a fixed mindset, and are not always ready to learn, it is futile trying to teach them – hence the importance to teach them 'growth mindset' (Andy). "Assess yourself and we will be having some conversations" coach Andy would tell his players. "We are teaching methods of feedback and self-assessment through these self-analysis tools", he repeats.

#### *5.7.5.2 Pre-Training*

Brian thinks that as a coach:

> You need to have a feel for your players. I always check mood before the session starts. Have a look around, sense of the atmosphere, see the energy level, and that would shape my view of what I am expecting. (Brian)

In this pre-training period, coaches go through an important part of their reflective process. Coach Brian continues:

> You need to have the interpersonal skills to communicate with the players, and if you get a particular feeling, a particular understanding, you might need to change the session in the last minute, should that be required.

In this phase, coach Andy rehearses his session mentally, "thinking it through, and doing it in a magnetic board and going early and standing there" on the pitch, he gets the feel of his session. Without necessarily knowing it, coaches seem to be referring to the idea of flipped learning. With the creation of a 'flexible environment' which induces a 'learning culture' and by determining "what they need to teach and what materials [players] should explore on their own, [coaches] use 'intentional content' to maximise" learning. The role of the coach moves closer to what Flipped Learning refers to as the "Professional

Educator" (Flipped Learning Network, 2014, pp. 1-2), which in my opinion resonates with Sfard's (2008) idea of the expert participant.

Professional-expert-participating-coaches do not only teach on the pitch. At times, coaches explain parts of their curriculum in a classroom format (in a meeting room or in the dressing room), and after that they go to work it out on the pitch (Andy). In setting a flexible environment, aimed at inducing the culture of learning, they might opt to take a "less visibly prominent role" in a flipped-coaching-learning-environment (Flipped Learning Network, 2014, pp. 1-2), as they may opt to share leadership and explain the session and its principles to a few players before they start (Ray).

### *5.7.5.3 In-Training*

Implicitly, and understandably, the participating coaches gave considerable importance to the in-training element of the whole process. This emphasis was indicated in the way they explained their coaching process – normally in retrospect from a training session point of view.

This 'In-Training' sub-component is divided into; explanation, learning experiences, learning and reflecting, in the following discussion.

#### *Explain*

For coach Andy, the training session starts in the dressing room / the classroom, where discussion occurs, showing the style of play, the Model of Play and the related principles on a paper or PowerPoint or video. Coach Ray starts by integrating other leaders, including parents of young footballers he coaches.

When on the pitch, he explains that he uses the 'simple to complex' approach both for his players and himself. "I explain it slowly, for me to be sure I am saying the right thing, and for the players to have time to absorb" (Andy).

The most important aspect for coach Sergio is the time he spends on explanation:

> If I can explain in 10 seconds for me is better than stopping for 3 minutes to explain. Because the amount of time [remaining for training] will be very little. I really care about the language and normally I try to be very clear but specific. (Sergio)

Unless the coach has new players for training, if the exercise is being repeated from a previous lecture, he would just remind them about the exercise and allow them to start ‘playing’. One can also attach the session plan in the locker room to facilitate the process before training. If the exercise is new, the coach should only spend a few seconds to explain it (Sergio). He also stresses the importance of identifying the goal, in every exercise (Sergio). The coach can just send the players in position, just explain once briefly while they are in position, and start the exercise (Sergio).

***Provide Experiences***

As coach Brian explains, if the team has better quality players, your coaching should be more about creating learning opportunities (Nash et al., 2011), setting problems and seeing your players solving the problems, with very little directive coaching. From my personal experience, I would suggest that coaches should not limit this approach to good or high-quality players only. I have coached in the lower divisions of Maltese soccer, and the approach worked very effectively in helping players to become more autonomous.

Andy explains that the provision of experiences is much more than introducing players to training exercises:

> Imagine a player was not here, and you ask another one to 'explain' what we did the day before, for the missing player it will be auditory learning, but for the one explaining it would be an experience which induces internalisation of learning.

Andy refers to Gardner’s Gardner, (1995) theory of multiple intelligences, and explains that it is important to remember that players may learn with others (interpersonal), with themselves (intrapersonal), through the rhythm of play (musical), walking on the pitch (naturalist) and more. Coach Andy also refers to Kolb’s (1984) experiential learning cycle, as he explains that he wants to help them “to generate their own meaning [and] to internalise it. The experiential Learning Cycle can be integrated into every training session”.

Hugo explains that to provide experiences, he creates situations which brings out the issue he wants to tackle:

> It is about guided discovery. You know where you want them to go but you don't tell them right away. You create the situations. If it does not go

> the way you presumed, and they still find solutions, I would still be happy. That way I am also learning possible other solutions that I did not plan and that could be improving my game.

With a more deductive approach, coach Mark stresses the importance of realistic experiences:

> I have always had a philosophy that it should be the game, whatever you do. Obviously, it depends if it is attacking, defending or transition. Them all 3 things must be on the pitch. If they are not, that is being done wrongly. (Mark)

He continues to explain that the technical team first shows the players how they would like them to do the task at hand. Then they let them play, then they go back to see it, and point out what is good and what was not good and highlight what the coach would like to see the players do. Finally, they are allowed to try again, coach Mark explains:

> Sometimes like today (a day before the game) we need to go through things slowly, and it is a bit boring…then we go and have a game, even a day before the game, we go with 9v9 in tight area, in 50 x 40, tight, and I want a reaction, I want a small tight area, pass and move, half a shot taken...but we want it in the game, in a tight area, and they love that. They play two minutes, 5/6 games and they go off, feeling it. (Mark)

Coach Paul believes in providing training experiences which lead the players to understand details:

> …to the extent of why one player is playing and not the other, and how will the team be shaped and work if a player is playing instead of another.

***Learning:*** While it is the case that “If you are not giving that information you are not coaching through tactical principles” (Soldano), and while it is also true that it is difficult to explain the PoP to players who have never been coached through PoP, I agree with coach Soldano when he says that we still “need to persist and train them and give the information” to the players.

Coach Paul thinks that “an intelligent coach finds a way how to show the player what is expected from him through the training situations”, “on the training pitch” (Fannar), without necessarily being deductive.

This highlights the importance of coaches thinking about, learning about, and knowing about how people learn (Andy). If we only think about teaching, in coaching, we can prepare great exercises, and great training sessions, but transfer of learning could be limited (Andy). Coach Andy reminds us that to strengthen transfer of learning, a coach needs to have a strong feedback mechanism, by which coach-player feedback is not vaguely dependent on the match result. He further explains that he looks for transfer of learning onto the pitch; “I can be brilliant setting up, doing great sessions, but if transfer is not there, learning has not taken place”.

Coach Sergio, for instance, gives feedback after a set of situations, rather than after every situation. This allows the player to understand what s/he did, according to the context and adjust it. If the coach gives feedback after every situation, it does not allow the athlete to adjust, conditioning him/her to do what the coach says. Coach Andy believes that Kolb’s Experiential Learning Cycle (Kolb, 1984) should be integrated in the athletes learning experience. He also talks about the importance of players’ accountability towards their learning, saying: “Accountability about transfer. We worked on this this week, but you did not do it, what happened?”

One needs to remember that when facilitating a session, the coach should take in consideration the age, the quality and the technical and tactical abilities of the players (Brian). The coach can use different coaching methodologies in his/her approach to facilitate learning (Sergio), and different tools:

> Reminders, little quotes, videos of players doing well. Using every part of technology. Put in 7-minute segments [on video] whereby these are the things you did well. These are your strengths. Now couple of things you need to think next time round. (Andy)

Coach Hugo shows that there is a strong relationship between Operationalise it (Design It), Training Session - Facilitate it (Dissemination of knowledge) - Check it (evaluating and reflecting). He first designs a session with clear aims and

principles in mind. When running the session, he would inductively work to bring out the behaviours. Once he finds that the behaviour is internalised (check it), he starts going deeper and organising the behaviour with more detailed interventions based on sub and sub-sub-principles.

***The Coach's Interactions with and within the session:*** Coaching interactions and actions have been given attention by various authors on different levels (examples, Becker, 2009; Côté & Gilbert, 2009; Jones & Thomas, 2015; MacLean & Chelladurai, 1995). Coaches participating in this study claim that they change method and approach to the session. One cannot say which method is good or less so (Joseph), as every method can be effective if used timely. "Sometimes I feel I need to stay on the outside of the session, but sometimes I need to be 'inside' in the middle of the session" says coach Paul. Coach Hugo adds to explain:

> Yeah this is the method I use, sometimes I question, sometimes I say what I want. Sometimes I react. Above all praising and criticism is key when we talk about human behaviours, related to soccer, I think the way [players] feel is what makes [them] come up with [their] behaviour. If when I do something, I have a positive feeling attached to it, then I do it more often…Pavlov.

Sometimes, as coach Ray points out, coaches opt to use players to give feedback to each other, instead of themselves being the feedback providers. Coach Ray emphasises the importance of the relationship between the scrutiny of players, transformation of knowledge (and its subsections) and the pedagogical methodology applied, which should be individualised to the needs of the players in the team.

Mark reminds us of the importance of adapting in the methodology applied and the way the coach interacts with the session:

> It might not be a good day and you need to get them up…If you are doing set plays at the end you need to sense if they are still concentrated, because if not you'd be losing time. (Mark)

***Praising and Criticising:*** Coach Hugo addresses the issue of praising and criticism with a Pavlovian approach (Schunk, 2012). Coach Hugo believes that both praise and criticism are key because this influences the individuals'

behaviours. Praise encourages positive feelings and repetition of the behaviour, while the opposite results from criticism. However, one needs to keep in mind the personality of players. Equity rather than equality should guide the praising and criticism approach (Fannar). Hence as the coach expressed, the continuous scrutiny of the players and their state of mind will determine if you need to tell the player about mistakes, or if it would be better to ask them to identify a solution. As Coach Fannar highlights, this decision should be taken much before the feedback moment:

> It depends on the personality profile. Some need more love than others. Others need to be criticised to respond, some cannot be criticised otherwise they stop responding…it depends on the personality profile, which can be created for every player. (Sergio)

***Questioning and Probing – Answering and Reacting:*** Instruction, feedback and questioning are important methods used by coaches (Becker, 2009) if and when used well. According to coach Hugo, at times coaches question players, other times they tell the players what they need to do, and on other occasions they answer questions or react to a situation. Coach Sergio claims that he uses questioning more – asking his players how they feel and what they are thinking, to stimulate the players to identify a solution independently. Hubball (2003) sustains that asking 'good questions' is an important ability for coaches, if they look at developing players' analytical and decision-making abilities. Coach Brian thinks that questioning and probing should be used more with younger athletes, however, he does not exclude 'directive coaching' with them when mistakes need to be corrected. Nonetheless, coach Brian still recognises that questioning might be a good tool to be used with seniors. Coach Sergio reported that he believes that communication is key, and he will always try to answer to his players' questions. He adds to say that his players can ask questions all the time. "they can say that they do not agree, and we see what we can do about it".

### *EvaluatINg and ReflectINg*

The participating coaches emphasise the importance of reflection-in-action (Schön, 1987), during a training session. For this reason, I am presenting this section here. However, one needs to be clear that the conceptualised process

dedicates a central component devoted to regeneration of knowledge, which is made of evaluation and reflection.

As will be argued later (in this chapter and in chapter 6), the coach should not be considered as in-action only when s/he is delivering a training session. In all the stages of the coaching process, as well as moments of his/her personal life, the coach is also being considered in action, and it is normally during this time that s/he is mostly in reflection mode. Hence, a coach can never be considered to be reflecting before or after the actual action (Erlandson & Beach, 2008).

Reflective coaches “reflect on-the-spot in here-and-now” in every stage, at all times, and “the products of their reflections are immediately put into practice in a continuous and spontaneous interplay between thinking and doing, in which ideas are formulated, tested and revised” (Rolfe, 2014, p. 1180).

I do not propose that reflection is held before and after the training session, and that the training session is merely the performance of that reflection. On the contrary, coach Hugo claims that the training session is one of the places where he learns most. Coach Joseph claims that it is the coach’s own reflection during the training session that tell him if the ideas being introduced can work or not. Coach Mark adds saying:

> I am evaluating during the session…I might say to myself, ‘I am not doing this any longer because it has no effect on what I want’, and then I change, I change even during the same session sometimes.

In strengthening this idea, coach Soldano talks about having a variation ready to be applied, if while reflectINg it is realised that things are not working as desired. In this way, the coach can adjust to the moment during intervention (Sergio). Furthermore, coach Soldano reminds us that every training session is a clarification while every match is a verification, hence reflection in action in both situations is of utmost importance. Coach Paul continues to explain in further detail:

> It is important for me that while delivering a session, I need to be able to [reflect]. If I realise, I cannot get to the set objective, if I realise, I cannot get there, I need to be able to adapt to get to where my players can achieve.

> I had sessions, in which I wanted to work on certain principles, I planned for that, I started working on them, I realised the session was not working, and I changed it completely, there and then.
>
> I do not think I need to stay in the same session if I realise that it is not leading us in the desired direction. It might prove to be even counterproductive if I stay on it. Hence, I change.
>
> When I feel that the players will 'lose' ("*jitilfu"*) or 'break' ("*itelfu"*) the session, I will not necessarily choose something which is simple. More than simple, I go for something which I know that will most probably work better - it could also be a simpler adaptation of what I had in mind originally. (Paul)

As coach Paul explains, the coach needs to be reflective in a way that s/he understands if a session is not working well for the players or for that moment in time. He also emphasises the importance of being reflective of the interaction happening, saying:

> I do not only learn about and from the principles I am trying to employ. I learn a lot from my players, from the staff, from the communication happening within practice, I think one can learn a lot.

I find this a deeply meaningful piece of data, because when referring to learning from others, this coach does not mean the explicit learning process whereby coaches engage in discussions within their community of practice, but to implicit learning processes where the coach learns from a reflective process upon the interactions (communications) happening within the same environment.

### 5.7.6 Regeneration of Knowledge

Coach Mark puts an emphasis on the importance of evaluation in his coaching. In fact, he reported that he and his technical team:

> …always evaluate. I make it a point with the staff…I always tell them; we do not evaluate enough. I do not think you can ever do enough of evaluation. And then when you evaluate what do you do with that evaluation? Thinking about what you evaluate, because that gives you the next training session. What you do today, improves all of your tomorrows.

### *5.7.6.1 Continuous EvaluatINg and ReflectINg*

Evaluation and reflection assist coaches' actions in becoming self-determined (Stebbings, Taylor, & Spray, 2011). While reflection and evaluation might sometimes be used interchangeably or without clear definition (Van Mullem & Van Mullem, 2014), in this study I differentiate between the two terms, and discuss how one may assist the other in knowledge generation.

Coach Mark shows that evaluation and reflection go hand in hand to regenerate and recreate an improved version of the past. In agreement, coach Brian says that he keeps a journal where he evaluates "what was good and what was bad" and reflects on the reasons behind the outcome and how the shortcomings can be addressed. Coach Brian believes that:

> …the whole coaching process is about evaluation, planning, execution, delivery, and repeat. If you do not evaluate and then reflect on what you have done, if you don't identify problems and then look for solutions, you are not going to improve the environment.

#### *Generating Feedback*

Reflection has been attributed to coaching continuous learning processes (Gilbert & Trudel, 2001). "The generation of feedback is part of the evaluation process," says coach Paul. Like coach Mark, coaches Joseph and Paul suggest that, that "rather than evaluating on your own" (Paul), discussing with the technical team helps in evaluating the work better. The players and the interactions and communication happening in the session are important for feedback generation (Paul). This was sustained by coach Soldano who says that in his case "the training session is never proposed by the coach but always by the answer of the players…you see that the feedback was not positive, hence you change."

In a self-reflection mode, although this might be perceived as otherwise, coach Paul treasures others' feedback saying: "…even in the game, perhaps the assistant coach thinks I am not really taking care of what he is saying, but even one word might be a spark". Coach Brian prefers engaging in a process of solitary evaluation and reflection. He would look for deeper understandings

through discussions with others if he was not able to understand things on his own (Brian).

### *Evaluating and Consolidating Learning*

Three coaches discussed the importance of checking that learning is happening. Rather than first teaching and then assessing like at school, in football coaching, we depend on immediate result so one needs to check learning and progress accordingly. “If when evaluating, the coach realises there is an internalised behaviour, then he can start going deeper in sub-principles and 'organise' the behaviour” (Hugo) to consolidate. Coach Andy agrees that before moving forward “we need to consolidate”. Consolidation is an important aspect if the coach is looking for solid transfer of learning, as coach Paul explains:

> Evaluate - I learned how to do that later in time. In the sessions earlier on I used to be happy when the exercises used to work. But most probably long term, I do not think there was any learning happening.

He continues to say that nowadays he tries to make sure that rather than finding success in the level of organisation of technical and tactical exercises, he recognises success when he can see learning happening and retained.

Coach Joe reminds us that we need to differentiate between evaluation post training and evaluation post-match. This takes us back to Guardiola’s comment that training session is a clarification while every match is a verification (Soldano).

Coach Andy clarifies that if things are not going in the right direction, the plan needs to change or be adapted according to the needs presented by the evaluation, he notes: “I know from my military days that the plan never survives the battle” (Andy). He adds that sometimes it is the result itself that influences the plan:

> …if you are coaching past the development stage, where results are important, results can determine, can upset, can interrupt the plan, can interrupt your drivers, because you are losing too much. Arsenal in 2016-2017 is an example.

***The Model of Play as a Yardstick:*** Some of the coaches delved deeper into the idea of checking learning, in such way that they made the process more objective and perhaps reliable. For example, coach Soldano talked about "evaluating a player's/team's dysfunctions in view of the model and re-integrating sessions that deal with those issues".

This seems to be very much the idea of coach Andy who says that as a coach:

> …by the end of the season you will judge yourself by asking 'did I achieve all my objectives?' There is your evaluation and if you didn't for a certain reason, [you need to ask] why you didn't? Because that was your plan… ok the plan never survives the battle, but at least it gives you the ability to change and self-evaluate at the end of the season. (Andy)

***Micro-Meso-Macro-Assessment Cycle:*** *Coach* Ray outlined an important factor that was missing in version 1.2 – timeframe.

> We've had a game… how long do I have to reflect because my next match might be in 2-days' time. Are you judging on a period? Or from match to match? If I am coaching in the development stage, I have more time… (Ray)

…when compared to when coaching in the competitive level.

This coach's intervention makes it clear that assessment and its timeframe is dependent on the environment (scrutiny), the coaching domains and the pressures it puts on the coach. These factors, together with others, define how and when the coach would assess learning in view of the Model of Play.

Using the Model of Play as a yardstick allows the coach to create a micro-meso-macro-assessment method. As I once proposed to my players, coaching assessment is more aimed at highlighting what the coach needs to work on, rather than to criticise the player.

Coaches (Soldano, coach Brian) apply micro-assessment by holding what coach Andy refers to as "immediate reflection upon [training] session". Others apply meso evaluation-reflection and reviewing (weekly and monthly)

(Andy), and macro-assessment (after a whole season) (Andy). Coach Andy explains his assessment cycle thus:

> In my club, we perform daily evaluations with my staff and players, and through my own observations in every training session, and our evaluation post-match, every week (micro). I also intend to evaluate the team's developments in line with the Model of Play and reflect on how this model can be adapted to fit the team's developments. At the end of the season I will also review the model to reflect on what improvements it needs and how I can strengthen the model with my influences on the environment.

#### *5.7.6.2 ReflectINg*

Once one evaluates the achievements of a process, s/he can then reflect on what the newly generated knowledge provided by the evaluation. That can be reflectively compared with the objectives set earlier on.

"Evaluate – Reflect – Review" (Andy) … "on the self and on everything" (Andy). Once the strengths and weaknesses are outlined in the evaluation, one would need to reflect on them both (Joseph) and come up with solutions (Brian).

Coach Paul shares with us that when the evaluation and reflection process is related to the PoP, he rarely does it with others. He always starts the process on his own, and only very rarely discusses with others. He believes that this is because he is a perfectionist, but questions whether this attribute, is in fact, a weakness, which shows that he does consider the sharing of ideas as valuable part of the evaluation process. Coach Hugo, on the other hand, is much more open to his community.

In showing the importance of reflection coach Brian says that he is "reflecting all the time, in action, on action, during and after. I reflect in the session, and after the session I get feedback from my staff and players."

#### *5.7.6.3 Regenerate-it*

Reviewing or consolidation of a programme, can only happen after evaluating and then reflecting on the understandings generated by that evaluation. This

reflection shall lead to the regeneration of adapted knowledge that shall address the needs raised in the evaluation-reflection process.

Coach Andy asks, “What do we need to change?”, this is the ongoing question raised in this process. As coach Brian commented:

> …the whole coaching process is about evaluation, planning, execution, delivery, and repeat. If you do not evaluate and then reflect on what you have done, if you don't identify problems, and then look for solutions, you are not going to improve the environment.

Coach Hugo believes that one needs to be very open for possible solutions. He suggests that sometimes you are simply watching a game, or training session, following a match on TV, or talking to someone, and you realise that what you’ve seen or what you’ve just heard is a good solution for a problem you have. As a coach “you see problems that you really do not know how to solve…”. It is always possible that the players solve it for you, “then you say wow, this is a good solution” (Hugo). “After that maybe you can find more solutions, if you continue thinking…and that process lead to a continuous update, year after year” (Hugo).

Coach Hugo concludes by saying that it is very normal that coaches are not aware of problems, and so do not look for solutions to issues in their written Model of Play until they see them happen in training or in the game.

As coach Paul was quoted to say earlier, regeneration is happening when the coach always looks back and always realises how much less he used to know the year before.

## 5.8 AN ONGOING CONCEPTUALISATION.

Drawing on the participants own words; this section has provided a detailed picture of the participants’ contributions to the deep understandings of what knowledge coaches need to generate to CPP. As indicated by the extracts from the data, participants highlighted the importance of the six main components. Scrutiny of the Environment, Conceptualisation of the model of play, Generation of Knowledge, Transformation of that same knowledge, and its Dissemination. These five components live an ongoing nonlinear, rather problematic

interaction, between themselves and more centrally with the sixth component, Regeneration of knowledge. This shows the progressive learning process of the coach as a learner in his/her own right.

In the next chapter I will start by presenting a visual representation of the latest (version 2.1) conceptualisation of the phenomenon, an explanation of how that can be read, and a discussion of the conceptualisation from the perspective of the theoretical framework underpinning this study, and the values and challenges of the conceptualisation which has been developed.

Having presented all the findings, the next chapter will focus on discussing the main findings obtained in version 2.1 of the conceptualised process.

# CHAPTER 6
# DISCUSSION: THE PROCESS OF COACHES' KNOWLEDGE GENERATION FOR COACHING THROUGH PRINCIPLES OF PLAY.

## 6.1 INTRODUCTION

This chapter begins with a presentation of the current version of the main finding of this study, version 2.1 of the conceptualisation of the process of coaches' knowledge generation for CPP.

Having reviewed the findings that led to the current conceptualisation, and the content knowledge that relates to it, it should be easier to understand the process in its present form. It is important to note that this current version of this conceptualisation is still a work in progress. The evolution of this conceptualisation will continue post thesis, as it is put into practice. This version should next be subject to scrutiny in the field, to be discussed, criticised, analysed, and researched further from various points of view, a*d multos annos.*

## 6.2 HOW TO READ THE VISUAL REPRESENTATION

This section provides an explanation of my thinking which underpins the process' visual representation (Williamson & Long, 2005).

### 6.2.1 Components composing the Coaches' Process of Knowledge Generation for Coaching through Principles of Play

The Coaches' Process of Knowledge Generation for CPP (Figure 6.2) is composed of six components (Figure 6.1). Scrutiny of the environment, Conceptualization, acquisition of knowledge, transformation of knowledge, dissemination of knowledge and regeneration of knowledge form the core of the process and have all emerged from the data collected during interviews. The **BOLD** text underneath each component shows the main sub-component, while the other [normal font] indicates the main emerging sub-components.

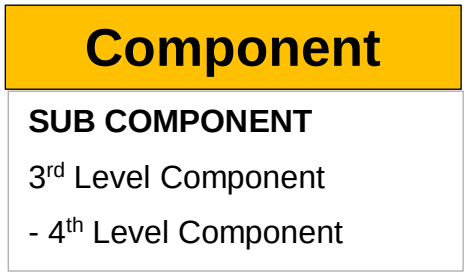



**Figure 6.1:** Visual explaining the design of the process.

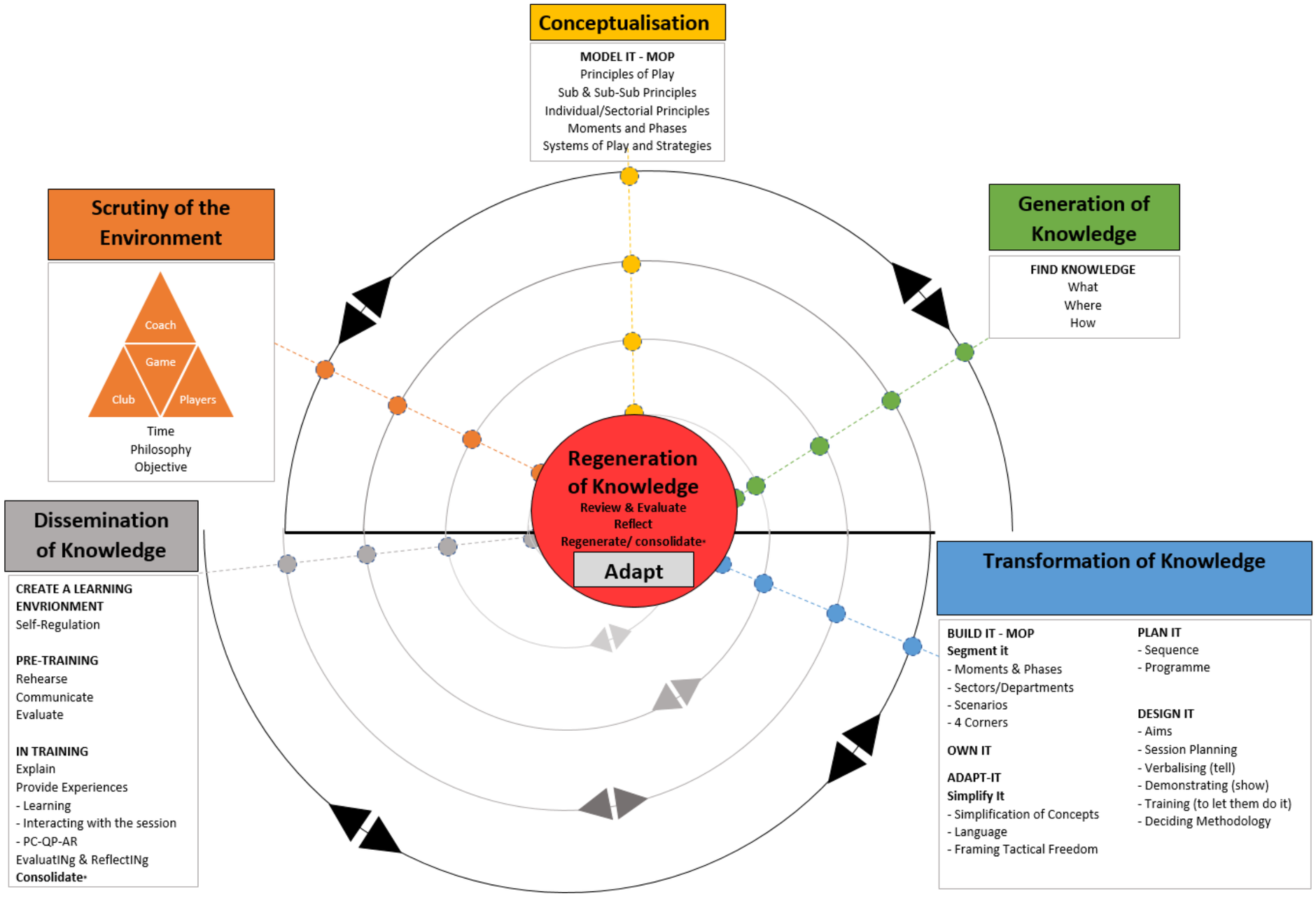



**Figure 6.2:** The Coaches' Process of Knowledge Generation for CPP (Soccer).

### 6.2.2 The Visual Representation Explained.

The design in Figure 6.2 is the result of several steps leading to the development of a visual that satisfied my expectations, as well as those of the participating coaches. The visual is a faithful representation of all the data gathered, and of the phenomenon. Considering the fact that it is difficult for two dimensional representations to represent the complexity of coaching (Cushion, 2007), I suggest that a 3D visual generation of this same visual representation could be a valid addition to the findings of this phenomenon in future research.

#### *6.2.2.1 The Spiral*

In their comments eight of the ten participating coaches mention the idea of having a cyclical diagram rather than a linear one (as version 1.2, the one presented to them for the interview). The following is a synopsis of the participating coaches' views about how the visual representation should look like.

This is an 'ongoing process' (Hugo, Joe). Although coaches do not necessarily travel through the components in a sequential manner (Joseph) every component and sub-component are interrelated (Hugo). Coaches Joseph and coach Mark agree that one might start with designing a session and then going back to the Model of Play s/he would have built, and perhaps then reverting to reading material on that area, to polish his/her Model of Play and session planning. To counter the idea that a component or category is more important than others, coach Mark suggested the visual needs to be presented as a 'circle' rather than linear. While confirming this cyclical non-sequential process, like coach Brian, coach Paul adds to the idea of moving back and forth across components in a non-controlled repeated manner as contextually necessary. Coach Paul clarifies that in this non-sequential process certain components might even be ignored. Coach Sergio contributes to the introduction of 'progressive learning' as he explains that taking acquisition of knowledge as an example (shown as the 2$^{nd}$ component in version 1.2), would start occurring much before scrutiny of the 'new' environment occurs. It is in fact previously acquired knowledge that informs scrutiny. Then again, it is scrutiny that re-informs the coach about what knowledge is needed. Coaches coach Ray, Soldano and coach Brian confirm the 'cyclical' idea of the design.

The synthesis of this feedback led me to visualise a **cyclical, non-sequential, two-way, progressive process**, where the main components are presented in and around a ‘circle’ without giving the impression of sequential progress from one to the next, but at concurrently showing the very strong linkage between all the components.

The idea of a learning process as cyclical is not new (Kolb & Kolb, 2008; Kolb & Wolfe, 1981) and some prefer to look at the learning process as a spiral (Kolb, Kolb, Passarelli, & Sharma, 2014; Kolb & Kolb, 2005; Kolb, Boyatzis, & Mainemelis, 1999). Bruner (1960) talks about the spiral curriculum and on how learning can spiral upwards building on one’s own knowledge. He also addresses the progressive introduction of Content Knowledge, “built around the great issues, principles and values”.

Reflecting on all this, it becomes clear that the process shall be visualised as a spiral, which considers both the cyclical and progressive (or regressive) possibility. The two randomly placed two sided arrows around the spiral are intended at giving the feeling of two-way travelling around the spiral’s progressive levels.

The components showing the ultimate acquired knowledge are ‘floating’ on the outside of the spiral, but with no sense of sequence. Colour coded nodes on the different levels of the spiral are added to represent the same components (Figure 6.3), and to indicate that one may go through the same components infinitely and as necessary across various and different levels. The dashed outline around the nodes is intended to indicate fluidity in entering and exiting nodes, which allows the coach to engage or not engage with any component at any level of the spiral, depending on the specific situation and coaching context.

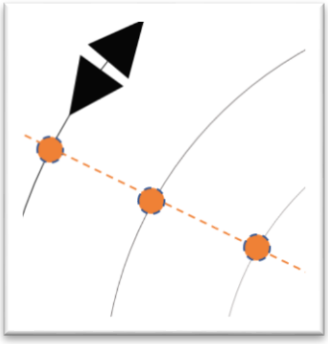


**Figure 6.3:** Nodes on different levels.

### *6.2.2.2 Regeneration of Knowledge*

The component ‘regeneration of knowledge’ is floating above at the centre of the spiral, but at its highest level. As coach Ray states in the interview, this process looks very similar to the Plan – Do – Review cycle. However, it says a lot about the *in between*. The concept of *knowledge regeneration* gives life to the spiral effect of the process, and it is this central node which draws the spiral higher throughout the process. The lines between the outside components and the central component emphasise the centrality of regeneration of knowledge, as the ‘review and evaluation’ loop goes perpetually into each component (Andy).

Emphasizing the word ‘adaptation’ coach Paul looks at this conceptualisation as guidelines to prepare, adapt and evaluate better; this is what the regeneration of knowledge component represents. Any adaptation on the scrutiny, strategy, acquisition, transformation or dissemination of knowledge will lead to regeneration of newly formed or updated knowledge.

This learning process is driven by the scrutiny, the strategy, the process of knowledge acquisition, transformation and dissemination progress of the coach’s own regenerated knowledge. Hence the centre circle should be visualised getting higher with the development of the coach’s learning through experience, allowing the spiral to grow. The centre circle may also move lower, shrinking the spiral, if the coach meets new challenges of which s/he has limited experience and knowledge.

The circular lines may also represent the tension existing between the outside nodes and the central one. For instance, an expert coach in his/her initial stages at a new club may have high levels of conceptualisation and generation of knowledge, while scrutiny of the environment would be at the low level of the spiral. In such a case, I imagine the ‘regeneration of knowledge’ node having pulling tension from below exerted by a low level of scrutiny of the environment, whilst pull tension from above results from the higher levels of the other two components. If regeneration of knowledge is visualised as a floating plate, this would not be flat.

Although it is very much influenced by the *Model of Pedagogical Reasoning and Action*, this process varies from Shulman's (1987, p. 14) Model

which involves “a cycle…[with] the starting point and terminus for the process [being] an act of comprehension”. In this conceptualised process, comprehension is a continuous process across all the six components. In certain components, such as scrutiny of the environment and acquisition of knowledge, comprehension is a premeditated outcome. However, in **Conceptualisation**, Transformation of **Knowledge** and Dissemination of Knowledge, comprehension is a by-product of the primary action and is only possible in an ongoing ‘regeneration process’ which leads to new comprehensions. Figures 6.4 and 6.5 are intended to highlight these differences.

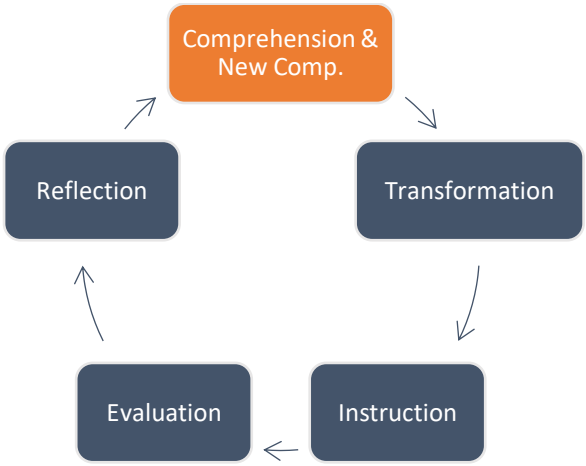



Figure 6.4: Visual showing Shulman’s process.

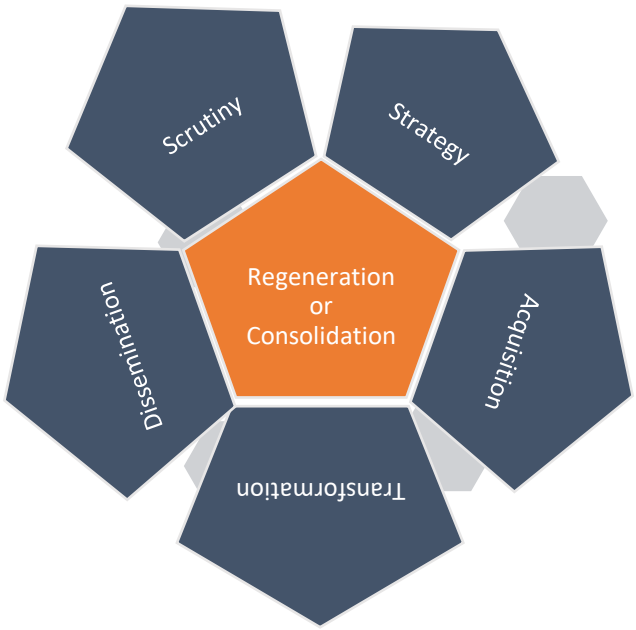



Figure 6.5: Visual showing the different position of ‘new comprehension’ (regeneration).

It is important for the coach as a learner to travel from comprehension to a new form of comprehension (new-comprehension), as “to teach is first to understand” (Shulman, 1987), I would say, that this is a continuous process.

This sustains why I want to put forward a shift from Shulman’s conceptualisation of comprehension as a start-to-finish process and move towards the idea of knowledge transformation or regeneration as a continuous process linked to all components. The process conceptualised in this study is underpinned by the idea that learning is a continuous process and is a result of all the interactions the coach has with himself/herself and his/her own environment.

The paradigm shift in representing regeneration of knowledge as a central ongoing process, conceives learning as a continuous process which is based on the concept of “knowledge, [which] is continuously derived from and tested out in the experiences of the learner” (Kolb, 1984, p. 27). In learning from experiences, one shall not limit ones-self to the idea of learning from concrete learning experiences. As Kolb (1984) suggests, “knowledge is the result of the transaction between social knowledge and personal knowledge” (p. 36).

The process of coaches’ knowledge generation for CPP resonates with Kolb’s Experiential Learning Cycle, as it considers the coach who CPP as needing to be actively continuously learning; life is the experience, and learning is the consequence, so the coach is learning everywhere and all the time. With an approach aimed at ‘*Reflective Observation*’ the coach shall “involve himself/herself fully, openly, and without bias in new experiences” (*Concrete Experience*) and reflectively (*Reflective Observation*) **‘scrutinise the environment’** in which s/he is immersed. The application of ‘*abstract conceptualisation*’ allows him/her to create a **‘**common strategy**’** to “integrate his[/her] observations into logically sound theories” and ***conceptualise*** a Model of Play that reflects the needs of the environment. Reading, watching games, discussing with others and many other methods may allow the coach to immerse himself/herself into ‘concrete experiences’ aimed at direct ***‘acquisition of knowledge’*.** ‘Abstract conceptualisation’ is further developed through the process of ***‘transformation of knowledge’***. I like to look at this component as the metamorphosis of the learning-coach (larva) into the learning-teaching-coach (butterfly) who transforms previously acquired knowledge with a

*Pedagogical Reasoning and Action* approach. When the coach has worked through these processes where '*Concrete Experience*, *Reflective Observation'* and '*Abstract Conceptualisation'* are mainly involved, it is then time for the coach to go on the pitch and *Actively Experiment* with the conceptualised abstractions that were formed through the reflective observations held during concrete experiences in his coaching environment and in his/her ever-evolving learning environment (Kolb & Wolfe, 1981, p. 5; Kolb, 1984).

This interaction between the continuous generation of new comprehension (Shulman, 1987) through experiential learning (Kolb et al., 1999) points to the notion of reflective practice. Looking at the roots of reflective practice, Rolfe (2014) shows a strong link between the terms 'reflection', 'thinking' (which are used interchangeably by Dewey), and 'doing'.

Rolfe's explanation of the term reflection underpins my first point. Similar to Dewey, for me "***reflection is not simply having an experience and then going home to think about it*"** (Rolfe, 2014, p. 1179). This takes us to the distinction between reflection-in-action and reflection-on-action (Schön, 1987).

In reflection-on-action, one would think about action before or after the actual action (Erlandson & Beach, 2008). In this conceptualisation, I challenge this idea as it considers all reflection to be in-action. If sports coaching was only the time spent in training or during matches, then we would be correct to differentiate. However, as the conceptualised process indicates, scrutiny, conceptualisation, looking for more knowledge in a pedagogical reasoning approach, and transforming knowledge are equally 'in-practice' as dissemination of knowledge is (which would typically be assumed as the in-action component). This process shows the coach as in-action through all its components. Regeneration of knowledge reinforces the continuity of this process which is composed of thinking processes (reviewing, evaluating, reflecting), which then lead to regeneration of knowledge and consequently to applied adaptation or to consolidation of knowledge. The regenerated or the consolidated knowledge is then reapplied, very often in an experimental (Rolfe, 2014) manner to re-test the newly generated knowledge and hypothesis.

This suggests that reflective coaches "reflect on-the-spot in here-and-now" in every stage, at all times, and "the products of their reflections are immediately put into practice in a continuous and spontaneous interplay

between thinking and doing, in which ideas are formulated, tested and revised" (Rolfe, 2014, p. 1180). This may explain why Schön hardly ever mentioned reflection-on-action, and mainly focused on reflection-in-action (Rolfe, 2014).

In conclusion, the idea of having the 'regeneration of knowledge' in the centre of the process, links to the concept of an ever evolving experiential learning (Kolb et al., 1999), which results from the continuous generation of new comprehension (instead of start and finish) (Shulman, 1987). This conceptually challenges the idea of reflection-on-action and reflection-in-action (Schön, 1987) with the idea that only reflection-in-action (when one reflects in the same time of action) exists. Like Benade (2015), in this conceptualisation, I consider reflection as an on-going process. This centrality of regeneration of knowledge makes "reflection on the process of learning…" within the Coaches' Process of Knowledge Generation for CPP "an essential ingredient in the development of expert leaners" (Ertmer & Newby, 1996, p. 1).

#### *6.2.2.3 The Horizontal Plane*

While the Coaches' Process of Knowledge Generation for CPP is not necessarily continuous, the components around the 'spiral' still show a cyclical form which give the idea of a long term (macro/meso) and a short-term (micro) sequence.

Looking at the spiral from a bird's eye view, one can see it divided in two. The upper part of the circle laying above the horizontal plane shows the three components that most probably (although not necessarily) may take place during certain periods, for instance at the beginning of a new experience with a club, rather than continuously. Scrutiny of the facilities (Joseph), and the process of "getting to know your own battlefield" (Paul), like the most other scrutiny of the environment would mainly happen at the beginning of the season, and then only repeated as necessary (Ray). Coach Brian confirms this as he explains that it is scrutiny, together with generation of knowledge that inform the initial vision and the long-term strategy at the beginning of the season.

The lower part of the circle includes two components which could be continuously present, fully or partially. Generation, transformation, dissemination and regeneration are covered every day (Ray). Coach Brian

agrees on the daily process of transformation, dissemination and regeneration, but considers acquisition of knowledge as a 'temporarily, longer term' process.

Synthesis during the conceptualisation process which includes understanding what the data is saying to me, leads me to agree that conceptually, scrutiny and strategy setting can be more long-term. *Generation of knowledge* can take place more often as per the coach's personal needs and available time. *Transformation* takes place weekly or daily depending on the coach's way of planning and preparing his/her sessions, while *Dissemination* takes place daily. *Regeneration of knowledge* is ongoing and continuously present.

## 6.3 THE THEORETICAL FRAMEWORK APPLIED

In accepting Integrated Tactical Approaches and approaches that contextualise learning in soccer coaching, in this study I am not proposing a newer version or an alternative to any of the integrated tactical approaches. The conceptualisation of the Coaches' Process of Knowledge Generation for CPP is intended at supporting any coaching approach, by providing coaches with a deeper understanding of how they can generate the knowledge they need. As already stated, this study is aimed at helping coaches in locating their role (Evans, 2007) and in obtaining the necessary pedagogical content knowledge (Roberts, 2011), instead of focusing solely on the games used (Evans, 2007; Zuccolo et al., 2014) and on the influence of such games on the physical development of the athlete (Evans, 2007; Zuccolo et al., 2014) when applied in an Integrated Tactical Approach.

The process developed in this study is one which travels to and from coaching conceptions to coaching delivery. In essence, this makes it a pedagogical process, one which links content and delivery within *Pedagogical Reasoning and Action*. While this process has mainly been developed through educational literature, it is important to recognise that this area has been explored in sports science literature (e.g. Gréhaigne, Richard, et al., 2005; Light & Harvey, 2017; Nash, 2015; Quested et al., 2016) as well.

However, since the first levels of conceptualisation was done theoretically based on the underpinnings provided by the theoretical framework,

it is important to look back on the main texts used. This discussion provides a clearer picture of how the conceptualised coaches' process fits with the identified theoretical framework.

### 6.3.1 Shulman's Model of Pedagogical Reasoning and Action and the Conceptualised Process

The participating coaches felt that coaches need to be able to "reason soundly about their teaching" (Shulman 1987, p. 13). Like teachers they go through a process in which they grasp an idea, comprehend it, reason it in a way to tailor it to the learners' needs, and then think about how to allow players to meet that idea in a constructive experiential manner. These coaches do not stop at comprehending content knowledge. They also judge that ***comprehension*** in view of the context with its complexity and look for enough actions aimed at constructing learning experiences. This leads me to suggest an improvement on Shulman's (1987, p. 14) criticised aphorism "those who can, do; those who understand, teach", and say that '*those who can, do. Those who understand (knowledge), reason (contextually), act (for learning) and teach*'.

#### *6.3.1.1 Comprehension*

Both the *Model of Pedagogical Reasoning and Action* and the Coaches' Process of Knowledge Generation for CPP are intended as a tool to better understand what a teacher needs to do to be able to transform his/her 'knowledge' into instructions as needed by the learners in their presented context. Also, the two processes consider "comprehension (or self-conscious confusion, wonder, or ignorance)" as the initiation of the teaching process (Shulman, 1987, p. 14).

Taking a different approach from the *Model of Pedagogical Reasoning and Action* which starts and ends with comprehension of subject and purpose (Boney, 2014, p. 21) (Figure 6.4), this study concludes that the process of knowledge generation is cyclical but non-sequential process. Also, regeneration of knowledge happens as an ongoing process, in continuous interaction with all the other components (Figure 6.5).

*Comprehension of purpose* and *ideas to be taught* in the *Model of Pedagogical Reasoning and Action* have been transformed into *scrutiny of the*

*objectives* and in 'the game' respectively in the process conceptualised in this study.

Shulman (1987, footnote 9) mentions the characteristics, needs, interests or tendencies of the learner/s and refers to the teacher's ability to adapt Content Knowledge to the various abilities and propensities of the learners. The *Scrutiny of the Environment* in this study considers the importance of understanding players, as it follows the principle of propensities in *Tactical Periodization* (Delgado-Bordonau and Mendez-Villanueva, 2012; Oliveira, 2014a; Pimenta, 2014).

Emphasis is made on the need for the pedagogue, the coach, to understand himself/herself and the context (club/school) in which s/he is working. This is missing in the *Model of Pedagogical Reasoning and Action*. Shulman (1987, p. 18) talks about one teacher's comprehension and transformation of understanding, in relation to her teaching styles. In emphasising the influence of personal knowledge on teaching styles, I suggest that Shulman neglected the impact of a person's personality, background and characteristics. Knowledge of the self, or better, intrapersonal knowledge (Collinson, 1996) is an important aspect, which is highlighted in this study.

This study pushes Shulman's interpretation to another level. For a coach to transform the Content Knowledge into powerful pedagogical forms, s/he must not just understand himself/herself, his/her athletes, and the environment. They also need to comprehend the interactions between them. In Scrutiny of the Environment, there are also interactions and tension between the club, the coach and the game (sub-components). The philosophical approach of each entity, their different objectives and the timeframe available create a complex web of relationships and a unique context.

#### *6.3.1.2 Transformation*

"Comprehended ideas must be transformed in some manner if they are to be taught" (Shulman, 1987, p. 16). The *Model of Pedagogical Reasoning and Action* presents this process of transformation in 5 steps.

I find a contradiction in the way the *Model of Pedagogical Reasoning and Action* separates 'comprehension' from 'transformation'. If the *Model of Pedagogical Reasoning and Action* expects the teacher to scrutinise the

teaching material “in light of one’s own comprehension” and ask if it is “fit to be taught”, and whether it is adequate for teaching, it is implicitly asserting that the teacher has comprehended stakeholders and their interrelationships. However, this is not covered in comprehension. Instead, the *Model of Pedagogical Reasoning and Action* mentions educational purposes or goals in both comprehension and in transformation, which instead I suggest that these need to be clarified at an earlier stage.

The player-club-coach-game tetrad and its relationship to the philosophy and objectives within the available contextual timeframe as presented in this conceptualisation draws an important difference from the *Model of Pedagogical Reasoning and Action*. From this perspective, I find Shulman (1987) to be too condensed when addressing transformation following a very limited comprehension process. The continuous scrutiny is important in the generation of a contextually generated constructivist curriculum (Brooks, 1987; Thompson, 2001; Yildirim & Kasapoglu, 2015) and contexual pedagogical tactical content knowledge. Before transforming knowledge, one needs to conceptualise a common strategy which considers the relationship created between the prementioned tetrad and its outcomes. This ensures that before starting a process of knowledge transformation for the needs of the learner, one has a deep understanding (comprehension) of the self as the teacher, the learner himself/herself, a wide array of contextual content knowledge (the game being played within that context), the context itself and the relationship between them. The result from this wider view of comprehension allows the coach to set a plan which takes these complex relationships in consideration. ‘Acquisition of knowledge’ contributes to better inform the teacher with additional knowledge that may be needed to inform the plan and the conceptualisation of its Model of Play. This part of the process is not possible if one does not understand the tetrad and its interrelations. Also, although I present a continuous non-sequential process, some level of Scrutiny of the Environment, Conceptualisation and Acquisition of Knowledge needs to be made before starting transformation of knowledge.

In **representation,** the pedagogue would be, I would say momentarily, ready to think about “multiple forms of representation[s]” (Wilkes, 1994, p. 8) to “build a bridge between the teacher’s comprehension and that [comprehension]

desired for the students" (Shulman, 1987, p. 16). Thus, once the teacher comprehends of what s/he knows, s/he can start planning to transform that 'knowledge' into forms that can be understood by the learner according to set learning objectives. In their Coaches' Process of Knowledge Generation for CPP, coaches, at this stage, coaches would transform that knowledge in a Model of Play (Build-it) which would have been conceptualised based on the scrutinised areas and the new knowledge acquired to inform that conceptualisation. Segmentation and simplification take place at this stage as well. It is interesting to note that while, in contradiction to Shulman, this process does not (normally) have its start in a [general] curriculum, it is a process that leads to the writing up of a 'contextually built, and contextually directed curriculum'.

In **Selecting instructional** forms or methods, the teacher chooses the method for conveying the content knowledge and creates a learning experience from it. This only happens at much later within the process conceptualised in this study. The coach only starts transforming knowledge in 'design-it' by selecting 'teaching cues', 'demonstrations', 'training exercises' and 'pedagogical methodologies'. To create a learning environment, similarly to Shulman in 'Instructional selections' coach Andy refers to the use of the classroom, in this case the alternative location to the football pitch. He discusses using dialogues of reflection and teaching players about self-analysis which works hand in hand with a competency framework.

Transformation in the *Model of Pedagogical Reasoning and Action* closes with **adaptation** in which Shulman (1987) refers to the moment when the teacher fits the 'represented material to the characteristics of the students'. Once again, this study takes a different direction in this area. First, it determines that the pedagogue should not start thinking about this transformation so late in the process. In conceptualising the Model of Play, the coach should already be thinking about 'content knowledge' that suits the needs of the learner. When generating knowledge, the coach would likely still be thinking about the needs of his/her own team/players, hence 'adaptation' as understood by Shulman would be also taking place (earlier).

It is also important to note, as already argued, that adaptation should not only occur for the needs of the learner, all four main stakeholders need to be considered.

From a linguistic perspective, the term ‘adaptation’ is used differently in this conceptualised process, to encompass part of the regeneration of knowledge node, which is in action all the time, and which is in a constant relationship with the other five components. As coach Paul suggested, adaptation needs to be an ongoing conscious action by the coach.

#### *6.3.1.3 Instruction*

Following the transformation stage, both the *Model of Pedagogical Reasoning and Action* and the process generated in this study go into ‘instruction’ (in the former) or ‘dissemination of knowledge’ (in the latter). This is where tactical content knowledge meets Pedagogical Knowledge and where “the teacher draws upon an instructional repertoire of approaches or strategies of teaching” (Shulman, 1987, p. 16). As claimed in *a Theory of Instruction* (Bruner, 1963), this “is about as practical a thing as one could possibly have to guide one in the process of passing on the knowledge, the skills, the point of view…” (p. 523). Shulman (1987, p. 17), stressed the strong relationship between ‘comprehension’ and the style of teaching employed by a new teacher. In concurring, I believe that it is rather mistaken to look at the delivery part of training without looking at how the whole process influences this part.

This study varies from the *Model of Pedagogical Reasoning and Action*, as it differentiates between the moment when the pedagogue (the coach) enters the learning environment and the moment of initiation of the training session. The athletes’ learning experience is not confined to the timespan of a training session. In the ‘Pre-Training’ period coaches talk about ‘rehearsing’ the planned session (Andy), and ‘communicating’ the session with others to share leadership (with technical staff and athletes; coach Ray).

Coach Brian stresses the importance of evaluation of the learning environment and of the potential of the planned pre-training learning experience. This shows the strong relationship between dissemination of knowledge and regeneration of knowledge within the process conceptualised in this study. From dissemination, the coach goes into a process of evaluation-

reflection-regeneration **in action**, which may allow for adaptations in the planned session.

The ‘in-training’ period, follows the ‘pre-training’ part, which is more or less the equivalent of Shulman's (1987, p. 17) ‘instruction’.

As Shulman (1987, p. 17) indicates, the pedagogues instructional repertoire is much wider than the conventional “lecture, demonstration, recitation or seatwork”. It may also include “cooperative learning, reciprocal teaching, Socratic dialogue, discovery learning, project methods and learning outside the classroom [read usual] setting”.

This was sustained by coach Andy who spoke of the importance of creating a learning environment, teaching players how to apply self-regulated learning methods, and about using alternative settings. Although the other coaches did not refer to this, I feel that it is an important dissemination point which shifts away from a conservative mono-view of sports coaching.

Instruction in the *Model of Pedagogical Reasoning and Action* includes the obvious teaching parts, which normally happen in a classroom. As Shulman (1987, p. 17), it:

> …includes many of the most crucial aspects of pedagogy: organizing and managing the classroom; presenting clear explanations and vivid descriptions; assigning and checking work; and interacting effectively with students through questions and probes, answers and reactions, and praise and criticism. (Shulman, 1987)

Like the *Model of Pedagogical Reasoning and Action*, the “In-Training” in the Process of Knowledge Generation for CPP talks about explanations. It also addresses provision of experiences and teaching, evaluation and reflection (which allows checking learning), and consolidation. Participants referred to the application of the appropriate pedagogical methodology, the provision of a learning experience, feedback, praise, criticism, questioning and probing, and thinking about productiveness (Bruner, 1963, 1966) of their Content Knowledge - the PoP. This view reflects the emphasis Vygotsky puts on those surrounding the learner (Cassidy et al., 2009), who, from a Vygotskian perspective, are critical in “supporting and enhancing the child’s [read athlete’s] development” (Drewery & Bird, 2003, p. 21).

An important point mentioned in the *Model of Pedagogical Reasoning and Action* but not mentioned in this study, arguably being taken for granted by the participants, is the organisation and management of the learning environment.

#### *6.3.1.4 Evaluation*

In **evaluation**, the *Model of Pedagogical Reasoning and Action* looks at what I call the in-learning-evaluation with “checking for understanding”. It also looks at post-learning-evaluation with “more formal testing and evaluation that teachers do to provide feedback and grades”. To be able to do this learning check, one needs to comprehend both the “material to be taught and the process of learning itself”. In-teaching evaluation and post-teaching evaluation, two further processes reflect on the pedagogue’s performance, they are the material presented, and the teaching styles employed.

#### *6.3.1.5 Reflection*

During **reflection**, the teacher gathers the information evaluated before and “reconstructs, re-enacts, and/or recaptures the events, the emotions, and the accomplishments” (Shulman, 1987, p. 19). Shulman seems to be distinguishing evaluation and reflection with the prior being an assessment of teaching and learning, while reflection being the comparison of that achievement with to the pre-set outcomes. As Shulman (1987, p. 19) says this can be done alone or with the assistance of others, using recording devices or referring to memory. In sports, I would add that this can be based on either subjective reflections or objective analysis of the obtained results, possibly also based on played games. Coach Ray suggests a set of descriptors for each player, to be used as a benchmark for learning. Calling it a competency framework, coach Andy explains that it should be “*written in language that players can understand”.* He adds that it can be used by players to self-assess. Coach Brian keeps the ‘reflective’ process, by writing a journal. If he does not understand the reasons behind failure, then he would consider more data, and speak with others to formulate an understanding.

It is important at this stage to understand that the act of reflection is not only dependent on one’s dispositions, nor only on the strategies applied, but

also on the “analytical knowledge” (Shulman, 1987, p. 19), which is not being an easily acquired skill.

#### *6.3.1.6 New Comprehension in the Model of Pedagogical Reasoning and Action*

Distinct from ‘new comprehension’ in Shulman’s works, ‘new comprehension’ considers ‘regeneration of knowledge’ as an action which can happen at any stage, and within each stage much more frequently. This was continuously emphasised by coach Paul, who referred to the term general adaptation, as an ‘ongoing process’. To be able to continuously adapt to the arising needs, one needs to evaluate the available information, reflect on it in view of the desired outcomes and adopt a reviewing process to adapt where and as necessary (Figure 6.6). At this stage, parts of the coach’s knowledge may be consolidated, while other parts might need to be regenerated for the necessary reviewing and adaptation.

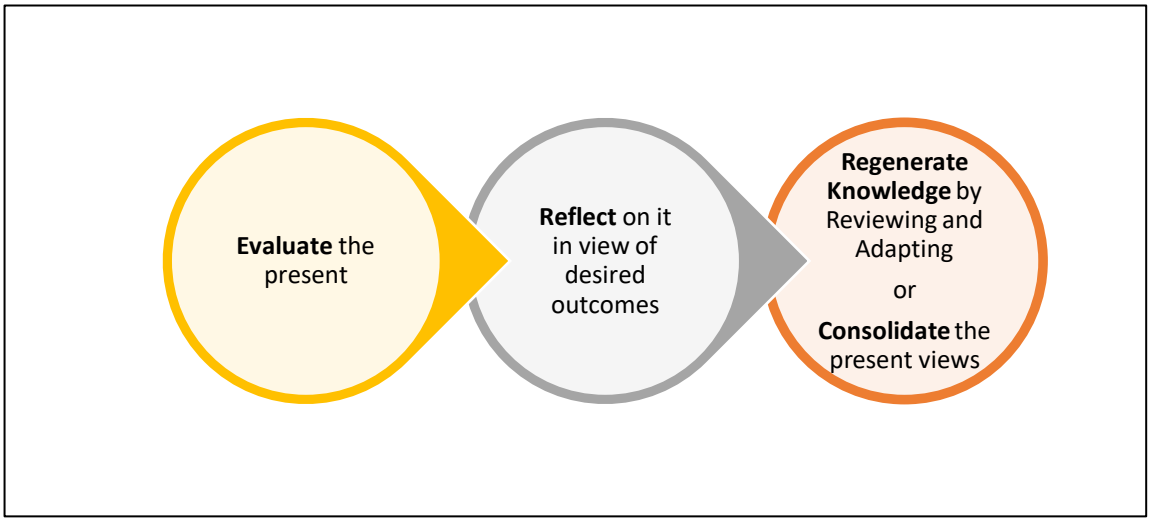



**Figure 6.6:** Evaluation – Reflection – Regeneration.

When thinking about a pedagogical process like coaching, one should not only consider the practical act taking place in a training session, lecture or lesson. The dissemination of knowledge, or the “delivery aspect” (Lyle, 2002, p. 41), is only a small part of all the ‘action’ taking place in the process of *Pedagogical Reasoning and Action*. Besides the act of directing a training session or managing a competition… [there are other] “less public (but perhaps more important) cognitive, planning and personal interactions that characterise the coaching process”.

Whilst beyond the scope of this thesis, this leads to the considerations of the ideas of reflection-on-action and reflection-in-action. When **reflecting on action**, one has time to think back on what happened, while in **reflecting in action** one would stop and think in the midst of action (Schön, 1987). Considering Schön's explanation that neither of the two has a direct connection to present action, I would question the real difference between the two. Is it only that one is considered to be happening in the time frame of the pedagogical action, while the other is happening 'outside' the time frame of pedagogical action?

If such is the case, I would argue that in coaching there is only reflection in action. A coach is also on task, when scrutinising the environment, when setting a strategy when generating knowledge, when transforming knowledge and when disseminating knowledge. Considering all this as part of the pedagogical action, I think it is reasonable to challenge the notion of 'reflection on action' and suggest that the only reflection happening for a teacher who takes pedagogical actions is reflection-in-action. This principle justifies further the positioning of 'regeneration of knowledge' at the centre of the conceptualised process. By being linked to all the components of the process, this allows ongoing evaluation, reflection, reviewing and continuous regeneration or consolidation of knowledge.

I choose to label this component 'regeneration' instead of 'construction', because the latter gives the impression of building up, while former allows for the idea of deconstruction, of pre-constructed knowledge, and the regeneration of that previously acquired knowledge to a more contemporary knowledge.

### 6.3.2 Brunner's A Theory of Instruction

This study follows the definition of *A Theory of Instruction* (TI), by looking at the ultimate scope of the coaching process, that of guiding athletes in "what to do in order to achieve certain objectives" (Bruner, 1963, p. 524). In this section, I discuss the basic understandings of a TI (Table 4.2) in relation to this study's findings.

Interestingly, the word 'instruction' or 'instruct' is never mentioned during the interviews. This could partly be due to the meaning that the coaches attach to the term; coaching practitioners, and at times coaching researchers (see.

Becker, 2009), may perceive 'instruction' as very prescriptive (Williams & Hodges, 2005, p. 9) and the term is defined as 'a direction or order' (Oxford University Press, 2016), implying a sense of direct control which participating coaches did not adhere to.

Coaches applying CPP aim at developing "smarter" players (Williams & Hodges, 2005, p. 12) and might, therefore, favour instruction to be "a more 'hands-off' less prescriptive approach based on learning through guided discovery". This resonates more with an understanding of instruction as presented by 'a model of instruction', which considers demonstrations, conditions, random practice, effective problem solving, and "the importance of encouraging players to take responsibility for their learning" (Williams and Hodges, 2005, p. 12).

Although coaches are not directly asked how they perceive coaching, the data can suggest ideas implicitly expressed. In fact, the conceptualisation generated offers certain similarities to the idea presented by Williams and Hodges (2005). Nine of the ten participants refer to demonstrations and, verbalisation and explanation. Eight of them talk about designing session plans, where they also refer to adaptations, conditions and exercises. One of the coaches talks about the importance of creating a learning environment for eleven times.

The next subsections discuss how *A Theory of Instruction* is reflected in the conceptualisation of the Coaches' Process of Knowledge Generation for CPP.

#### *6.3.2.1 Predisposition*

*A Theory of Instruction* starts with the consideration of the predisposition factors that influence learning effectiveness; from early factors known to 'pre-school' structures, moving towards suggestions to develop an environment which enables a predisposition to effective learning (Bruner, 1963, p. 524).

Although this study presents all components in a circular manner, implying no definite starting and ending point, **scrutiny of the environment** is arguably a point of departure, reflecting the tendency of coaches to put **"*prerequisites*"** (Bruner, 1963) at the beginning of the process. For a learner to move from one representation to another, s/he needs to first attain whatever

'prerequisite' is required to transition to a different phase. Within the conceptualised process, this is reflected as a requirement for the coach, both as a learner and as a teacher, to understand his/her own and as his/her athletes' prerequisites to formulate what needs to be learnt and taught next. "This is most of what is meant when we speak of 'spiral curriculum'" (Bruner, 1963, p. 530) and this is why there should be difference between the Tactical Content Knowledge – Pedagogical Tactical Content Knowledge – Curricular Content Knowledge transformation of different coaches.

In **scrutiny of the environment,** all 10 participating coaches mention the importance of understanding their players. Although this does not necessarily and explicitly reflect 'pre-school' predisposition as referred to by Bruner, they attribute importance to factors such as getting to know the players in terms of age, characteristics, communication style, objectives, personality, player-Model of Play relationship, recruitment, relationships, and response to coach's communication.

Besides understanding the importance of the quality (Brian) and the age of the players in terms of setting the appropriate objectives (Mark) and applying the right coaching methodology (Ray), coach Soldano suggests getting to know the players not only within the training context, but also through one-to-one meetings and by speaking with their parents, teachers, colleagues, relatives and previous coaches. Coach Ray specifies the importance of knowing the players so well that a coach can deliver feedback in the way that is best received. Coach Andy brings up the importance of predisposition to language. Having experience as an English coach working in a country where English is not a primary language, he explains that "the meaning of communication, is the response that you get"; if players do not respond in an expected manner, it is important for the coach to reconsider their predisposition and adjust his/her communication to elicit the desired response. In a Belgian context, coach Sergio had a psychologist first analysing and then discussing each player's personality with the coach and all the technical staff, with the aim of facilitating understanding of personalities and how each player needed to be dealt with.

In a way that may reflect Bruner's claims about the "courage and skill to explore alternative ways of dealing with a problem… established constraints [and] healthy scepticism toward holy cows [and] prefabricated doctrines", coach

Brian reflects that “there are very few individuals, with an open mind, and who are willing to change, but most players won’t change”. This represents a challenge for coaches who try to apply a Model of Play.

Three of the participating coaches (Hugo, Mark, Brian) are clearly of the understanding that their Model of Play depends on what type of players they have, indicating that therefore players’ predisposition is a primary influence. As coach Hugo puts it, in senior football, for instance, players need to fit the coach’s model, but the coach needs to “be flexible enough not to ask a fish to climb a tree”. Building on this metaphor, this, therefore, means that at the very least a coach needs to know if s/he has more fish than monkeys on his/her team. To get to know his/her players at the beginning of the season, coach Sergio uses 8v8 and 11v11 games in every training session to help him conclude his Model of Play based on the observations from these games. Coaches Paul and coach Andy refer to the importance of the attitude (players bring with them from home) and how it matters in the application of the Model of Play; one cannot ask a non-aggressive and non-hardworking individual to fit in an aggressive, hardworking and fast game. Coach Andy believes that “actually coaches should recruit for attitude and train skill unless both are already available”. Coach Fannar would only accept a job offer if he thinks that the available players, or those that can be brought in, “have the kind of tools that [he] need[s] so that they work within [his] system”. To underline the importance of individual predisposition, coach Paul says “…[when] I know what kind of players I will be having from a technical, tactical and character point of view… only at that point, I will be able to dictate my PoP”.

In consideration of all this, coach Andy places importance on a valid strategy of talent management and acquisition; clubs need to acquire, retain and develop players in line with the philosophy, style, and model[s] of play that are applied at that club. This represents a potential solution to the challenges which arise from predisposition, fitting with the consideration proposed by Bruner (1963) that learners’ (players) predisposition towards learning shall be enhanced through a safe learning environment aimed at supporting proactive learning, exploration and problem-solving. Coach Andy explicitly and overtly invokes the importance of this, which is also addressed in this study under ‘Create a Learning Environment’ in ‘Dissemination of Knowledge’. Coach Andy

raises points which I categorise under ‘create a learning environment’. Mainly these interventions relate to the importance of ‘teaching players about learning’, ‘teaching self-regulation’ and setting a ‘safe learning environment’.

It is worth keeping in mind that coach Andy has enough substantial experience in general education, as well as coaching education, to match his direct coaching experience. This could have influenced his views and understanding of this topic.

#### *6.3.2.2 Structures*

The second area of *A Theory of Instruction* refers to how the body of knowledge is structured. The lack of ‘a body of knowledge’ in [football] coaching (Gilbert & Trudel, 2001) does not reflect a lack of necessity to structure knowledge, but only raises the need to precede this with another important phase. Prior to structuring the body of knowledge, a football coach needs to conceptualise the knowledge that is relevant considering the predispositions of his/her team. Only then would it be possible to structure the relevant body of knowledge. This is mainly presented in *Conceptualisation* and in *Transformation of Knowledge* (build it and segment it).

These parts consider the transformation of ‘texts’ into the necessary structures and segments (preparation), analogies, metaphors and examples (representation), which shall reflect pre-learning decisions in the ‘selection’ of teaching methods organisation and management, and also consider learners' characteristics (Shulman, 1987, p. 15). This shows a strong interplay between two knowledge categories; “professional knowledge” and “interpersonal knowledge” (Cassidy et al., 2009; Collinson, 1996; Shulman, 1986) as synthesised earlier in the literature review.

As indicated by the presented process, after Scrutiny of the Environment, the coach can start working on the transformation of knowledge.

Influenced by its contextual reality (scrutiny of the environment) the coach needs to work on conceptualisation which leads to the design of a body of knowledge (Model of Play) with its detailed PoP divided into general and specific principles, individual principles, phases and sectors/departments. While ‘acquisition of knowledge’ is a continuous process like all others, at this stage

the coach might identify gaps in his/her knowledge that can be addressed by a temporary process of knowledge generation.

The development of a detailed Model of Play will, in each separate scenario, solve the problem of the non-existent curriculum (Gilbert & Trudel, 2001) as the main body of knowledge. Appendix 1.1 provides an insight into how two of the expert coaches, construct 'the text', elsewhere referred to as their curriculum, or as referred to in football, their Model of Play.

### *Economy and Power, and Productiveness*

Bruner (1963, 1966) presents economy (simplifying), productiveness (regeneration) and power (making knowledge your own) in that order. However, I suggest that in the process of simplifying content, one is already engaging in manipulation of that content (power), and that increased productiveness should then result from simplification and manipulation. Hence, I progress in this discussion on the basis of this proposed order: Economy; Power; and Productiveness.

#### Economy

In structuring their football body of knowledge, the expert coaches implicitly referred to 'economy', 'productiveness' and 'power' (Bruner, 1963), from the perspective of both coach and athlete as learners.

In structuring the necessary Content Knowledge, the football coach would start by 'conceptualising' the Model of Play. At this stage, the coach engages in the process of **simplifying** the un-coded body of knowledge for himself/herself, but with his/her learners in mind. The coach simplifies this material further when s/he transforms this same knowledge in a body that can be understood by the players. This process of simplification is what Bruner would call ***economy***.

#### Power

> It is this capacity to put things into a symbol (language) system with rules for manipulating, for decomposing and recomposing and transforming and turning symbols on their heads that makes it possible to explore things not present, not picturable, and indeed not in existence. (Bruner, 1963, p. 530)

This ‘power’ is strongly represented in the presented process of coaches’ knowledge generation; coaches immerse themselves into existing non-coded bodies of knowledge, conceptualising a Model of Play, and then work hard to verbalise the complexity of the game of football into principles that shall guide their game in a structured manner, whilst allowing for a degree of freedom and complex interactions (Brian). This leads coaches in a process of symbolic (words) manipulation of the same content knowledge.

This process is complementary to a continuous search for knowledge for the coaches’ own understanding, to develop and inform the transformation of knowledge which is aimed at the players’ understanding. This process of simplification, and the effort of putting concepts into words produces a structure which is highly economical and powerful.

Participants emphasised the importance of the use of symbols for their players. Coach Fannar explains how important it is for him to teach his players the definition of words like ‘pocket, overloading and spacing’, creating what coach Hugo and coach Joseph call a “common language”.

The **economy of structure** addresses the power of simplification while the **power of structure** addresses the manipulability of knowledge using words or symbols. Two participants explain how effective the use of language (power) can be in the economy of structure. Coach Sergio says that for him it is important to use simple terms (such as ‘the three-up-front put pressure”) when he is working on what coaches refer to as “the first moment of pressing”. Similarly, coach Brian claims that he creates “trigger words, a number of key points” to simplify the body of knowledge for his players. This shows how symbolisation is influential both in the manipulability of knowledge (power of structure) and in the simplification of knowledge (economy of structure). I have personally witnessed the effectiveness of this approach, even in lower leagues coaching.

**Productiveness**

Productiveness is the regeneration of knowledge (Bruner, 1963, 1966) which, as explained, I consider as being influenced by the simplification (economy) and the manipulation (power) of knowledge, and therefore I reflect this in the sequence of the presentation here.

As learner and teacher, in a Coaches' Process of Knowledge Generation for CPP, the coach engages in an ongoing process of simplification of the un-coded body of football knowledge (economy). This simplification process happens within **conceptualisation**, **generation of knowledge** and **transformation of knowledge.** These are influenced by the interaction of **scrutiny of the environment**, **reviewing, evaluation and reflection,** and **dissemination of knowledge**. This process of simplification leads the coach to identify PoP and verbalise them (power). The verbalisation process serves for both simplification and manipulability. Through this process the coach simplifies concepts s/he could only vaguely construe by expressing them in simple words.

I propose that a structure of knowledge which is guided by economy and power leads to the generation of new propositions. This is reflected in the central positioning of **regeneration of knowledge** – and resonates with what Bruner calls the 'productiveness of structure'.

***Enactive, Ikonic and Symbolic representations***

Bruner's (1963, p. 529) structure of knowledge can be compared to the more recent VARK (Fleming & Mills, 1992) concept. Instead of visual, aural, read/write and kinesthetic, Bruner, (1963, p. 529) referred to; **enactive representation** (kinaesthetic), "knowing by doing"; **ikonic representation**, (visuals); and **symbolic representation** which includes the reading and writing of words or mathematical symbols (read and write).

When structuring content knowledge to teach children, Bruner suggests that we lead children from doing to visualising what they have done, to finally symbolising it. This do-see-talk progression seems to fit well in football coaching. The application of the VARK concept can strengthen the application of the structure of knowledge, as it proposes getting to know how your learners learn best ("VARK. A Guide to Learning Styles," 2017). Without necessarily directly mentioning the term, the VARK concept was referred to 60 times (table 6.1).

The enactive, ikonic and symbolic representations are present within 'transformation of knowledge'. The coach first conceptualises the body of knowledge and s/he '**build**[s]**-it**- Model of Play' by transforming this for the specific needs of the athletes. During 'Transformation of Knowledge', the coach

needs to focus more on the ikonic (verbalise-it), symbolic (demonstrations by visuals) and enactive (exercises) representations.

| VARK | Mentions | Coaches | Sub-categories |
|---|---|---|---|
| **Visual** | 17 | 9 | Show it, show it then do it, show it then try it |
| **Auditory** | 30 | 8 | Common language, interventions, pedagogical knowledge, VARK |
| **Reading/writing** | 1 | 1 | VARK |
| **Kinaesthetic** | 12 | 7 | Do it, experience it, show it (physically), show it then do it, try it |
| | 60 | | |

**Table 6.1:** The VARK related data collected.

### *6.3.2.3 Sequence*

"The sequence in which material is presented" (Bruner, 1963, p. 530), should be determined in consideration of prerequisites, level of representations and predispositions. Therefore, the sequence cannot be common to everyone. In 29 instances, eight of the participating expert coaches talk about the importance of sequencing when planning their season. With reference to the sequence in which knowledge is presented, coach Sergio refers to progressive sequence in the session and in the season. He refers to 'programming' steps forward and steps backwards for the players, so a coach can progress forward if they achieve the required level, or backwards if not. This indicates the need for understanding the sequence of the content knowledge from a *Pedagogical Reasoning and Action* perspective.

When CPP, the **scrutiny of the environment** informs the coach with the factors that will influence learning, and so influences conceptualisation. The **sequencing and programming** of PoP are first considered in 'plan it' under 'transformation of knowledge' and take the form of 'periodisation' as understood in sports. This part interrelates deeply and continuously with the scrutiny of the environment since attitude, aptitude, conditions, results, and a variety of other factors, are influential.

It also interacts with the **methodological decisions** that need to be made. Bruner's (1966) reference to induction makes it clear that at this stage methodological decisions become very important. The sequence may vary according to whether the coach goes for an inductive or a deductive approach.

Methodological structures such as the global-analytical-global (Csabai et al., n.d.; FIFA.com, n.d.) and/or the ***VARK*** are also influential during the transformation of knowledge. Telling, showing, doing – what comes first? What comes next? When will 'revisiting' (Bruner, 1966) occur? This is also evidenced in 'consolidation' under dissemination of knowledge.

I find the sequence to be fundamental when considering coaching from a fractal theory point of view (Pimenta, 2014). Should one start with individual principles, sectoral principles, or inter-sectoral principles? Which moments and phases come first, and which ones follow (Andy)?

To get them to work as a team, coach Mark, for instance, believes that "…each individual needs to understand his role first, then each sector needs to understand their role, then you start getting them (sectors) together". Without specifying which moment and which phase comes first, coach Brian starts with his back four, then the defensive midfield and then the forward line. Coach Fannar specifies that he starts with the defending moment, but with the idea of getting the ball to move to the offensive moment, attack. Coach Joseph starts with the goalkeeper when working on attacking, and with the striker when he is working on defending. This represents a 'moments and phases' approach to sequencing.

These contributions indicate that while every coach, structures and segments his/her knowledge, they all have a personal and individual manner of sequencing.

It is important to also clarify that while the process presented in this study addresses the sequence of presenting knowledge, it also considers programming; when concepts are to be presented in relation to each other, in relation to the last game and the next, or in relation to the last and next phase of athletic development.

#### *6.3.2.4 Consequences*

The process conceptualised in this study does not delve much into the importance of the level of achievement - **success and failure –** and consequences - **reward or punishment** – however, it does promote self-regulated learning to enhance the learner's initiative. It is also inherently

relevant in the scrutiny of the environment as it is pervasive that sports coaching is influenced and judged by results.

### 6.3.3 Tactical Periodization

*Tactical Periodization* is methodologically and pedagogically entrenched in the idea that the teaching and learning of the game has to respect its logical structure (Oliveira, 2014a), and is therefore based on a complex logic which guides *Tactical Periodization* towards the creation of a model [of play] that simplifies representation of reality (Pimenta, 2014, p. 18).

Sports coaching has been represented as a holistic problem-solving process that involves “planning, prioritisation, contextualisation and orchestration” in an ever-changing environment (Cassidy et al., 2009, p. 8). A constructivist view of learning happening in and within its unique world (Ertmer & Newby, 2013), which highlights the importance of the contextual and specificity of the learning environment (Fosnot, 2005), has been shared in both coaching (e.g. Nash and Collins, 2006; Becker, 2009) and education literature (e.g. Shulman, 1986, 1987; Berliner, 1991). *Tactical Periodization* takes a constructivist approach, as it is all “about ‘our’ game of football, our PoP, our methods” (Oliveira, 2014a, p. 25).

Coach Mark calls his Model of Play ‘my bible’. This metaphor seems to be not so relevant to the state of flux of the Model of Play, which is in fact recognised as requiring constant adaptation (not akin to the Bible), as it is to the sense of discipline in adhering to the specifics which have been identified and documented in light of the contextual and personal reality. This devotion-like stance reminds me of Bruner's (1963, 1960) suggestion for structures and sequence to be contextualised and personalised to the needs and characteristics of the learners. This deeply personalised approach is supported by Pimenta (2014, pp. 18-19) who suggests that when developing his/her Model of Play, the coach needs to enter into a constant dialogue between his/her ideas and the context.

The coaches’ ideas include, but are not limited, to the style of play desired, the training methods applied, leadership, and management. Context includes the culture in the country and at the club, the club’s objectives, board members’ characteristics, players’ characteristics, the fans and the press

(Tobar, 2013). This is why coaches require knowledge of learners and their characteristics, knowledge of educational contexts and knowledge of educational ends (Shulman, 1987), and knowledge of self (Collinson, 1996). This view is reflected in the *Model of Pedagogical Reasoning and Action* as well.

For the Model of Play to follow a constructivist approach while taking all the above-mentioned factors in consideration, it has to be construed as in constant "construction and evolution, with an unattainable final aim" (Pimenta, 2014, p. 19). Coach Sergio does not only write a new 'curriculum' for each club he works with but also makes sure that "everything is written, even if something small is changed". Coach Sergio confirms a constant evolution of his Model of Play, which also changes between clubs. One needs to be ready to change and adapt this 'bible' (Mark). It should be in a never-ending evolutionary process (Oliveira, 2014a). As a coach, one must "continue modelling, match after match. It is never finished. There is always something to check" (Sergio).

This discussion points to a strong tie between the conceptual framework and the collected data on this topic.

#### *6.3.3.1 Fractals*

Having all participating coaches "try[ing] to bring order to a game" which is very chaotic (Minutillo and Rafloski, no date, p. 9), gives the conceptualised process a sense of fractal organization (Pimenta, 2014).

The four corners (Meylan et al., 2011) (Mark), the moments and phases (Fannar, Hugo, Joseph, Mark, Andy), the inter-sectoral principles – "a line of players like midfielders", and sectoral principles – "like wingers in the midfield" (Minutillo and Rafloski, no date, p. 10) have all been referenced by participants (Joseph, Paul, Sergio, Soldano), as supra-dimensions used to organise their Model of Play.

The coaches break this complexity in principles, individual principles (Paul, Soldano, coach Andy, Joseph, coach Mark), sub-principles (Soldano, Paul) and sub-sub principles (Mark).

### *6.3.3.2 The Model of Play*

Once the expected behaviours for all the moments of the game (Pimenta, 2014) are conceptualised and built into a Model of Play, it is then possible to design the session plans for dissemination in training.

The Model of Play provides a reference framework for the coach, which is built on the desired goal to be attained, hence “the future that [he] aspire[s to] will condition the present” (translated from Frade, Annex C in (Tobar, 2013, p. 92).

This compares to the idea of comprehension within the *Pedagogical Reasoning and Action*, which asks for knowledge of educational ends (Shulman, 1987). The conceptualisation in this study refers to the modelling of the Model of Play, which is then built in Transformation of Knowledge. For coach Ray, descriptors for defending, midfield, attacking and goalkeeping, are the “underpinning of the curriculum”. He refers to the concept of coaching domains (Lyle, 2002) and specifies the idea of building the present on the aspired future. He explains that “*when you are coaching the Under-13’s, you ask what the Under-14 coach wants*”. He suggests building a complete curriculum (Model of Play) with various options in developmental coaching. “This will provide a foundation for all options in the future”. Referring to the England DNA (The FA, 2015, p. 5), he believes that by placing the PoP at the grassroots we can “define clear ‘Development Plans’ for players”, creating similarities in approaching the game across bottom, professional and national levels.

Coach Ray further explains the possibility of drawing on PoP that are used in the ultimate game, the seniors’ elite game, and draw from that the principles that can be applied to the development of younger players. He suggests that we need to look at it as if “there is a whole 'sack' of PoP. We have the developmental years to fill in this sack with PoP. When the players are in a seniors’ team, where they need to 'win 'hence adapt according to opponents” the players need to be able to pick and choose from that sack (Ray).

#### *6.3.3.3 Principles of Play*

With all the participants referring to PoP, their explanations are important to understand what these may look like in terms of Content Knowledge. Coach Paul provides a simple example:

> [Let us say that] I want my team to be aggressive when my opponent gets into my middle third…in training I need to create situations where when they get into the zone, I need to be aggressive.

He articulates the principle of play by saying, "as soon as we lose the ball, we apply the 'few seconds rule' and we press immediately in that same zone where the ball was lost". He adds that "when coaching through principles we are saying that we coach to explain what behaviours we expect from everyone in every situation" (Paul).

#### *6.3.3.4 Moments and Phases*

In this study, I abide with the idea of moments (attack, defence, transition, set plays and specific strategies), and phases (subsystem within attack and defence as the superior systems). The two main moments of the game, defence and attack are further divided in three interdependent phases, the first, second and the third phase (Figure 5.19). This is very well evidenced in the Content Knowledge presented by the two coaches in Appendix 1.1.

### 6.3.4 Knowledge

The term 'knowledge' occurrs so frequently in the interviews and in the analysis that it is necessary to address the concept in this discussion. Côté and Gilbert (2009) highlight this with an emphasis on the importance of "extensive knowledge" of expert coaches, while Abraham et al., (2014) highlight the lack of technical and tactical knowledge of some coaches (Abraham et al., 2006; Schempp, McCullick, & Mason, 2006). The constant reference to 'knowledge', inductively led me further to explore the teacher's knowledge, which is why this features in the literature review and why the conceptualised process in this study is discussed from a 'knowledge' point of view.

### *6.3.4.1 Shulman's 'Categories of Knowledge' Base*

To formulate the relationship of the findings in this study with Shulman's seven categories of knowledge (Shulman, 1986, 1987), I visually compare the two. As shown in Table 6.2, the conceptualisation developed in this study encompasses all seven of Shulman's categories, suggesting a strong relationship between the two frameworks.

| **Knowledge Categories** | | **Description** |
|---|---|---|
| **Content Knowledge** | **SMCK** | GAME; FIND KNOWLEDGE |
| | **CCK** | FIND KNOWLEDGE; *CONCEPTUALISATION; BUILD IT - Model of Play* |
| | **PCK** | CONCEPTUALISE IT; BUILD IT; PLAN IT; DESIGN IT; CREATE A LEARNING ENVIRONMENT; PRE-TRAINING; IN TRAINING |
| **General Pedagogical Knowledge** | | DECIDE METHODOLOGY, EXPLAIN, PROVIDE EXPERIENCES |
| **Knowledge of learners and their characteristics** | | PLAYERS |
| **Knowledge of education contexts** | | CLUB; PLAYER: GAME |
| **Knowledge of educational ends** | | CLUB; PLAYER: GAME |

Table 6.2: Categories of the Knowledge Base (Shulman, 1986, 1987) featuring in the Coaches' Process of Knowledge Generation for CPP.

In introducing his work, Shulman questions i) the sources of the knowledge base for teaching, ii) the teachers' conceptualisation of this knowledge base, and iii) the processes of *Pedagogical Reasoning and Action* amongst others. These questions resonate with this thesis.

Shulman (1988, p. 7) quotes Fenstermacher who defines a teacher as someone who "knows something not understood by others, presumably the students. The teacher can transform understanding, performance skills, or desired attitudes or values into pedagogical representations and actions". Being a valid and comprehensive description of what a coach also does, this was a catalyst for various questions.

1. What is it that s/he knows?
2. How is it that s/he gets to know it?

3. How does the teacher engage in continuous knowledge generation?
4. How does he/she transfer that knowledge into pedagogical representation and actions?

Shulman addresses to the first question with his seven categories of teachers' knowledge and in Table 6.3 I set out how I relate Shulman's work to my interpretation of knowledge in this thesis. The first question is therefore addressed in Table 6.3 since all the content knowledge required by those who CPP (what the coach needs to know) is the ***content knowledge*** about PoP.

| Shulman's Categories of the Knowledge Base | My own interpretation in view of this study |
|---|---|
| Content Knowledge | PoP |
| General Pedagogical Knowledge | Coaching methodologies, group management etc. |
| Curriculum Knowledge | All sources that constitute information to content knowledge about PoP |
| Pedagogical Content Knowledge | The blending of content knowledge and pedagogical knowledge into an understanding of how PoP are organised, represented, adapted to the characteristics of the learners, and then presented for instruction. |
| Knowledge of learners and their characteristics | Level of athletes, technical/tactical/physical/mental characteristics, |
| Knowledge of educational contexts | Knowledge of the coaching context |
| Knowledge of educational ends | The coaching context in relation to its objectives |

**Table 6.3** The categories of the knowledge base as presented by Shulman (1988) and my personal interpretation of each category in relation to the phenomena covered in this study.

The second and third questions relate to pedagogical content knowledge and ***curriculum knowledge***. While a small number of publications address or refer to PoP in football, there is no such thing as a curriculum for football principles. However, references are made to Mourinho's training dossier (Delgado-Bordonau & Mendez-Villanueva, 2012) which lead to an understanding that some coaches create their own curriculum. The Models of Play presented in chapter six, and various components of the conceptualised process which address the development of the Model of Play, contribute to this area of knowledge.

**Pedagogical Content Knowledge** is at the core of this study, as it goes beyond looking at the content knowledge or the skills of the coach in disseminating that knowledge and digs deeper into the micro-processes of the pedagogue football coach who continuously updates his/her content knowledge about PoP, organises that knowledge, and transforms it into representations that suit the characteristics of the football players. All this precedes the phase of applying general pedagogical knowledge to merely present content knowledge for instruction and requires the coach to be knowledgeable about his/her ***football players' characteristics***.

Successful coaches are proficient at adapting as necessary to meet the demands of their coaching environment. When planning and executing training sessions, a coach should make sure to take contextual considerations, including but not limited to the particular sports culture, performers' needs and unique practice situations (Nash, Sproule, & Horton, 2011). Hence, when functioning within a *Model of Pedagogical Reasoning and Action*, a coach needs knowledge of the coaching context and coaching contextual objectives.

In consideration of these factors, it appears quite evident how the Coaches' Process of Knowledge Generation for CPP and Shulman's knowledge categories are intertwined in an implicit, and at times explicit manner.

### *6.3.4.2 Collinson's Triad of Knowledge.*

One of Collinson's (1996) overarching themes, ***professional knowledge***, includes Shulman's Subject Matter Content Knowledge, Pedagogical Content Knowledge, and Curricular Content Knowledge. ***Interpersonal knowledge*** is the second overarching theme, while ***intrapersonal knowledge*** closes the triad.

The following sections show how Shulman's and Collinson's wider views of knowledge was confirmed by the participating coaches, who referred not only to Content Knowledge but also to various other aspects of necessary knowledge.

#### *Professional Knowledge*

The importance of *professional knowledge* was voiced by all the participating expert coaches, who attributed equal importance to Content Knowledge and

Pedagogical Content Knowledge. In terms of Curricular Content Knowledge, coaches acknowledged that curriculum in sports coaching is almost non-existent (Cassidy et al., 2009; Gilbert & Trudel, 2001). The contextual construction of the Model of Play in the Coaches' Process of Knowledge Generation for CPP can arguably be regarded both as cause or consequence of such lack of curricula.

This is evidenced in coach Ray's idea of "*an under 13 coach 'asking' what the under 14 coach wants*". In the lack of a set curriculum, the coach looks for knowledge of educational ends, by understanding what the under 14 coach needs in terms of starting abilities from players who have just finished the under 13 age group. This contextualised knowledge guides the design of a constructivist curriculum (Brooks, 1987)**.**

The curriculum, in contrast to other aspects of the educational context, is often something personal, built and created by the coach or the club. In fact, one can "just add into it…you just add to your curriculum, or whatever you want to call it" (Mark). Coach Sergio considers the importance of knowledge of educational needs when designing a curriculum, and of adapting as necessary every time he changes club, while recognising that "he always bring[s] some things from one club to another".

***Interpersonal Knowledge***

*Interpersonal knowledge* (Collinson, 1996) and the complementary categories of knowledge (Shulman, 1987) show the wider view of knowledge which expert coaches consider. The tetrad of players, club, coach, game within scrutiny of the environment, shows that expert football coaches believe in the importance of knowing their learners' characteristics (players) and the educational context/community (club), and also refer to the educational ends (objectives) and to the wider knowledge of the 'local community'. From a wider perspective, coach Brian talks about the importance to scrutinise "the media and the part of public portray, the outside world, how the public perceives" the club and the game. Coaches Joseph and coach Andy refer to the football culture in a country, as they highlight the different styles of football across clubs or countries, and how these styles influence the developed or applied PoP.

The participants also refer to the coach's relationship with his/her players (learners), with the club's members, committee, staff (educational community) and with the supporters, club's culture, location, history and realities (local community) to mention a few. Coach Andy refers to the importance of being able to influence the main stakeholders, especially the club's president. Coach Paul says that "…to start creating something, you must know the environment. I have mentioned 'the battlefield' before…that is where I start from". Likewise, coach Mark always wants to know "what the club is about, what they want and how they want it". Some clubs give you liberty while others put pressure to win and play well (Sergio).

***Intrapersonal Knowledge***

The model for becoming an exemplary teacher closes the triad of knowledge with *intrapersonal knowledge* (Collinson, 1996). As in Collinson's work, the process conceptualised in this study emphasises the importance of ***disposition towards continuous learning*** and the ability for ***introspection and reflection*** in-order-to understand oneself. This provides a wider view of the reflective ability which is frequently only linked to the very limited, yet overemphasised, plan-do-review cycle (The FA, 2015).

For instance, in this conceptualisation, one finds a strong ***disposition towards continuous learning*** in the generation of knowledge. However, it is then the whole process that significantly portrays a lifelong experiential learning process (Kolb, 1984), with ongoing introspective and outward-looking reflection in action (Schön, 1987). This is reflected in the centrality of the position given to regeneration of knowledge.

The conceptualisation also gives importance to introspection towards "how [the coach] sees, acts, and lives" (Collinson, 1996, p. 6). This is sustained by the participating coaches who attribute importance to being able to **scrutinise** the self in a way that aids *Pedagogical Reasoning and Action*.

Coach Andy emphasises the importance of "knowing thy self". He explains that one can only attain this through analysis, introspection, reflection and discussion with peers.

Coach Fannar explains that scrutiny of the self (including own philosophy) compared with the scrutiny of the environment, determines if he accepts a job or not.

Hugo believes that one needs to strike a balance between one's own playing philosophies on one side and the characteristics of the players and the environment on the other side. He also gives importance to having a strong personality and faith in your own capabilities.

#### *6.3.4.3 Challenging Collinson's concept of reflection*

I find Collinson's (1996, p. 8) description of the term 'reflection' to be overstretched. In general terms 'reflection' is defined as 'serious thought or consideration' (Oxford University Press, 2016), while in a pedagogical context it could be defined as the comparison of the evaluated achievement with the pre-set outcomes (Shulman, 1987). This leads me to recognise reflection as implying a comparison between the 'evaluated' present and the desired future. This means that reflection implies evaluation. Reflecting on what - on the present? In comparison to what? And then… what is the outcome? And what will you make out of that outcome?

Collinson, (1996, p. 8) describes the term reflection as the; i) recognition and definition of a problem, ii) proposition of hypotheses, iii) inquiry, iv) reasoning (analysis followed by prediction of consequences of action), v) decision making to resolve the problem, vi) evaluation of the if and how a process can improve. I interpret this description as referring to the ***evaluation*** of the present, a ***reflection*** of how that fits with the plan, ***reviewing*** of the process to get closer to the plan, and ***reasoning for appropriate action*** and more.

Acknowledging the complexity of this area, I suggest that 'intrapersonal knowledge' should not be over-simplified as being merely reflection, but that this should be recognised as only one aspect of the ongoing regeneration process (Figure 6.7). Collinson also recognises that together with a disposition toward continuous learning, exemplary teachers develop a disposition of thinking toward the future and toward optimism, which reflects their habitual ability deliberately to reflect (Collinson, 1996) in view of the evaluated present and the desired optimal future.

This study acknowledges this complexity, intrinsically referring to intrapersonal knowledge in the scrutiny of the self, which defines the conceptualisation process as a reasoning process with a pedagogical aim. The process also refers to the acquisition of Subject Matter Content Knowledge and Curricular Content Knowledge, and its introspective reality of knowing the unknown. It explicitly shows introspection in the regeneration of knowledge and its evaluation, reflection, reviewing and the outcomes of regeneration or consolidation of knowledge through the same subprocess.

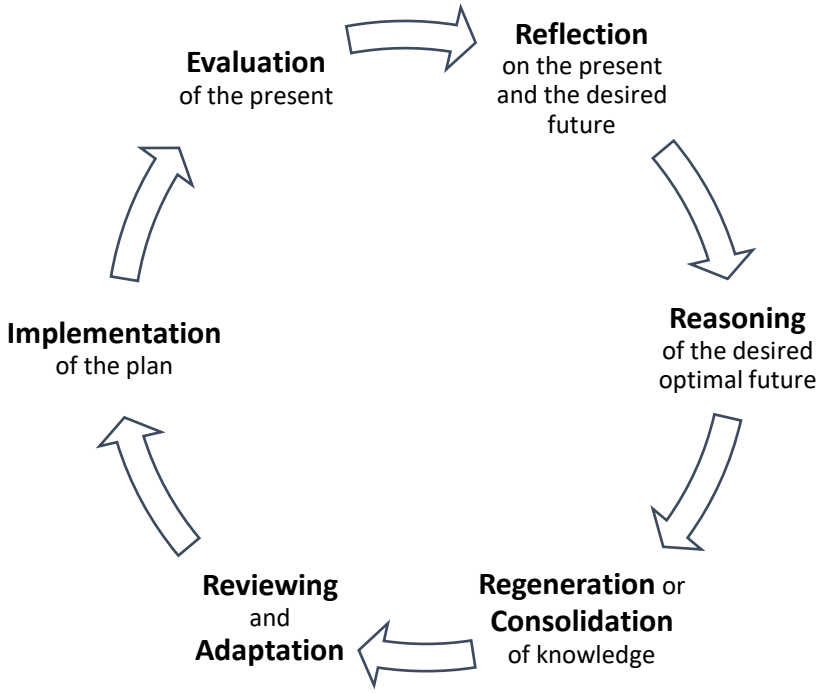



**Figure 6.7:** A simplified explanation of how evaluation, reflection and reasoning lead to regeneration or consolidation of knowledge and influence the implementation of adaptation and reviewing.

Also, inherently, the Coaches' Process of Knowledge Generation for CPP presents the complexity of an introspective ongoing learning process even in its professional and interpersonal knowledge. From a constructivist point of view, I suggest that it is difficult or perhaps illusory to attempt separation of the self (intrapersonal) from what we perceive as external realities. These external realities are a sheer reflection of the self and the way the world is perceived by the self, which varies from what others perceive.

Retrospectively, this analytical discussion about theory of knowledge leads me to conclude that while it is important to take on the various contributions in literature to understand the differences in the nature of

knowledge, its domains (Anderson, 1982; Larkin, 2010; Metzler, 2011), categories (Collinson, 1996) and (sub) categories (Shulman, 1987), it is equally important to avoid considering knowledge in a dualistic manner. It should be recognised instead that many (if not all) knowledge categories are intermingled in a very complex combination within a subjective and individualistic understanding of reality.

#### *6.3.4.4 Knowledge Domains – Declarative, Procedural and Conditional*

***Declarative knowledge*** is the knowing of "readily available information about concepts and elements", while ***procedural knowledge*** refers to the steps needed to perform a task (Côté & Gilbert, 2009), and ***conditional knowledge*** (Metzler, 2011), informs a pedagogue of the 'when' and 'why' decisions need to be taken to fit the present context.

These three areas are explicitly found in the Coaches' Process of Knowledge Generation for CPP. The conceptualised process refers to ***declarative knowledge*** as professional knowledge in the generation of knowledge, but also to declarative knowledge as interpersonal knowledge in Scrutiny of the Environment. The process is, in itself, providing expert coaches ***procedural knowledge*** as it is about the application of a set of steps for CPP. In *Conceptualisation and Transformation of Knowledge,* the process indicates what steps need to be taken to conceptualise and to build the Model of Play. It also shows how the obtained declarative knowledge should be procedurally segmented, simplified, planned and designed into appropriate knowledge for the present athletes. This is an approach presented by ***conditional knowledge*** because in this phase of knowledge transformation, one relies on scrutiny of the environment, and through the application of ***procedural knowledge*** can transform ***declarative knowledge*** as the present context requires. I suggest that **dissemination of knowledge** is to be considered as a collection of the three. While accepting that coaching is based on conditional knowledge, as it is highly influenced by the ever-evolving context, coaches present declarative knowledge (readily available information) while applying procedural knowledge (steps needs to perform a task) when running their sessions.

### *6.3.4.5 From boxes to river tributaries. A metaphor for knowledge.*

At the beginning of this conceptualisation process, I used to visualise the categories of the knowledge base (Shulman, 1987) as small boxes (Figure 6.8), encompassed by the triad of knowledge (Collinson, 1996), which is represented by three bigger boxes which contain the smaller ones, as seen below. Visualising knowledge in distinctive parts did not feel right and was incongruent with my notions towards a different more fluid conceptualisation of knowledge.

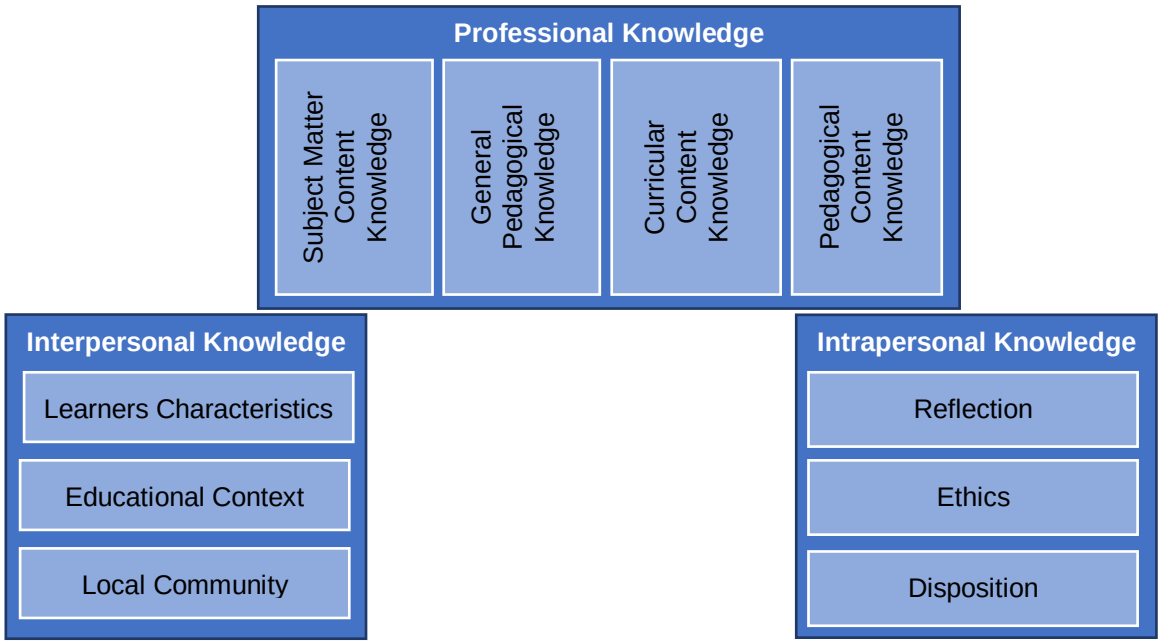



**Figure 6.8:** Knowledge in distinctive boxes.

This led me to conceptualise an alternative visualisation. I felt it was more appropriate to visualise these areas as river tributaries (Figure 6.9), whereby the smaller tributaries representing, for instance, Subject Matter Content Knowledge, Pedagogical Content Knowledge, Curricular Content Knowledge, Content Knowledge, would fluidly contribute to the development of a larger stream (professional knowledge). A similar process forms two other main streams, representing the development of interpersonal knowledge and intrapersonal knowledge. The three larger streams (professional knowledge, interpersonal knowledge and intrapersonal knowledge) then merge in a larger whole, to form the river of teaching and learning. Furthering the metaphor, I visualise the quantity of water in a tributary impacting how it travels and how it meets the others and the way this interaction influences teaching and learning. Completing the regeneration process, this, in turn, determines the amount and kind of water (knowledge) which can evaporate from the main river, the size of

clouds, and the downpour of rain that fills the tributaries again. Hence, the knowledge generation process continues.

**Figure 6.9**: (River) tributaries of knowledge.

One's understanding of professional knowledge and of the interpersonal knowledge obtained from relationships with the environment (players, club, coach, game), provides the basis for obtaining intrapersonal knowledge as the already obtained knowledge (professional and interpersonal) enables reflection, including of own ethics and own disposition for further learning. Comprehending the interaction between all areas allows the teacher to perform better from a pedagogical perspective.

### *6.3.4.6 Coaches' Knowledge*

Reflecting on Collinson's (1996) triad, the interaction between the three areas (Professional, Interpersonal, Intrapersonal) emerges as very important. It is not the dimensions of one part of the triad, as much as the magnitude of the interactions between the three parts, that make a good pedagogue.

Linking back to the river tributaries metaphor, I recognise that while the size of a tributary is indeed influential as much as the amount of knowledge in one area is clearly of consequence, this size becomes insignificant if one

tributary does not link to the others at some point. Without this connection, the tributary simply becomes a separate distinct river or water stream. Likewise, unless there is an interaction between various aspects and forms of knowledge within a pedagogical process, the learning and teaching process is not whole.

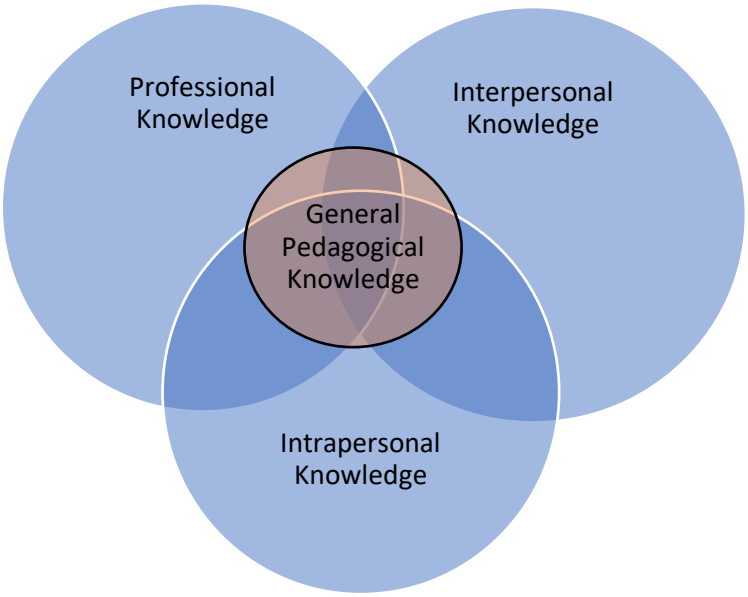



**Figure 6.10:** Coaches' Knowledge Interaction.

I suggest that the quality of pedagogy is influenced, not by the dominance of any one area, but through interaction between a teacher's professional, interpersonal and intrapersonal knowledge (Côté & Gilbert, 2009) together with their application through "general pedagogical knowledge" (Shulman, 1987). ***Intrapersonal knowledge***, resulting from 'reflection', 'ethics' and the disposition towards continuous learning, is the binding factor that allows the pedagogue to formulate how forms of ***professional knowledge*** can contribute to knowledge obtained through ***interpersonal relationships*** within the environment. The obtained result is applied through one's ***general pedagogical knowledge***. It is within the intersection of the triad and through the application of general pedagogy that pedagogical reasoning can potentially be reached (Figure 6.10).

The coach's knowledge (Sergio) and the coach's past experiences (Hugo**,** coach Ray) have a direct influence on scrutiny and on the conceptualisation of the Model of Play respectively. This insight provides evidence that these three coaches are not only referring to content, pedagogical or curricular knowledge (the three areas Shulman (1987) refers to), but also to

***interpersonal knowledge*** and ***intrapersonal knowledge*** (Collinson, 1996). Coach Ray criticises football coaches who only have football content knowledge. He says that "football coaches often get blinkered because they only know football". This broader view of 'knowledge' is further defined by coach Andy as including 'knowing one's self'. Together with coach Soldano who specifies the importance of knowing own's developmental objectives, participating coaches demonstrate a high level of intrapersonal knowledge.

Coaches coach Andy and coach Brian expect coaches to have deep ***general pedagogical knowledge***. Coach Andy believes that it is important for coaches to know how adults learn; "to know Bloom's taxonomy, adult principles of learning, the VARK concept" (also mentioned by coach Ray**)** and Gardner's Multiple Intelligences. Coach Brian refers to intrapersonal knowledge, and Burch's 'Four Stages of Competence' (Crosbie, 2005; Tri, 2017). He expects a coach to be capable of reducing his/her ***unconscious incompetence*** and increasing his/her ***conscious incompetence*** area.

When discussing what to teach, the participating expert coaches immediately refer to the different categories of knowledge. Distancing themselves from a modernist desire for certainty in viewing content knowledge as stable (Cassidy & Tinning, 2004), participating coaches clarify that by ***content knowledge,*** they do not only mean the "amount of knowledge in the[ir] mind" (Shulman, 1986, p. 9) (Scrutiny; Coach). Evidently, they view sports coaching 'content knowledge' as changeable (Cassidy et al., 2009) and express agreement with Collinson (1996, p. 3) that "in our postmodern world of uncertainty and rapid change, professional knowledge must be continuously updated". The process conceptualised in this study allows for this continuous updating in 'generation of knowledge'.

In further congruence with *Pedagogical Reasoning and Action*, this study takes in consideration the importance of the process by which the coach's content knowledge needs to be shaped in a way that suits the needs of the learners [football players] (Shulman, 1987, p. 13). In their paper on transforming subject matter, Geddis and Wood (1997) contend that Subject Matter Content Knowledge can only be transformed to Pedagogical Content Knowledge if one takes in consideration the learner, the context, the place and time. This is precisely reflected in Scrutiny of the Environment, which also includes the 'self'

(the coach) as another important factor. This assertion of the self as a primary factor is also recognised in *Pedagogical Reasoning and Action*, where a concept is:

> …taken from a point of view of the teacher, who is presented with the challenge of taking what he or she already understands and making it ready for effective instruction. (Shulman, 1987, p. 14)

Only by allowing time for scrutiny of all the important factors, is the coach able to apply Pedagogical Content Knowledge (which needs to be distinguished from General *Pedagogical Knowledge of Teaching*), defined as the ability of the teacher to choose that content knowledge which is mostly teachable to the present learners (Shulman, 1986). This process is mainly covered by Conceptualisation and Transformation of Knowledge.

In view of Curricular Content Knowledge (Shulman, 1986), the participants indirectly confirmed the inexistence of fixed curricula (Gilbert & Trudel, 2001) by simply not referring to any (except for the DNA which needs to be analysed for its depth, or lack of). This can be construed as reflecting the notion that there is no such thing as fixed knowledge (Cassidy & Tinning, 2004), and therefore supporting the idea of constructivist curricula (Brooks, 1987; Thompson, 2001; Yildirim & Kasapoglu, 2015).

## 6.4 A COACHING PROCESS

When conceptualising a coaching process one needs to understand the complexity of the process and the difficulty one may meet in trying to conceptualise a comprehensive process. Coaching is made of many elements, and its multi-layered, multi-faceted and interrelated features (North, 2017). The complexity, dynamic and messy reality of the coaching process has been acknowledged (Cushion, 2007; Cushion et al., 2006; LeUnes et al., 2007) to the extent that Cushion (2007, p. 395) considers the possibility that coaching could be “an enterprise where a definitive set of concepts and principles will always be elusive and as such a singular all encompassing model may not be possible”.

Differently from “The Coaching Process” (Lyle, 2002, p. 96), which presents a comprehensive and detailed model for coaching in general, this thesis did not set out to provide an overarching understanding of the whole coaching process, but has focused on conceptualising and ‘**critiquing’** a specific coaching process, that of knowledge generation for CPP in soccer.

In this study, I follow closely the process used by Côté (1995), Abraham (2006) and their colleagues. Like Abraham et. al. (2006) I begin by conceptualising the process theoretically (1.2) and then, like Abraham et.al. (2006) and like Côté (1995), obtain the input of expert coaches in the field.

Lyle (2002, p. 107), claims that “The coaching process” is not a model that “the novice coach will attempt to adopt one that informs education and training, and is valuable for analysing and reflecting on practice”. When conceptualising and finally developing this process , I aimed to make it possible for coaches to be able to apply it in practice in two ways. First, I suggest that this conceptualisation can be useful in influencing coaching education and reflective practice, which in return influences coaching practice. Secondly, I suggest that the final representation presented (version 2.1) and its explanation shall provide coaches with a deeper understanding of the pedagogical tactical content knowledge they would need to generate when CPP. The use of this conceptualisation by coaches can form the focus of future empirical work examining the potential of the process developed in this thesis as a more generalisable (qualitative) process for sports coaching.

### 6.4.1 VALUES AND CHALLENGES

Modelling the coaching process is not an easy feat. This is evidenced by the criticism coaching models have received (Lyle, 2002), and by the limited alternatives offered to the identified shortcomings (Cushion et al., 2006). In this section, I consider the values (Lyle & Cushion, 2017) of the conceptualised and developed process. I also reflect on the challenges met in undertaking the construction of a such process. In this discussion I will also briefly consider how this process relates to some other coaching process models:

1. The assumptions and the conceptual foundation for the development of the Coaches' Process of Knowledge Generation for CPP have been made clear from the onset.

2. The Coaching Model (Côté et al., 1995) and The Coaching Schematic (Abraham et al., 2006) are perceived as generic sport coaching models. Conversely, this process is as yet, sport-specific (Lyle, 2002; Lyle & Cushion, 2017) and in particular, related to CPP.

3. This process is highly comprehensive (in its specific focus). It effectively describes and scopes the phenomenon, its components and their relationships both verbally and visually.

   As in "*The Coaching Process*" which was developed by John Fairs in 1987 (cite in Lyle, 2002), the process conceptualised in this study presents 5 components, around a more central component, intended at reassessment (Regeneration of Knowledge). Like in "*The Coaching Process*" this central component allows for reviewing and adaptation. While Fairs presents the components in "*The Coaching Process*", as steps in series, with, I assume, a linear interrelation between them, this developed process demonstrates the complex non-sequential interaction between the components.

4. The Coaches' Process of Knowledge Generation for CPP is designed to provide a comprehensive description of the process. In doing so, it adopts a macro-view, which is useful in representing the studied phenomenon. It also considers the direction, strength and causal conditions of the relationships between components at the macro-level.

   This area has been identified as challenging, not only because coaches find the technical/tactical knowledge as the most important to create a curriculum, but also because it is often this, the knowledge that coaches mostly lack (Abraham et al., 2006; Schempp et al., 2006). Abraham et al., (2014) underline the difficulty of this task; they justifiably claim that it is difficult to unpack tactics. Equally difficult is for coaches to determine which

problems players need to overcome, and how these problems are to be presented to the players.

Determining a meaningful theoretical framework, from both pedagogical and *Tactical Periodization* perspectives, this process has started addressing these crucial issues of coaching planning and programming.

5. Within the all-embracing macro-view of the process, the micro-components and micro-processes - what Lyle (2002 p.84) terms 'subprocesses' - are also identified. The directions and tensions of the interactions occurring within the micro-components remain to be studied and established. It is here that further research may assist this conceptualised and developed process to obtain an even stronger base in coaching education.

6. The presented process provides a trustworthy representation (Shenton, 2004). This has been confirmed by participants in two different stages. Ten coaches have showed agreement with the ideas behind version 1.2. They have all checked the categorisation work done on their interview and confirmed it too. At the end of the study six of the participating coaches (Sergio, coach Hugo, coach Mark, Paul, Joseph and Fannar) have also read and agreed with the final representation presented in this thesis.

7. The developed process is not intended as a means of predicting performance outcome, as it does not take a quantifiable approach. Prediction and performance calculation is rather difficult in a complex sports like soccer (Lyle & Cushion, 2017). Like the coaching model (Côté et al., 1995), this process uses the competition (the Game), with other components, to inform the coach's pedagogical goals to develop his/her athletes.

8. The philosophical and epistemological foundations of this study make the process valuable as a prescriptive one. Through its qualitative and constructivist views, it recognises subjective

contextuality within its components. This makes it possible for coaches to apply this conceptualised process in their subjective worlds.

9. This study draws high value from the applied rigorous research approach. Lyle (2002) and Lyle and Cushion (2017) find “The Coaching Model” (Côté et al., 1995) to be an exception for its rigorous research, and praise “The Coaching Schematic” (Abraham et al., 2006) for its research approach and practising coaches’ support behind the findings. The methodology of these studies was influential in designing the approach to the study which informed the development of the Coaches’ Process of Knowledge Generation for CPP.

10. The Coaching Model began as a model of coaching (Côté et al., 1995) and was then developed into a prescriptive model for coaching practice (Côté, Bruner, Erickson, Stachan, & Fraser-Thomas, 2010) for all the levels of coaching (Côté & Vierimaa, 2014). The Coaches’ Process of Knowledge Generation for CPP went through similar phases but in opposite sequence. It started by providing a conceptual and theoretical insight of the process. Similarly to Abraham et al., (2006, p. 549), a copy of the process (version 1.2) was then provided to expert coaches who were asked to comment on design and content in relation to its accuracy in reflecting their own coaching process.

11. This approach developed an operational process which shows “how it works”, according to participating coaches. This emerged from a previously conceptualised ideal process which theorised “how it should be”, elevating the prescriptive value of the Coaches’ Process of Knowledge Generation for CPP.

12. While the process identifies components and sub-components which look into planning, feedback provision and instruction, all underpinned by PoP, it is still not an exclusive process and recognises the coaching process as one which is problematic in

its dynamic and complex reality. In fact, the ‘adapt’ and ‘regeneration’ features are central to the process.

Lyle and Cushion (2017, p. 120) outline a list of problems that need to be overcome when modelling the coaching process. While I do not consider this as a coaching model, I find this list as a valuable one to evaluate the challenges the development of the Coaches’ Process of Knowledge Generation for CPP.

1. **A dynamic process:** The Coaches’ Process of Knowledge Generation for CPP is not inert. Notwithstanding the difficulty to represent and replicate its dynamic reality, (Lyle & Cushion, 2017, p. 120), it strives to reflect the complex and dynamic interactions of its components. The inter- and intra-relationships within components, and with the macro-components, provide a platform for the significant development of a complex and dynamic reality.

2. **The Scope:** Differently from ”*The Coaching Process”* which was intended as an academic contribution (Lyle, 2002, p. 96), this process is also aimed at a practical application both by coaching educators and coaching practitioners.

3. **Interrelationships of the process’ components:** Similarly to “The Coaching Schematic” (Abraham et al., 2006), the Coaches’ Process of Knowledge Generation for CPP presents the interrelationship between its macro-components. While it does present its micro-components within the macro ones, it does not refer to the interrelationships existing between the micro-components. This does not mean that the process does not recognise the existence of these interrelations. However, it would be immensely complex to include the tensions of all the micro and macro-components in this thesis, and herein lies an issue for future research and development.

4. **Performance:** I find the Coaches’ Process of Knowledge Generation for CPP to be lacking value for the fact that it does not intrinsically consider competition. It is to be noted though,

that the *Pedagogical Reasoning and Action* foundation of the process considers knowledge of the educational ends, which is fundamentally derived from performance, normally through competition (against others or against the self). Given that this is not specifically clarified by Lyle and Cushion (2017), I believe it would be important to clarify that when talking about performance, one needs to look at both the players' and the coach's performance. Furthermore, performance shall not only be competition specific, but could include training related performance.

5. **Intervention and meta-cognition:** The process developed overcame a considerable difficulty by managing to, very strongly, incorporate training intervention, intervention support, and meta-cognitive adaptation. It mainly treats these important components of sports coaching from *a Pedagogical Reasoning and Action* point of view.

In assisting coaching modelling, Lyle and Cushion (2017) outline the main features that are essential for a coaching process:

1. **Initiation:** The Coaches' Process of Knowledge Generation for CPP does not identify any component as the starting point. However, I suggest this be considered a strength. Coaching should not be studied as a series of actions in sequence, but as a complex ongoing interaction of various components, in this case (acknowledging other viewpoints, North, 2017) intended at knowledge development, transformation and dissemination.

   However, a conceptual foundational requirement, which can be construed as an initiation point, is still identified in pedagogical reasoning and action. The process developed in this thesis does not fulfil its potential for anyone who does not subscribe to the philosophy behind Pedagogical Reasoning and Action.

2. **Development:** The soccer player's development is at the core of the presented process. The learner is always at the core of a

Pedagogical Reasoning and Action approach. This is given utmost importance in the tetrad (player, club, coach, game) within scrutiny of the environment, which considers the influence asserted by a range of stakeholders (North, 2017). Furthermore, considering that the Model of Play is mainly intended at the development of the football player, it is pertinent to recall that the coach is a learner as well. Therefore, the coach's own development within the Coaches' Process of Knowledge Generation for CPP is given considerable prominence.

3. **Operation:** Through its framing concepts, this process highlights that delivery is not a unique primary feature in coaching. The coaching process is beyond the coaching session. The coach "has to manipulate a wide range of variables, which occur within and beyond the actual session" (Cushion et al., 2006, p. 8). *Dissemination of Knowledge* is in fact given the same weight of all the other components around the spiral. Furthermore, this component is presented as not merely direct intervention, but also as pre-training procedures and environmental setting that set the operations of the dissemination. Finally, the presented process recognises that dissemination cannot occur effectively without all the other fundamental components.

4. **Progression:** The spiral visual clarifies that the process is progressive both upwards and downwards, across every component. 'Downward progression' is not a linguistic mistake, as I suggest that although one's learning can sometimes spiral downwards, in terms of learning it could still represent progress. For instance, if a coach moves from a club to another, his level of contextual knowledge would be lower in the spiral. This does not mean that the coach knows less. Conversely, it means s/he knows more, but his/her contextual knowledge in the new club is still at low level. Possibly in contrast to the impression given by Lyle and Cushion (p. 122), the Coaches' Process of Knowledge Generation for CPP does consider any threshold. The concept of 'Zone of

Proximal Development' (Vygotsky, 1986) can provide a suitable alternative for the idea of a threshold.

5. **Monitoring:** The interactions between the components serve as automatic monitoring. Having every component and sub-component as interdependent serve as an automatic monitoring system. Regeneration of knowledge is then the central component which factors in ongoing monitoring.

   The PoP which serve as building blocks to the complete, ever changing, model of play shall serve as a reference point for planning and monitoring processes. The model of play may be used as both a performance model and simulation (training) model, as further discussed by the idea of mental models. In fact, PoP provide the coach with a knowledge structure (schemata) which can be applicable to different unfolding scenarios (Lyle & Cushion, 2017, p. 172-175). As explained in the conclusive chapter, this process needs further investigation from the mental models' point of view.

   Based on the outcomes of the monitoring process from both game and training, the conceptualised process shows that coaches may go into a regeneration of knowledge phase, where they may decide which PoP shall be worked upon further, polished, or else adapted to acknowledge the characteristics of the working environment. This shows how the Model of Play is a work in progress through the possibility of PoP being adapted to the specific contemporary needs of the team and its working environment.

6. **Contingency:** With the regeneration of knowledge at the centre, fully and continuously interacting with all other components, and with the scrutiny of the environment as one of the macro-components, contingency is integral to this process.

7. **Evaluation:** As already clarified, the Coaches' Process of Knowledge Generation for CPP goes against the idea of a

threshold, a fixed set outcome. By assuming the attributes of being contextual, constructivist, and with contingency features in place, CPP within this process retains a fluid notion of 'outcome'. Nevertheless, the Process is not without direction, since the constructivist and contextualised Model of Play provides set outcomes. Such outcomes may, however, be changed and adapted in line with the contingency components of the process.

8. **Termination:** The term 'termination' is not ideal in constructivist learning as it alludes to a sense of a ready and finished state in terms of learning, which I do not subscribe to. However, "re-consideration' of the 'contract'" (Lyle & Cushion, 2017) is a fundamental ongoing process within the Coaches' Process of Knowledge Generation for CPP which strongly reflects its contingency, monitoring and evaluation of dynamics, and in doing so, in fact, gives rise to the spiral of progression.

The evaluation and analysis of a coaching process is a complex and intriguing endeavour, and possibly never-ending. The above is intended at providing an extensive, but inconclusive analysis of the Coaches' Process of Knowledge Generation for CPP.

Ward and Griggs (2011) framed the idea of using PoP as a substitute to the skill acquisition approach. Their framework was a first step in rectifying the "lack of clarity in the conception of instructional models aimed at supporting games teaching" (p. 14). Although in its infancy, this thesis is the first to put forward the PoP as the focus of coaches' knowledge generation and one of the few studies that place PoP central in the way to instruct learners through the intricate landscape of games.

## 6.5 CONCLUSION

This Chapter has presented a discussion about the Coaches' Process of Knowledge Generation for CPP, as conceptualised and developed in this same study. A metaphor for knowledge, 'from boxes to tributaries' has also been

presented in view of this same conceptualisation. The discussion continues with a deep discussion of the conceptualised process from the point of view of the theoretical framework underpinning this study. The Chapter ends with the values and challenges this conceptualised and developed process has met.

In the next Chapter, I will conclude the study by looking back at the main points of this same study, and by presenting the limitations and future recommendations for further research and projects in the field.

# CHAPTER 7
# CONCLUSION

## 7.1 INTRODUCTION

This chapter summarises:

1. what this study has achieved, and how it answers my research question,
2. the limitations of this study,
3. contribution to knowledge,
4. suggestions for future research.

### 7.1.1 The achievements of the study in answering the research questions

The novel nature of this study lies in both its point of departure, that is the focus on PoP, an area which is largely understudied, and in the emerging conceptualisation, which combines the importance of coaches' knowledge generation with the pedagogical reality coaching exists in.

The main research question in this thesis was:

- How do coaches generate knowledge to coach through Principles of Play?

This led to the focus of this study, which is:

- *A Conceptualisation of the Coaches' Process of Knowledge Generation for Coaching through Principles of Play*,

I started off by asking myself "what are the PoP that expert coaches use to coach soccer?". This led me to look into the deeper understanding of the process of knowledge generation, rather than the understanding of the knowledge itself. As a pedagogue-coach my own development, I personally went through the general paradigm shift from conservative to integrated tactical coaching in an era where coaching has started to be recognised as pedagogical. My own coaching within this context has driven me to question what and how I should be teaching my soccer players. The first time I came across the concept of PoP, I felt it could be the door to address my recurring coaching questions.

This study takes a glimpse into the tactical content knowledge two expert coaches have applied as part of their model of play during the soccer season when data collection was being held (Appendix 1.1). This has helped me, and

for the matter, is intended at helping the readers understand “what are the PoP that expert coaches use to coach soccer”.

In answering the main research question, I have first theoretically conceptualised the Coaches’ Process of Knowledge Generation for CPP. I have then populated that conceputalisation by the interventions of expert coaches. The process developed is composed of six components, namely; Scrutiny of the Environment, Conceputalisation, Knowledge Generation, Knowledge Transformation, Knowledge Dissemination and Knowledge Regeneration.

It became very evident that these components interrelate in a random, non-sequential manner. In support of Bruner's (1960) concept of spiral curriculum, these components are seen to be existing in a spiral reality, allowing the coach to move higher or lower across the spiral in different moments.

The Coaches’ Process of Knowledge Generation for CPP can be used by coaches as a framework to generate and re-generate their pedagogical tactical content knowledge, which is fruitful in the construction of the Model of Play.

The conceptualisation developed in this study makes it very evident that the generation of tactical knowledge and the steps necessary to transform that into Curricular Content Knowledge, into a Model of Play, and then transform that into Pedagogical Tactical Content Knowledge to disseminate into a teachable form, is highly contextual. However, this does not preclude the process from occurring within a ‘flexible’ structure, which provides a framework for coaches to function within.

It becomes clear from the literature reviewed in chapter two and from the participating coaches, whose views were presented in chapter five and discussed in chapter six, that coaches break down their Model of Play to reflect moments of the game. In turn, these moments are divided into phases (generally three). In addition to the work done by (Gréhaigne & Godbout, 1995; Gréhaigne, Richard, & Griffin, 2005; Gréhaigne, Wallian, & Godbout, 2005) this provides an insight into how one can assemble and organise knowledge from and for a complex and dynamic game like soccer.

### 7.1.2 Limitations

In this study, I did not study '*the*' coaching process, but rather the process coaches may engage into to generate knowledge for CPP. Therefore, the outcomes of this thesis make no claim to relevance of this conceptualisation for coaching which is not CPP and does not model the full coaching process.

Due to the unique social realities in unique coaching contexts, the conceptualised process cannot be perfectly replicated in any other environment. Additionally, it is difficult for coaches to present the same *body of content knowledge* to different teams. The variances in coaches' personalities, the complexity of the game and the different necessities the game puts on teams and players, together with the different characteristics and positions of the same players, are amongst the unique factors that make it impossible for coaches to use and transmit knowledge of tactical principles in the same ways in different environments (Yeasmin & Rahman, 2012).

Therefore, this study does not set out to provide tactical content knowledge to be replicated, rather the opposite intent motivated this study. Coaches need the know-how and the tools to generate knowledge, to be able to identify the necessary tactical content knowledge with a pedagogical reasoning and action approach.

I have developed the Process of Coaches' Knowledge Generation for CPP as a way of understanding the process to inform practice, whilst striving to recognise the contextual complexities of interdependent and interrelated realities of the coaching process (Cushion, 2001). The focus on one coaching methodology (CPP) makes it very clear that this process is not generalisable, and it would be misguided to expect generalisability given contextual subjectivity in coaching.

Having acknowledged the limitations in terms of lack of generalisability, I suggest that whilst it is difficult to obtain a universally applicable understanding of a coaching process (Lyle, 2002), there may remain elements of transferability in the process conceptualised in this study.

Whilst Abraham et.al. (2006) who declare their findings transferable to both elite and pre-elite coaching, I do not claim the same for this study. Although the participating coaches cover all the levels of the coaching domains

(Lyle, 2002), I do not consider this as a sufficient basis to claim transferability of the Coaches' Process of Knowledge Generation for CPP to all levels of soccer coaching further clarifications and research would be needed to confirm this.

From a reasearch methods point of view, this study had a number of challenges to overcome. First, the limited amount of research in the field of PoP has proved to be challenging. Secondly, there is limited research in conceptualising how coaches may generate knowledge, especially tactical content knowledge (Harvey & Jarrett, 2014; Mitchell et al., 2013; Roberts, 2011).

While the development of the theoretical framework has been of utmost importance for this study, it can also be seen as a limitation, in the sense that one could conceptualise the process of knowledge generation from various other points of view (explored further below). Hence, while I consider the selected theoretical framework as a valid foundational structure for this study, I do recognise other areas as a possible foundation.

Another limitation in this field was the difficulty I experienced in identifying participating coaches. That led to an automatic limitation as it became practically impossible to obtain participation from an elite level (a coach working at the top level of European football) coach. It was practically very difficult to assure the participation of coaches from the various coaching domains (Lyle, 2002; Lyle & Cushion, 2017).

Finally, if this research was held by a group of researchers, rather than just one researcher, or if it had enough financial support, I could work differently in order to obtain trustworthiness (Shenton, 2004). Nonetheless I believe I did my best in assuring trustworthiness within the limitations this study existed in.

### 7.1.3 Contributions to knowledge

The Coaches' Process of Knowledge Generation for CPP is intended to provide coaching practitioners and coaching education with reference to a structure that assist both sides in a deeper view of coaches' pedagogical tactical content knowledge generation. This allows coaches to generate their own knowledge, rather than just copying and re-using pre-constructed knowledge. This allows for knowledge to be contextualised in the needs of the coaching context and the engaged learners.

This study is, to my knowledge, the first one to provide a process which breaks down the process of knowledge generation for coaches. It is surely the first study that provides coaches with a tool for CPP. The few existing studies seem to be providing a readymade structure of particular principles or models of play.

This study has examined the constituent parts of the process and explained relationships between its components, in order to conceptualise a framework for practice (Lyle, 2002, p. 81). The visual representation aims to contribute to understanding and progress, and assist in further theoretical and research developments (Bergsteiner, Avery, & Neumann, 2010). Given that models of coaching process are not a common aspect of coaching education and training (Lyle, 2002, p. 80), this thesis thrives in presenting a practical process designed to contributing to the practical application of football coaches and coaching education.

This study may also provide additional support to the issue raised by Ward and Griggs (2011) who proposed the use of PoP as the focus of primary games lessons in physical education. There is potential for the use of this developed process amongst PE teachers. As a tool, it can promote methods similar to those applied in coaching to allow for constructivist curricula (Driver & Oldham, 1986), as an alternative to existing fixed curricula.

Contextual features (Lyle, 2002, p. 83) such as the ‘scrutiny of the environment’ and ‘conceptualisation’ can usefully assist in making the Coaches’ Process of Knowledge Generation for CPP generalisable and more applicable for other aspects of tactical integrated approaches in coaching and physical education.

Furthermore, the outcomes of this thesis may help coaches in the task of locating their role (Evans, 2007), in that it provides coaches with a practical process of generating their own Pedagogical Content Knowledge (Roberts, 2011), and designing their contextual curriculum, thus contributing to the extension of the limited Curricular Content Knowledge in soccer coaching.

The Coaches’ Process of Knowledge Generation for CPP can be used to help coaches to apply a systematic training aggregation (Lyle, 2002, p. 43)

made of knowledge-rich coaching interventions, rather than sporadic interventions (Carvalhal et.al., 2014) and isolated exercising moments.

### 7.1.4 Suggestions for future research

***There is the potential for the application of individual PoP to be useful if one would want to coach individuals within a tactical approach (replacing the conventional technical instructional approach).*** In view of a possible implicit assumption that CPP is mainly applicable within an Integrated Tactical Approach, I argue that it would be interesting to discuss (in other fora or publications) and explore, if and how coaching through a more traditional-technical approach, for instance, can be framed in CPP (CPP).

***It would be interesting to look into how contemporary trends in soccer coaching, for instance the main trends, style of play, model of play and principles visible in the games of the main teams in Europe, may be influencing other coaches, perhaps even in different coaching domains.*** One of the participating coaches refers to the possibility that the PoP informing one's model of play may be following a 'trend' rather than the need of the particular coaching environment.

***Another important and interesting area for future research is the issue of planning*.** Important work about coaching planning has been done by Abraham et al., (2015). While this same area has been covered to a certain extent in this study, it could be the main focus of a separate study to look into the way coaches plan their pedagogical tactical content knowledge in relation to specific upcoming games, or else in pre-season, which offers a longer-term preparation scenario. How the long term and the short-term planning vary across the different coaching domains? How do PoP and their depth vary across all the presented options?

***The general concept of CPP needs to be explored further as well.*** It would be interesting to know how many sessions, how much time and at what depth do coaches at various levels and at various coaching domains dedicate to CPP. It would also fit nicely to understand how and where PoP get introduced during practical sessions.

***Exploring how useful this developed process can be for PE teachers who engage in TGfU, Game Sense and other game-based approaches, may also be an area of research that can be explored.***

***An important study in the near future would be that of validating the process being theoretically conceptualised and then further populated by expert coaches in this study.*** Similarly to the validation process of the coaching schematic (Abraham et al., 2006), this validation of the presented process shall take in consideration the roles and content of knowledge object, the relationship between the flow of the presented process with the thoughts of the participating expert coaches participating in the validation process and the assurance of the validated process to be representing a good basis for focused development of the same process (p. 553).

***I plan a second phase study, building on the work reported in this thesis, and do what Abraham and Colleagues did to validate their schematic.*** Taking the development of the coaching Schematic (Abraham et al., 2006) and compare it to this study, one might appreciate this study as the first part of Abraham and Colleagues' work, when they conceptualised their Schematic, before they interviewed the coaches.

***Based on the findings of this study, it is also important for future research to look into what coaches really do in practice.*** The process reported in this thesis has been theoretically constructed (Bruner, 1963, 1966, Oliveira, 2014b, 2014a, Shulman, 1986, 1987) and then further populated from the data provided by expert coaches, it has not yet been applied and tested in practice. This deeper understanding of how coaches generate knowledge in practice, how they conceptualise their Model of Play, transform it into pedagogical content knowledge and use it in practice, would provide a deeper empirical understanding of this phenomenon. It would also be interesting to empirically test the application for this process both at macro-process level and also within its micro-processes. This can follow the approach Abraham et al., (2006) used when validating their schematic. The various possible studies may influence the way Integrated Tactical Coaching within the idea of CPP.

***The transferability of the Coaches' Process of Knowledge Generation for CPP offers scope for further research.*** This thesis may provide a solid foundation for future research to look into the application of this

process across different sports, age groups, coaching domains (Abraham et al., 2006; Lyle, 2002), coaches abilities and other varying coaching environments.

***Because teaching is not necessarily a prerequisite to learning, further research would be of value to investigate the way that the process can be practically applied*** and how the emerging coaching instructions (teaching tentative) reflect the learners' (athletes') pedagogical needs.

***Deeper investigation of the competition cycle within the Coaches' Process of Knowledge Generation for CPP may also be warranted since this has been given limited attention in this study.*** One might need to consider whether the process needs to include a component dedicated solely to performance and/or competition. A 3D visual generation of this same process supported by further research of the phenomenon should be intended to achieve a more realistically non-linear representation.

***An evaluation and sharpening of the Process of Knowledge Generation for CPP****, by analysing it deeply from the angle of the main existing and developing coaching process models, which can contribute further to developing the robustness of the Coaches' Process of Knowledge Generation for CPP*.

***Furthering the development of this conceptualised process*** may also be achieved by looking at the process from other points of view. Some of these may be the concepts of; mental models (Lyle & Cushion, 2017, p. 172), planning, nested goals, goal making and decision planning (Abraham et al., 2015), and from a holistic ecological point of view (Henriksen, Stambulova, & Roessler, 2010; Henriksen, Stambulova, & Roessler, 2010; Larsen, Alfermann, Henriksen, & Christensen, 2013), amongst other areas. Also, it being a pedagogical process, it would be interesting to explore the process conceptualised in this study from the point of view of pedagogical principles. An alternative interesting view would be a study about this concept, but with coaches who alternatively, do not apply CPP, and discuss their opinion on the developed process (version 2.1).

## 7.2 CONCLUSIVE SUMMARY

This thesis has conceptualised the coaches' process of generating knowledge to CPP. The shift from conventional coaching to coaching which is contextualised (Clemente & Rocha, 2013; Light, 2013; Zuccolo et al., 2014) in an integrated tactical approach (Light, 2013; Mitchell et al., 2013; Zuccolo et al., 2014) calls for coaching to be considered as a pedagogical process (Cassidy et al., 2009; Evans, 2007; Jones, 2006).

This shift requires coaches to process tactical knowledge and prepare that knowledge for coaching instructions in ways that can be understood by players (Shulman 1987, p. 14). In my search for the content knowledge that can feed into this coaching paradigm, it became evident that PoP can serve as the foundation of the coaches' knowledge, if they want to adopt this [not so] innovative approach (Ward & Griggs, 2011) of CPP.

It became evident that in order to leave the necessary impact on the day to day coaching, it would be necessary to locate the coach's role (Evans, 2007) in this process of knowledge generation for CPP. Hence it was pertinent to ask, **"What is the Coaches' Process of Knowledge Generation for Coaching through Principles of Play in Soccer."**

This study first constructed a theoretical conceptualisation of the Coaches' Process of Knowledge Generation for CPP. This was followed by the idea being further populated by the interventions of expert soccer coaches.

The Process of Coaches' Knowledge Generation for CPP establishes **Scrutiny of the Environment, Conceptualisation, Generation of Knowledge, Transformation of Knowledge, Dissemination of Knowledge and Regeneration of Knowledge** as the macro-components. Micro-components exist within each of the macro-components, thus complex inter-relationships between the micro and macro-components are ongoing in this complex coaching reality.

This developed process leads coaches to create their contextual curriculum, the Model of Play, and transform this into a suitable learning experience. The Model of Play is generally composed of the main moments of the game, attack, defence, attacking transition, defending transition, and set-pieces. General PoP, sub-principles and sub-sub principles are what compose

the Model of Play, which also considers how these principles are verbalised and demonstrated.

The process is intended to assist players' coaches (Wade 1997) to look deeper into the what, why, when and how of soccer coaching. Their engagement in this 'conscious activity…designed to enhance learning in another' individual (Watkins & Mortimore, 1999, p. 3), can guide them in the design of their constructivist curriculum (Brooks, 1987), the Model of Play (Jankowski, 2016; Tamarit, 2015), and in its application within their learning environment, the football pitch.

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The University Of Sheffield.

# Coaching through Principles of Play.

## A Conceptualisation of the Coaches' Process of Knowledge Generation.

By:

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A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

The School of Education

The University of Sheffield

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# APPENDICES

# TABLE OF CONTENTS

# APPENDIX 1.1

# TWO MODELS OF PLAY OF TWO OF THE PARTICIPATING COACHES

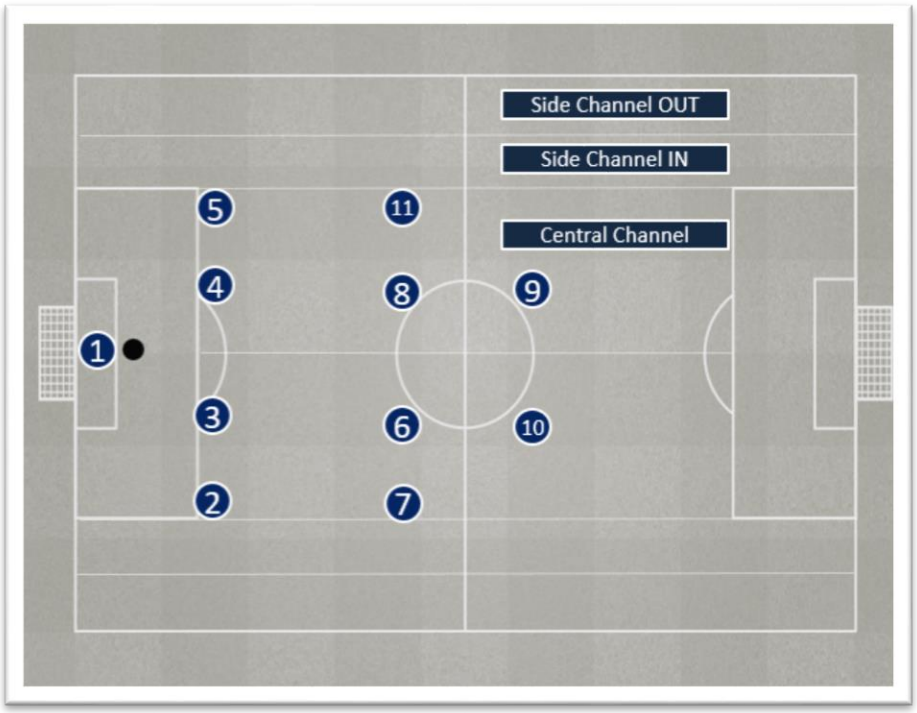
## COACH HUGO VICENTE'S MODEL OF PLAY

The following is the Model of Play used by coach Hugo Vicente with an Under 14 team in Norway. This Model of Play was constructed following various interviews and discussions held with coach Hugo. The transition phases were not covered because the emphasis in this developmental project was possession.

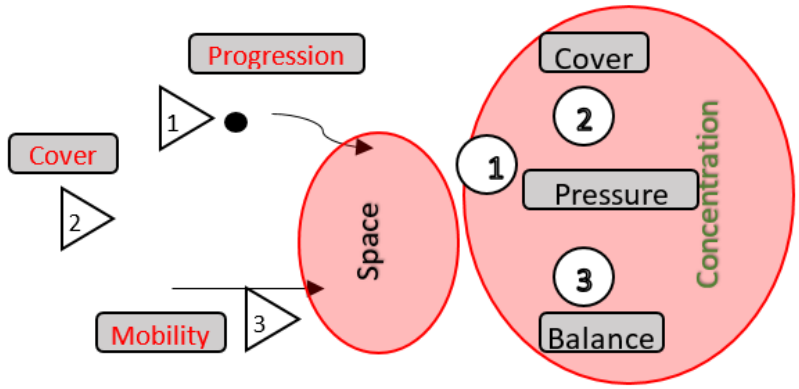
Only general transition principles were applied at this stage. In attacking, transition wingers and forwards needed to create width and depth immediately, unless the ball was recovered in the final third, and in which case the players needed to decide if they should go straight to a finishing situation or otherwise keep possession. In the defending transition, the main principles were that of applying immediate pressure and that of organising the defensive lines behind the pressure point.

Four matrices, one for the principles in attacking, one for the principles in defending, one for defending individual principles and one for the defending trigger points were created. The matrices include the general, sub, sub-sub and individual principles. They also include the ikonic representation and the verbal cues as the symbolic representations of the coach. The matrices show how the content developed. The black text is what emerged immediately from the first interview, while the red and blue text show the knowledge which has emerged following a number of discussions with the coach. These discussions were intended at understanding the coach's knowledge at a deeper level.

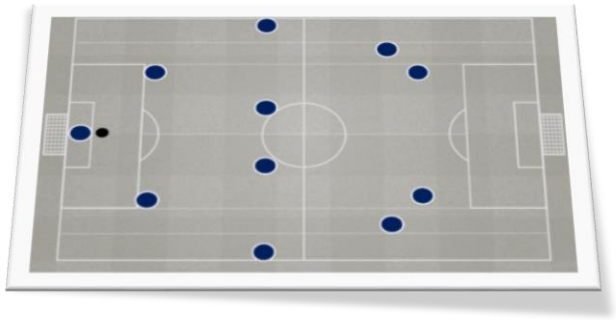
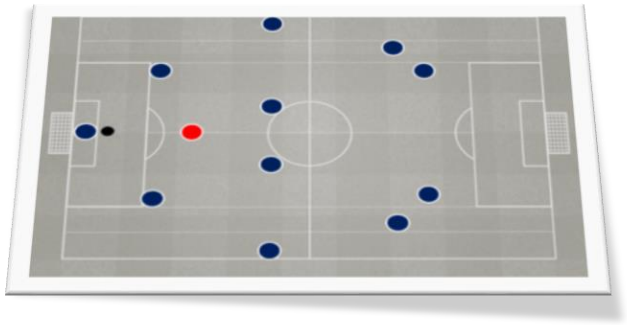
## Basic Formation

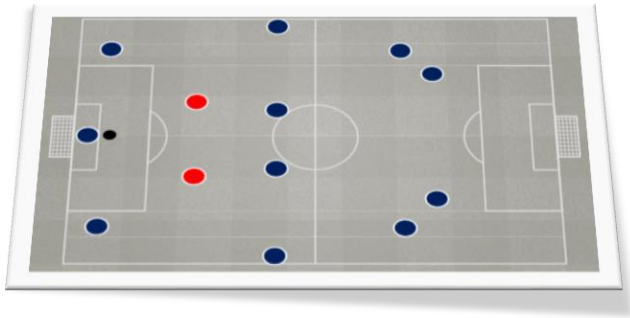
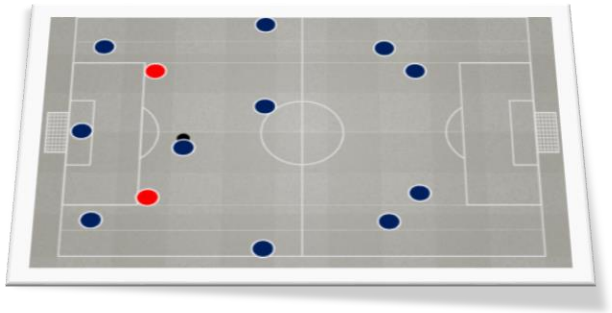



## Attacking Principles

| GENERAL GAME PRINCIPLES | | | |
|---|---|---|---|
| 1. Superiority near the ball in all zones<br>2. Avoid being in equal numbers<br>3. Avoid being outnumbered | | | |
| MOMENT OF THE GAME | | | |
| Attack | | | |
| SPECIFIC PRINCIPLES for each MOMENT | | | |
| 1 Progression | 2 Covering | 3 Mobility | 4 Space |
|  | | | |

## Phase 1 – Build-Up

<table>
<tr><td colspan="3">PRINCIPLES OF PLAY</td><td></td><td>Ikonic Representation</td><td>Symbolic representation</td></tr>
<tr><td>GENERAL PRINCIPLES</td><td>SUB-PRINCIPLE<br>How?</td><td>SUB-SUB-PRINCIPLE<br>How/What/Who/ When/Where?</td><td>INDIVIDUAL PRINCIPLES</td><td>Visualise-it & demonstrate-it</td><td>Verbalise-it</td></tr>
<tr><td colspan="3">Phase 1 – Build-up<br>Linking the Goalkeeper to the Defence Line</td><td></td><td>Coaching diagram / On pitch demonstration</td><td>Coaching Cue</td></tr>
<tr><td rowspan="2">Play short to ensure progression with ball control.</td><td rowspan="2">1. Create Superiority.<br><br>2. Keep as many players as possible in opponent’s structure.<br><br>3. Occupy space (Width and Depth).</td><td>Create 3 different horizontal lines – 2 CB, 2 MF, 4 ATT.</td><td></td><td>  </td><td>Open the pitch</td></tr>
<tr><td>If CBs are pressed by one opponent, the game general principle of ‘superiority’ (1) is served, hence we keep the same sub-sub-principle.</td><td>1. CB’s need to receive the ball, facing forward.<br><br>2. If not facing forward CB should not risk a turn.</td><td>  </td><td>Game Play<br>Superiority – play on<br><br>Individual<br>Receive Open body Oriented reception<br>Men ‘on’ – pass back<br>Alone – turn</td></tr>
</table>

| | | | | | |
|---|---|---|---|---|---|
| | | If CBs pressed by two opponents, superiority is still achieved, when considering the GP (3v2), so CBs f guarantee space to receive the ball in a comfortable situation. | 1. Understand position of opponents: do we stay in the position or shall we go wider? |  | Game Play<br>*Equal – create space to receive* |
| | | If not comfortable to play the ball, CB's can drop lower and receive the ball if not pressured. | 2. Understand position of opponents: do we need to go wider and lower? | | Game Play<br>*Equal – drop to receive* |
| | | If CB's cannot receive, space would have been created for a CM to join in and receive the ball. | 1 CM should receive facing forward.<br><br>2 If not facing forward CM should not risk a turn.<br><br>3 If possible receive the ball in front of the opponent's first defensive line. |  | Game Play<br>*High Press – 6 in / drop to receive* |

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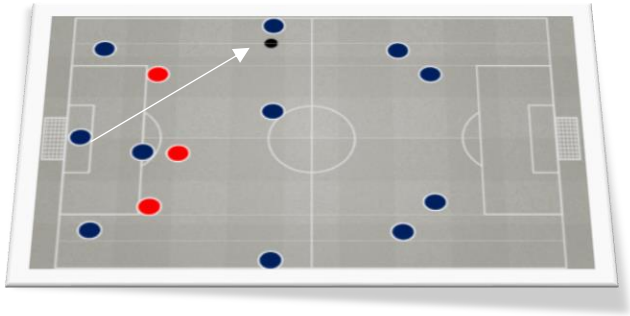
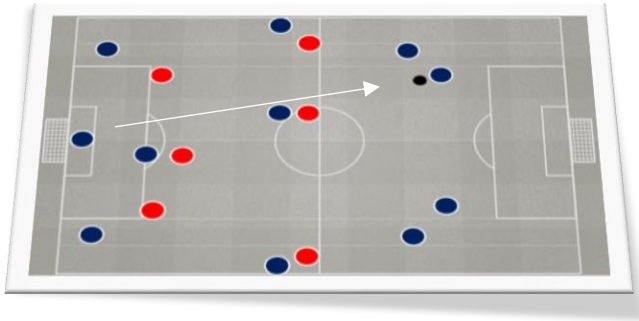
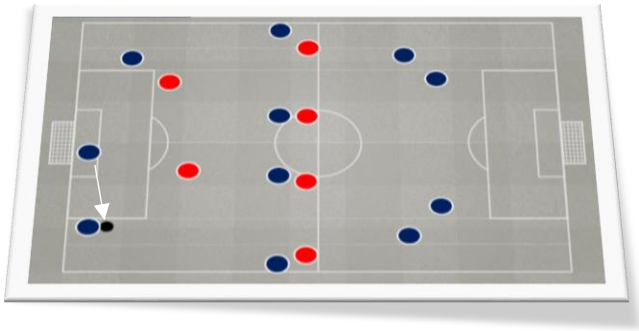
|---|---|---|---|---|---|
| | | If CM is coach Marked by an opponent's midfielder, he shall drop lower to create space for a FB or another CM to receive the ball. | If opponent makes aggressive coach Marking, drag him to one side to create space somewhere else.<br><br>Don't risk receiving and turning. |  | Game Play<br>*No Space – Play out* |
| | | If none of the above option is possible, the GK should play on the forward line. | GK makes decision: close the team and make a long pass with team organized or use the bad position of the opponent and explore that with a long pass. |  | Game Play<br>*No Space – Long it*<br>*Attack the 2nd Ball* |

| | | | | | |
|---|---|---|---|---|---|
| | | **Variation 1**<br>Faking goal kick by CB and create an option for GK to pass to CB. | Communication between CB and GK to define the action.<br><br>Quickly after the play was successful, create passing options to the men on the ball (same as in normal lay with ball on CB). |  <br>  | A name for the variation would help the team to synchronise.<br><br>**Goal kick variation 1:**<br>play short |

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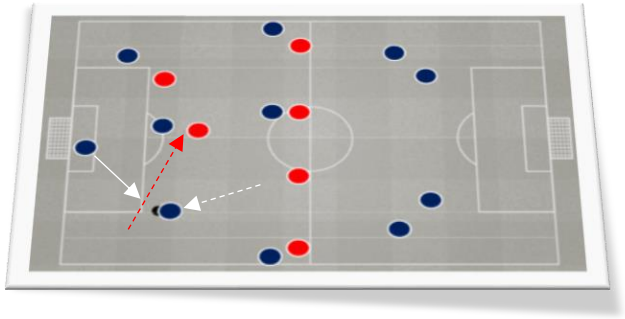
| | | **Variation 2:** If ball is placed in line with the goal post, the CB on that same side runs inside the centre channel to leave space for the CM to drop to pick up the ball in the side channel. | Attention to body position of CM when he drops: face the goal.<br><br>Communication of GK to the CM informing if he is alone or under pressure. |  <br>  | **Goal kick play short variation 2:**<br>drop CM |

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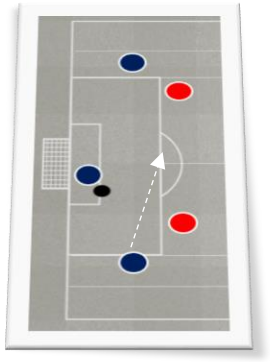
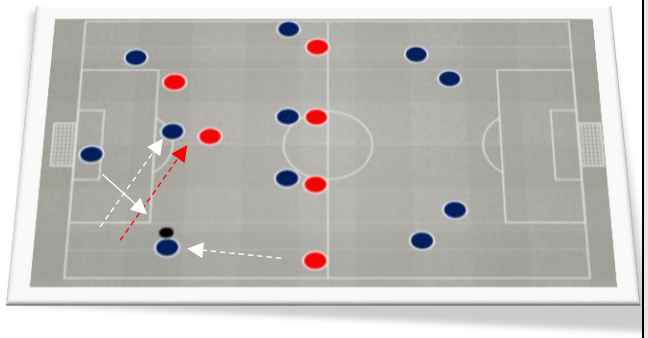
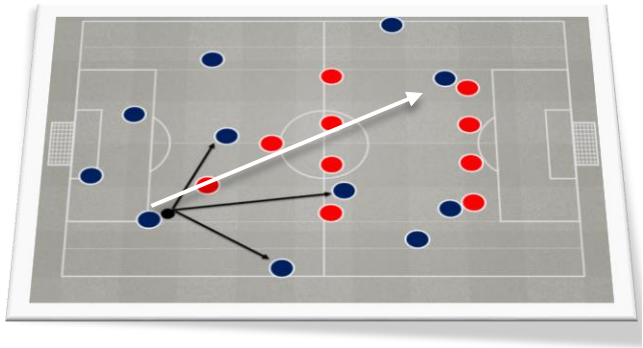
| | | **Variation 3:** If ball is placed in the corner of 5m box, the CB on that same side runs inside the centre channel to leave space for the FB of that side to drop to pick up the ball in the side channel. | Attention to body position of FB when he drops: face the goal.<br><br>Communication of GK to the FB informing if he is alone or under pressure. |  <br>  | **Goal kick play short variation 2:**<br>drop FB |

## Phase 2 – Building Up

<table>
<tr><td colspan="3">PRINCIPLES OF PLAY</td><td></td><td>Ikonic Representation</td><td>Symbolic representation</td></tr>
<tr><td>GENERAL PRINCIPLES</td><td>SUB-PRINCIPLE<br>How?</td><td>SUB-SUB-PRINCIPLE<br>How/What/Who/ When/Where?</td><td>INDIVIDUAL PRINCIPLES</td><td>Visualise-it & demonstrate-it</td><td>Verbalise-it</td></tr>
<tr><td colspan="3">Phase 2 – Build-up<br>Linking the Defence Line with the Midfield Line</td><td></td><td>Coaching diagram / On pitch demonstration</td><td>Coaching Cue</td></tr>
<tr><td rowspan="2">Connect with / release the CM’s.</td><td rowspan="2">1. Link play with the CMs inside the opponent’s structure.<br><br>2. Play inside to create space outside.<br><br>3. Move forward when gaps are available.</td><td>If the CB has the ball, he should try to connect with / release the CM if possible.<br><br>Create a diamond shape near the ball to provide passing options in several directions to the CB with the ball. This should be achieved by the CM opposite to him dropping to the space between lines.</td><td></td><td rowspan="2">  </td><td>Create options; show yourself; play in space</td></tr>
<tr><td>If that (1) is not an option, look for the other options (Sub-principle 7).<br><br>Player with the ball should find the best option based on the situation he is facing.</td><td></td><td></td></tr>
</table>

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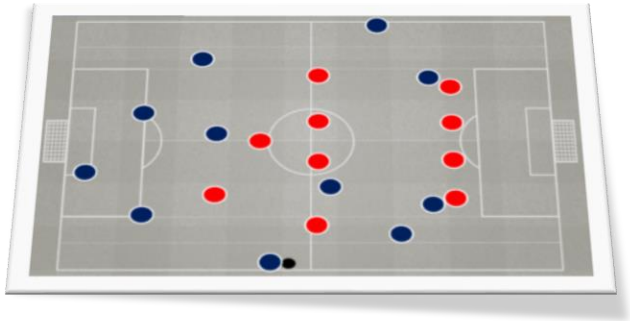
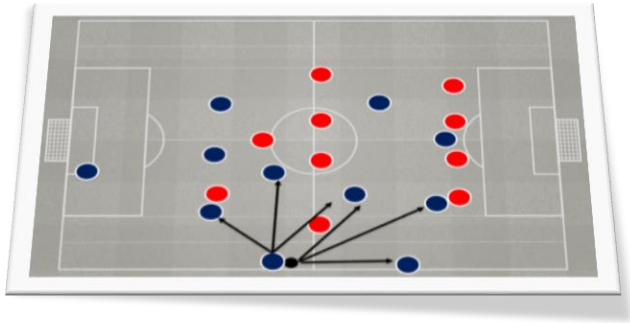
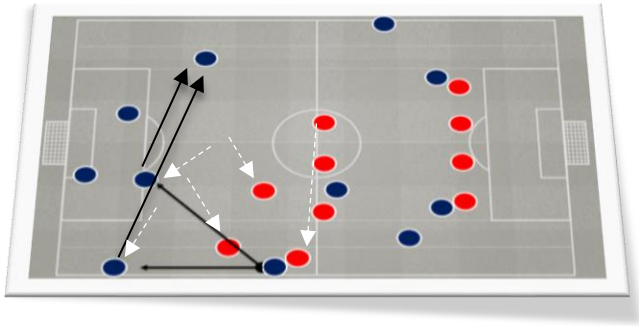
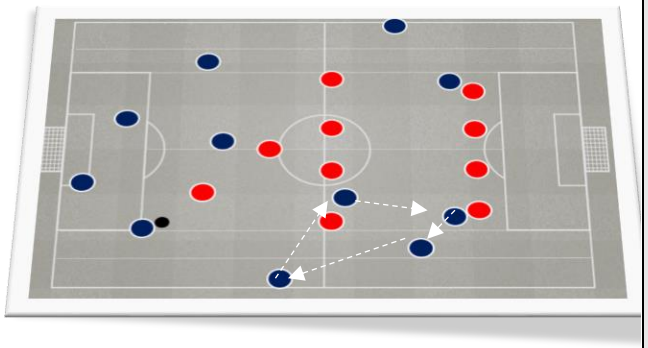
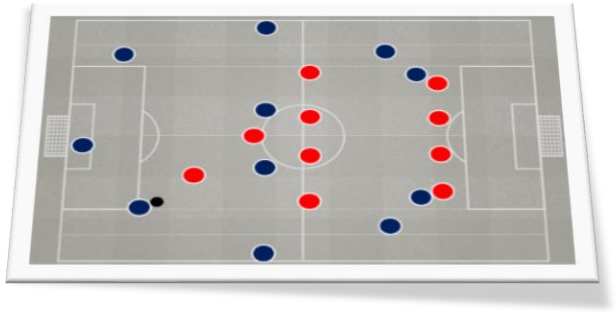
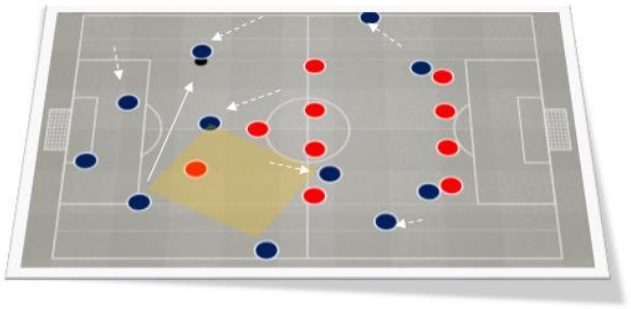
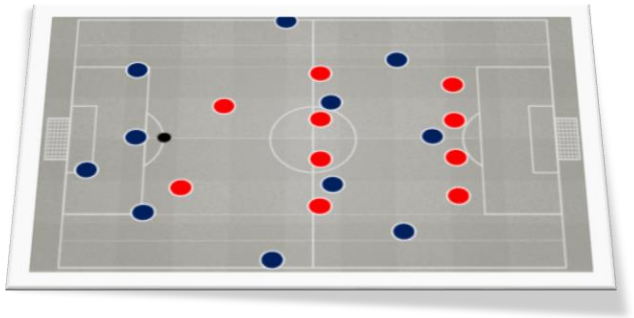
|---|---|---|---|---|---|
| | | *The "best option based on our principles" is a forward pass to the CM in front, or to the CM that dropped down – to be able to play in the centre channel and inside the opponent's structure. But these are principles, not MUST DO actions for the players. They must see and identify if what is the 'best option based on our principles" is the best option in that specific moment/situation.* | | | |
| | | If progressing on the centre channel is not possible the player should look at both side channels and decide whether to progress with a short pass to the nearest channel or switch play to the opposite channel.<br><br>If progressing on the centre channel is not | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | possible he should look at both side channels and decide whether to progress with a short pass to the nearest channel or to switch play to the opposite channel.<br><br>**Variation 1:** A long pass to the winger on the opposite side might be a good option.<br><br>If none of these options is available and the player is under pressure and in imminent danger to lose the ball, he shall then avoid losing it near our goal and try a long pass to the WG or FW of the opposite side. | | | |
| | 4. create space Play outside to inside.<br><br>5. Create constant superiority through mobility. | When the FB receives the ball, the team must provide passing lines.<br><br>As soon as the ball reaches the FB the players around must create a diamond | | | |

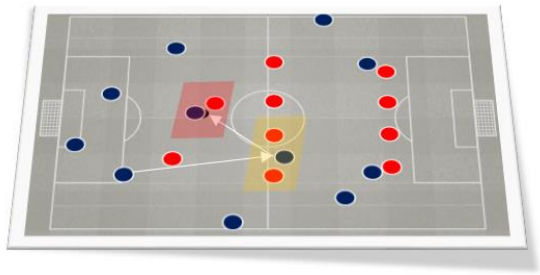
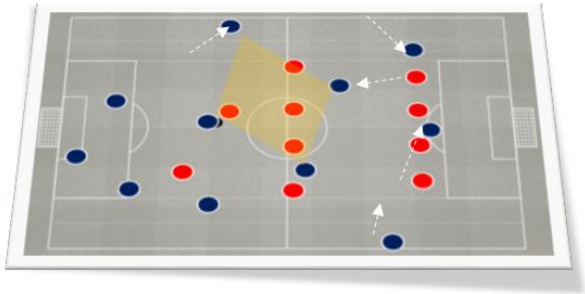
| | | | | | |
|---|---|---|---|---|---|
| | | shape/triangle to create passing lines. | |  | |
| | | Covering direction – passes to a supporting position behind us.<br><br>As main priority the team should use the outside pass to force the opponent to slide and create gaps inside that can be explored by a pass to the centre channel in progression, or using a covering pass to the CB that will now – if space was created – be able to find a pass inside the opponent structure (go back to the previous step) | |  | Create options; show yourself, see where space is to play. |
| | | Progression direction – passes towards options that take us forward. | | | |

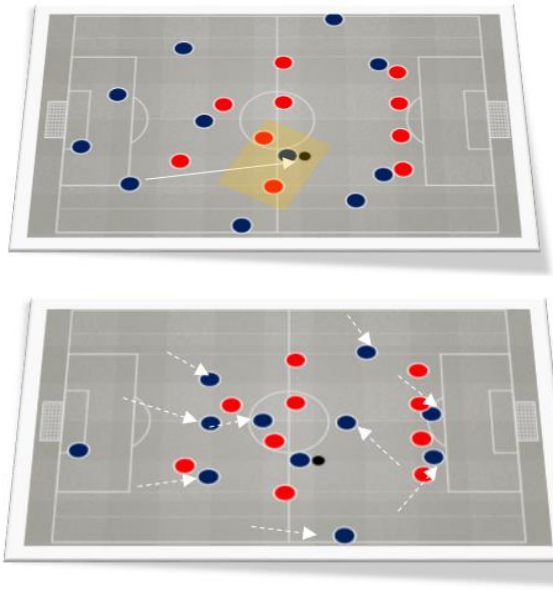
| | | | | | |
|---|---|---|---|---|---|
| | | If the progression pass to the WG is available, that can also be a priority since it will allow the team to establish higher on the pitch and enter in the next phase – but not on the centre channel as we prefer. | | | |
| | | **If FB is being pressed:**<br><br>1. Pass to him to attract opponents to him.<br><br>2. Create covering passing opportunities.<br><br>3. Switch play immediately. | |  | Game Play<br>*Covering*<br><br>Speed on the ball, show yourself, create options, where is space to play? |

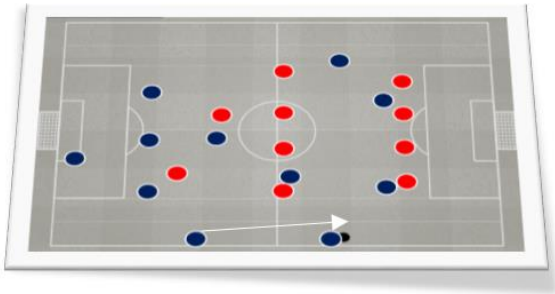
| | | | | | |
|---|---|---|---|---|---|
| | | 4. Make a positional switch with CM, ST, LM.<br><br>The idea is to remove the pressing reference player out of position.<br><br>5. When doing the shift, FB should run in front of closest opponent, to block possible pressure and create space for LM to receive the ball in 2/5 position. | |  | Show yourself, create options, where is space to play? |
| | 6. Move the ball to create gaps in opponent's structure.<br><br>7. Skip stages in the switch play whenever possible. | When the ball is at the CB, and there is no option for progression on the side of the ball, switch play by skipping stages. | |  | Speed on the ball, passing quality |
| | | Do not use the other CB if a pass to the opposite FB is possible. | | | |
| | | GK and CB need to take a covering position. | | | |
| | | The opposite FB needs to give a wide | | | |

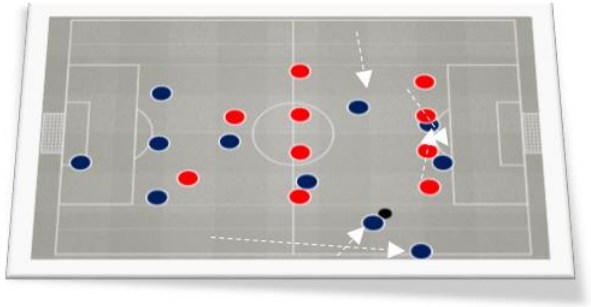
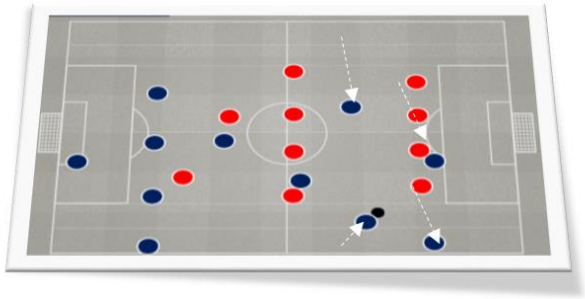
| | | | | | |
|---|---|---|---|---|---|
| | | option in the Side Channel IN. | |  | |
| | | CM's will create the diamond shape. | | | |
| | | On side LM to create depth and superiority | | | |
| | | Opposite side LM to create width and get forgotten. | | | |
| | | ST's to create space. | | | |
| | 8. Be patient – Use GK if need be – don't lose the ball | If CM must drop in the defence line to pick up the ball, then the team needs to take a 3-4-4 formation.<br><br>Follow the same principles of creating diamond shapes around the ball. Create space to receive the ball. | |  | Create space to receive the ball, show yourself |
| | | ST needs to replace the missing midfielder. | | | |
| | | LMs need to get close to the centre to support the isolated ST. | | | |
| | | FBs need to play deep and wide to create space and progression. | | | |

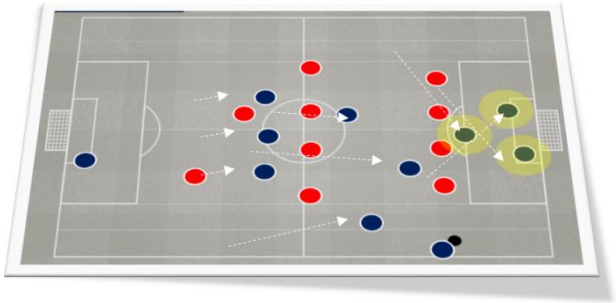
## Phase 3 – Creation Phase

| PRINCIPLES OF PLAY | | | | Ikonic Representation | Symbolic representation |
|---|---|---|---|---|---|
| GENERAL PRINCIPLES | SUB-PRINCIPLE How? | SUB-SUB-PRINCIPLE How/What/Who/ When/Where? | INDIVIDUAL PRINCIPLES | Visualise-it & demonstrate-it | Verbalise-it |
| Phase 3 – Creation Phase<br>Linking the Midfielders to the Strikers | | | | Coaching diagram / On pitch demonstration | Coaching Cue |
| Create goal scoring opportunities. | 1. Be patient – do not lose the ball, but risk to attack. | If CM receives ball in the opponent's half, but still facing own goal, he should look for a 'supporting' pass if turning is not 100% safe. | |  | |
| | | FB on the side of the pass moves to side channel in. | **Create space** |  | Game Play<br>*Diamond Shape*<br>*In between the lines* |
| | | FB on the opposite side moves to side channel out. | **Create space** | | |
| | | If FB is in side channel out first 1/3, LM moves to side channel in, final 1/3. | **Create space** | | |
| | | If LM moves to side channel in, the other LM moves to side channel out. | **Create space** | | |

| | | | | | |
|---|---|---|---|---|---|
| | | Striker comes, 1 striker goes – 1 comes to a no 10 position, 1 goes to a no 9 position. | **Create space** | | |
| | 2. Released CM's in opponent's structure triggers progression.<br><br>3. Released CM's in opponent's structure triggers possession. | *As soon as the CM receives the ball in the opponent's structure, facing the opponent's goal*<br><br>1. STs provide different options:<br>i. ST opposite to the ball runs across into backdrop<br>ii. ST on ball side moves to 10 position, to give a passing option (and create the diamond option for passing, and to create space for the winger and other to go in that space<br><br>2. Opposite LM moves from 'side | |  | |

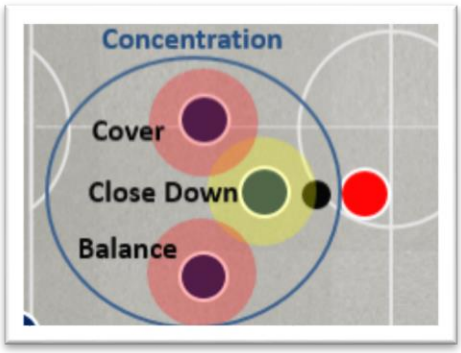
| | | | | | |
|---|---|---|---|---|---|
| | | channel out' to 'side channel in'.<br><br>3. Same side LM moves from 'side channel out' to 9 position.<br><br>4. Same side FB makes progression to provide width.<br><br>5. The opposite FB, 2 CB and CM progress to offer supporting position. | | | |
| | 4. Create constant superiority movements to create gaps.<br><br>5. Use the side channels to create 2v1 superiority. | ***If FB has the ball in a progressive position***<br>1. LM should provide an angle to receive the pass in a wide position;<br>2. FB should pass to the LM, especially if he has space to attack;<br>3. LM should attack space (progression) with the ball – goal direction; | |  | |

| | | | | | |
|---|---|---|---|---|---|
| | | 4. The space left on the flank should be used by FB. | |  | |
| | | ***If FB cannot join attack:***<br>1. ST on the side of the ball should use width;<br>2. ST on the other side should move to position 9;<br>3. Opposite LM should offer a number 10 position. | |  | Game Play<br>*Create Space - Be Wide* |

| | | | | | |
|---|---|---|---|---|---|
| | 6. Search for the through passes in between the defenders. | ***If LM receives the ball in a 'crossing' position:***<br>a. STs should run to position 1 and 2;<br>b. Opposite LM should run to position 3;<br>c. CM's shall progress to support;<br>d. FB should progress to offer support too;<br>e. CM's and opposite FB should progress to offer cover. | |  | Game Play<br>*Attack backroom*<br><br>Individual<br>*Run between defenders*<br>*Don't wait for the pass* |
| | 7. Make long range shots. | | | | |
| | 8. Skip stages in switch play when possible. | | | | |
| | 9. Connect with the Strikers behind the defence line. | | | | |

## Defending Principles

In the first defensive moment our team creates ***pressure zone traps*** for the opponents to know where and at what time we should be aggressive to win the ball. The moment that opponents manage to escape the pressure zone trap and progress, will be our second defensive moment. The third defensive moment is the defending of crosses and to limit and/or defend through passes, as for coach Hugo, the defending principles applied in the second defensive moment apply to defending in the big box as well. This model of play is based on the culture of the club that the coach is working in.

<table>
<tr><td colspan="4">GENERAL GAME PRINCIPLES</td></tr>
<tr><td colspan="4">1. Superiority near the ball in all zones<br>2. Avoid being in equal numbers<br>3. Avoid being outnumbered</td></tr>
<tr><td colspan="4">MOMENT OF THE GAME</td></tr>
<tr><td colspan="4">Defence</td></tr>
<tr><td colspan="4">SPECIFIC PRINCIPLES for each MOMENT</td></tr>
<tr><td>1<br>Closing Down</td><td>2<br>Covering</td><td>3<br>Balance</td><td>4 Concentration<br>(Several players in the key zones and > 1 defensive line behind ball)</td></tr>
<tr><td colspan="4"> 
</td></tr>
</table>

The defensive moment is divided in three phases, however within some of the phases there are different choices that lead to different behaviours.

<table>
<tr><td colspan="3">PHASE 1<br>1st Defensive Moment<br>Until Pressure Zone Traps are still applicable</td></tr>
<tr><td>Option 1: Opponent plays direct</td><td>Option 2: Opponent Build up Play from the back</td><td>Option 3: Opponent can do both option 1 and 2</td></tr>
<tr><td colspan="3">General Principles</td></tr>
<tr><td>Defend Low or Middle – Depending on GK Kick<br>The Striker is in the Mid Circle on own side</td><td>Defend High<br>The Striker is in the beginning of final third</td><td>Defend at Mid line<br>The Striker is in the Mid Line</td></tr>
<tr><td colspan="3">PHASE 2<br>2nd Defensive Moment<br>Any moment when opponents would have beaten the Pressure Zone Traps.<br>To keep the balance of the team to deny opponents from playing centrally, and trying to get them play back to Phase 1</td></tr>
</table>

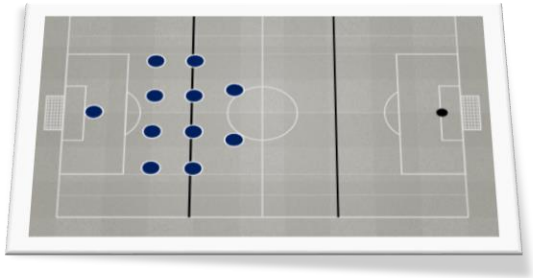
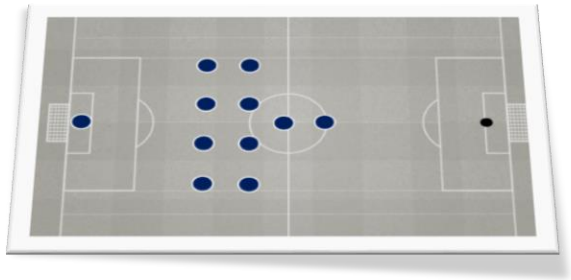
**PHASE 3**
3rd Defensive Moment
Defending Crossing **& Through Passes**

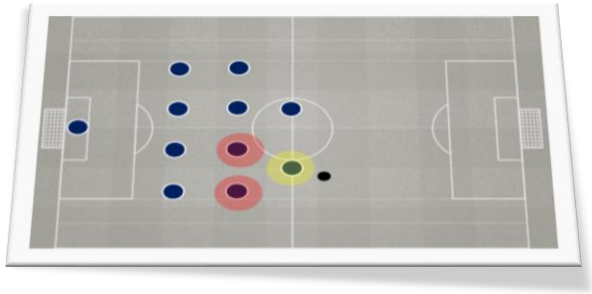
## PRESSURE ZONE TRAPS

Pressure Zone Traps (PZT) are set to force the opponent into playing within their weaknesses. The moment that the ball gets into the Pressure Zone Trap, that serves as the trigger for our team to defend as per the principles of defending.

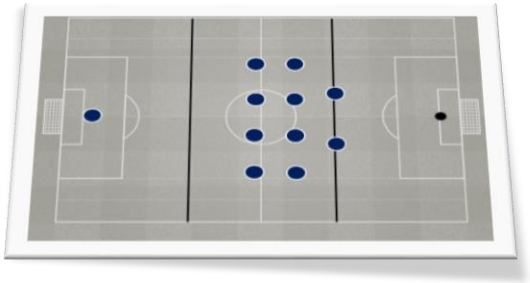
| **Pressure Zone Trap 1** | **Pressure Zone Trap 2** | **Pressure Zone Trap 3** |
|---|---|---|
| On LB/RB | ON any of the CB's | ON CM/HM |

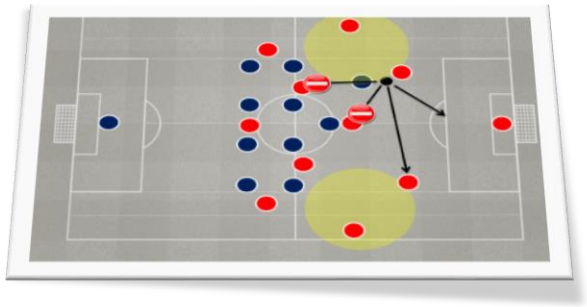
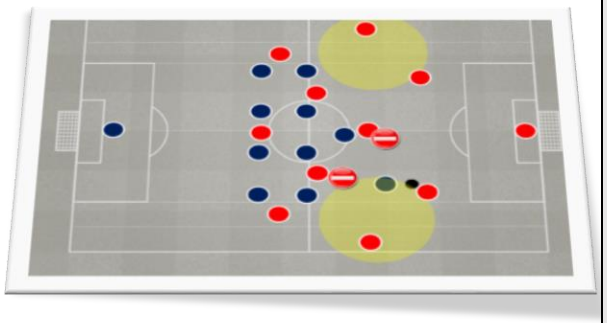
## Defending – Phase 1 – Until Pressure Zone Traps

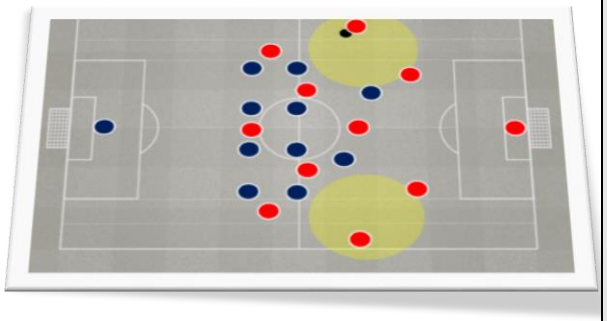
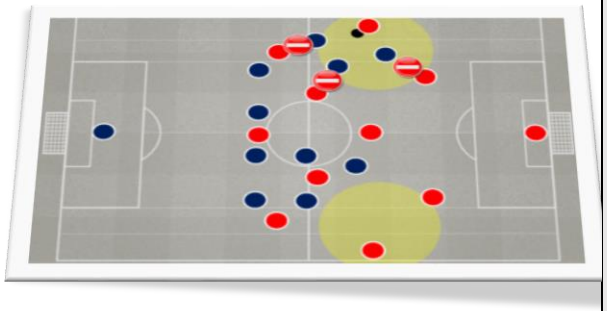
| PRINCIPLES OF PLAY | | | | Ikonic Representation | Symbolic representation |
|---|---|---|---|---|---|
| GENERAL PRINCIPLES | SUB-PRINCIPLE How? | SUB-SUB-PRINCIPLE How/What/Who/ When/Where? | INDIVIDUAL PRINCIPLES | Visualise-it & demonstrate-it | Verbalise-it |
| **Phase 1 – 1st Defensive Moment** When the opponent is building attack and is not beyond our defined pressure line or pressure-zone traps | | | | Coaching diagram / On pitch demonstration | Coaching Cue |
| **EITHER – Strategy 1** Against an opponent with a direct style of play defend low. | | | | | |
| Defend Low | Wait in own half. | Defenders with box circle. | Zonal Defence<br>1. Ball<br>2. Teammate<br>3. Space<br>4. Opponent<br><br>4 D's<br>1. Delay<br>2. Denie<br>3. Deflect<br>4. Defend |  | *First 3rd – Defend Low* |
| | | Strikers at lower mid circle. | | | |
| | Create concentration in the 'expected' area of the ball. | Horizontal lines with 10m in between. | | | *Compact* |
| | | Vertical lines close to each other. | | | 6-10m between vertical and horizontal lines (players in between the lines like CDM stays in between) |
| | | Horizontally shift towards ball together. | |  | |
| | Allow them to build up. | No high pressure. | | | *Let them play* |
| | | Leave no space behind defence line. | | | *Watch the backroom* |
| | | Double upon or defend in front of an identified target player (ex ST). | | | |
| | | Leave no space in between lines for penetrating passes. | | | |

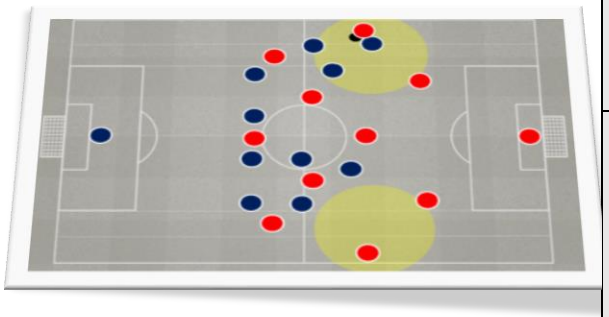
| | | | | | |
|---|---|---|---|---|---|
| Guide into Pressure Zone Trap | Crowd their strong area, to force them into weak area. | ST close CD's strong side. | **Give side**<br><br>**Press to Delay** |  | |
| | | Midfielder crowd opponent's strong area. | | | |
| | | Midfielder close the lines to target, to force distribution to weak point / PZT. | | | |
| | | Defenders offer cover and close behind your back. | | | |
| | Show their weak area as a valid option. | Striker, when opponent is moving towards PZT, put pressure from behind to force pass into PZT. | **Fake it**<br><br>**Press to Delay** | | |
| | | Striker, when ball goes into PZT, one pressures the support pass, one covers in between midfielders. | **Press to recover possession** | | |
| | | Midfielder (you are covered) allow pass into PZT. Do not allow ball to get in between you, unless into PZT. | **Press to Deny** | | |
| | | Defenders assure cover for mistake, close your back, do not allow direct play. | **Press to Deny** | | |

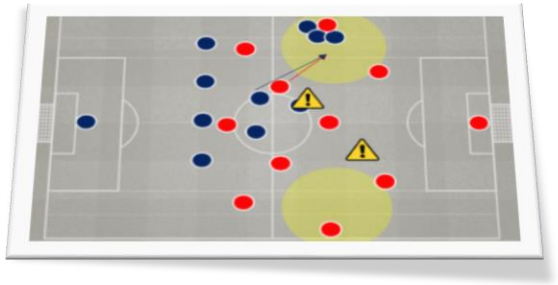
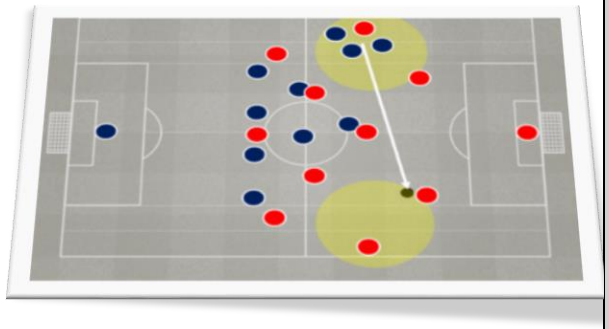
| | | | | | |
|---|---|---|---|---|---|
| **TRIGGER PZT**<br><br>Attack opponents once in Pressure Zone Trap. | The trigger is the moment when the ball is going towards the 'pressure zone trap'. | Closest three players need to put pressure on the ball as soon as they are in the 'pressure zone trap'. | Closest to the ball close, next two players create cover. | | Concentration = Close, Cover, Balance |
| | | Aggressiveness and Create Superiority. | All players between ball and goal, and lines close to each other. | | |
| | | 1st defender **should NOT** leave his zonal defence position to put pressure if ball is not in PZT. | | | |
| **IF OPPONENT IS OUT OF PZT** | RE ORGANISE. | 1. Defensive Block Drops Down. | | | |
| | | 2. Re apply pressure to ball. | | | |
| | | 3. Re organise strategy. | | | |
| **OR – Strategy 2**<br>Against an opponent with a style that encourages build up from the back | | | | | |
| Defend High | Move in opponent's half. | ST, MF, D shall move in opponent's half pitch. | **Zonal Pressure (positioning references)**<br>1. Ball<br>2. Teammate<br>3. Space<br>4. Opponent<br><br>Player in between the lines (ex. | | *Final 3rd – Defend High* |
| | Limit opponent's build up. | All players must put pressure as early as possible, aiming at pushing opponent into the 'pressure zone trap'. | | | |

<table>
<tr><td rowspan="2"></td><td>Create Concentration.</td><td>Push all lines close to each other vertically and shift to stay close horizontally.</td><td rowspan="2">CDM in a 4-1-4-1) covers space in line with ST<br><br>4 D’s<br>1. Delay<br>2. Deny<br>3. Deflect<br>4. Defend (in PZT)</td><td rowspan="2">  <br>  </td><td>6-10m</td></tr>
<tr><td>Allow them to play long.</td><td>Stay close to midfielders and allow space behind you for a long ball.</td><td></td></tr>
<tr><td rowspan="4">Guide into Pressure Zone Trap.</td><td rowspan="4">Crowd their strong area, to force them into weak area.</td><td>Strikers close opponent’s strong area and guide ball player towards PZT.</td><td rowspan="2">Press to Delay<br>Face ball and opponent’s weak area.</td><td rowspan="4"></td><td rowspan="4">Close and go!</td></tr>
<tr><td>Midfielder crowd opponent’s strong area.</td></tr>
<tr><td>Midfielder close option for penetration pass and force distribution to weak point.</td><td rowspan="2">Press to Deny<br>Stay close to teammate and do not allow pass in between, unless towards PZT.</td></tr>
<tr><td>Defenders stay close to midfielders</td></tr>
</table>

| | | | | | |
|---|---|---|---|---|---|
| | | to close option for penetration pass and allow long ball behind them. | |   | |
| | Show their weak area as a valid option. | Striker, when opponent is moving towards PZT, put pressure from behind to force pass into PZT. | **Press to Deny** | | |
| | | Striker, when ball goes into PZT, one pressures the support pass, one covers in between midfielders | | | |
| | | Midfielder (you are covered) allow pass into PZT. Do not allow ball to get in between you, unless into PZT. | | | |
| | | Defenders assure cover for mistake, do not allow easy pass to target in between midfielders, but allow pass behind (be ready for it of course). | | | |
| **TRIGGER PZT** | 1st defender **should NOT** leave his zonal defence position to put pressure if ball is not in PZT. | | | | |
| | IF BALL IS IN PZT and our team is in Superiority then: | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Attack opponents once in Pressure Zone Trap. | The trigger is the moment when the ball is going towards the 'pressure zone trap'.<br><br>- Strategy -<br>This may change according to opponent's weaknesses in senior soccer. | Aggressiveness and Create Superiority. | Closest three players need to put pressure on the ball as soon as they are in the 'pressure zone trap'. |  | |
| | | Pressure to Deny pass.<br><br>Ball-Teammate-Space-Opponent. | 1. They approach ball in a way that they deny passing options. |  | |
| | | Pressure to Deflect / Defend.<br><br>Ball-Teammate-Space-Opponent. | 1. First pressure from 'forward player' to limit support pass and put pressure on ball player. | | Press to deny |

| | | | | | |
|---|---|---|---|---|---|
| | | | 2. Second player puts pressure while 3rd covers. |  | Press to delay |
| | | | 3rd player puts pressure to win (Defend) ball. | | Press to win |
| | | Shifting to Cover.<br><br>Ball-Teammate-Space-Opponent. | Midfielders shift to cover the pressured ball, Defenders shift to cover too. |  | Cover |

| | | | | | |
|---|---|---|---|---|---|
| **If an opponent moves close to give an option.** | 4th defender may use zonal coach Marking. | Ball-Teammate—Opponent- Space | 4th defender. |  | Press to Cover - |
| **IF OPPONENT IS OUT OF PZT.** | RE ORGANISE. | 1. Defensive Block Drops Down. | Open ball / closed ball?<br><br>All players behind the ball. |  | |

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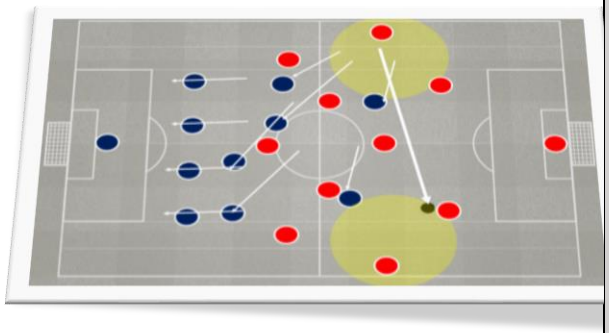
|---|---|---|---|---|---|
| | | | |  | |
| | | 2. Re apply pressure to ball. | Apply Phase 2. | | |
| | | 3. Re organise strategy. | | | |
| **OR – Strategy 3**<br>Against an opponent able to build up or play direct | | | | | |
| Defend at middle pressure. | Go to General Principle 1 or 2 depending on the moment. | | **Zonal Defence*** | | *Second3rd – Middle* |
| | | | | | |

*** Strategy 1/2/3 –** These are choices done by the specific coach, and so other coaches may have totally different strategies in these situations. Also, the coach specifies that in Strategy 3, he decides to stay at medium pressure to encourage opponents to build up as he has problem with 50/50 at the back, with his team not being strong in areal duels.

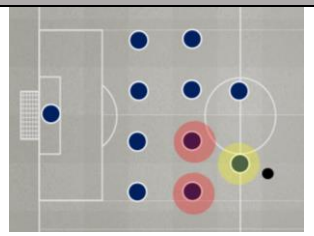
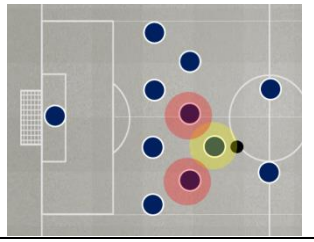
### Defending – Shifting Play

Following one of the final validation processes with coach Hugo, he clarified that when the team needs to shift or slide, the team follows the defensive line zone concepts: 1st defender pressures the ball to the outside of the pitch (if in superiority pressure can be towards the covering player), 2nd player covers, 3rd and 4th player cover the 2nd defender, to draw a defensive line, sliding to avoid space in between.

The coach also specifies that in some games there could be specific adaptations/tasks that can be different, based on opponents' behaviours. An example would be a different location for pressing zones.

## Defending – Phase 2 – Beyond Pressure Zone Traps

| PRINCIPLES OF PLAY | | | | Ikonic Representation | Symbolic representation |
|---|---|---|---|---|---|
| GENERAL PRINCIPLES | SUB-PRINCIPLE How? | SUB-SUB-PRINCIPLE How/What/Who/ When/Where? | INDIVIDUAL PRINCIPLES | Visualise-it & demonstrate-it | Verbalise-it |
| Phase 2 – 2nd Defensive Moment<br>When opponents are out of the Pressure Zone Trap, until they have a scoring chance. | | | | Coaching diagram / On pitch demonstration | Coaching Cue |
| Defend to **Delay** opponent and **Deny** Space | | | | | |
| 2 compact defence lines. | Get behind the ball. | All drop down once opponent is outside of PZT. | | | |
| | | OR all departments always stay behind the ball. | | | |
| | Midfield line to put pressure. | Closest midfielder puts pressure. | | | |
| | | Other midfielders shift to cover/balance. | | | |
| | Defensive line to create cover. | Closest defender closes down / pressure cover. | | | |
| | | Other defenders shift to offer 2nd line cover. | | | |
| | OR | **If only defensive line is behind the ball** | | | |
| | 1 defender puts pressure, others shift to cover. | | | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Creating Strong/Weak side | Trigger 1: **Ball.** | **Press to Delay** All defensive lines get closer to the ball, force opponents to play backward. | | | |
| | Trigger 2: **Teammates.** | Shift close to team mates. | | | |
| | | Sync movements with team mates. | | | |
| | Trigger 3: **Space.** | **Press to Deny** Close spaces – Press to Delay. | | | |
| | Trigger 4: **Opponent.** | Close opponent not to be an option. Triggers 1-3 limit opponent. | | | |
| | | | | | |
| Zone Defence Principles. | Create triangle near the ball. | Pressure Closest player to the ball. | Body positioning (Sign of the cross) - Ball - Goal - Opponent - Team mate |  | |
| | | Cover 2nd defender. | | | |
| | | 2nd Cover (Balance) 3rd defender. | |  | |

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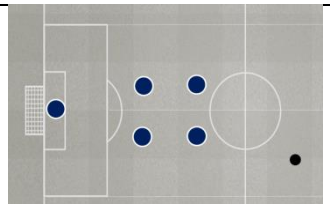
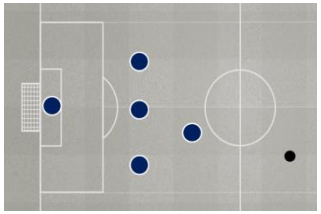
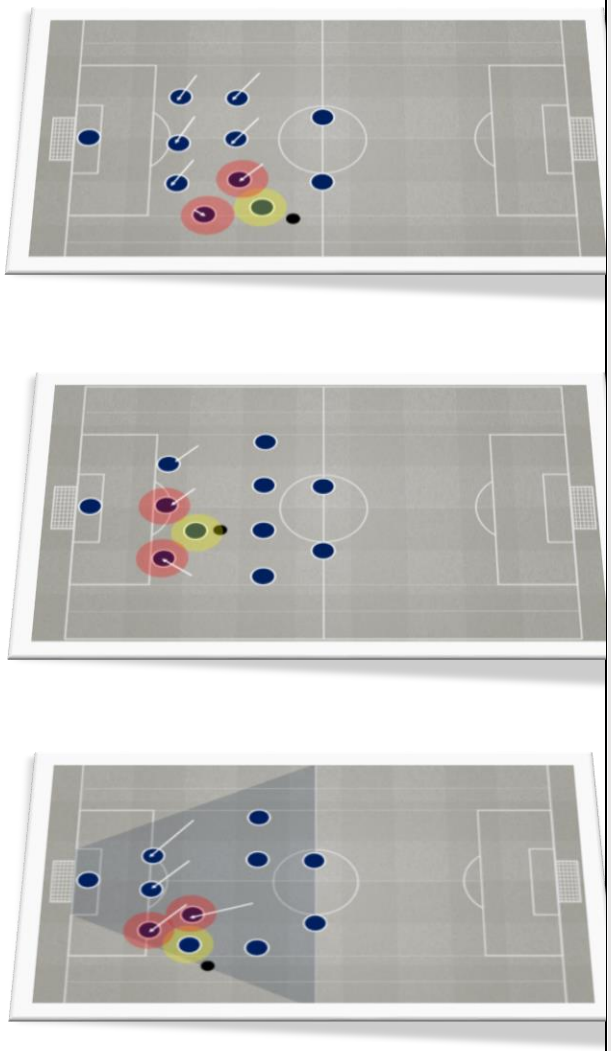
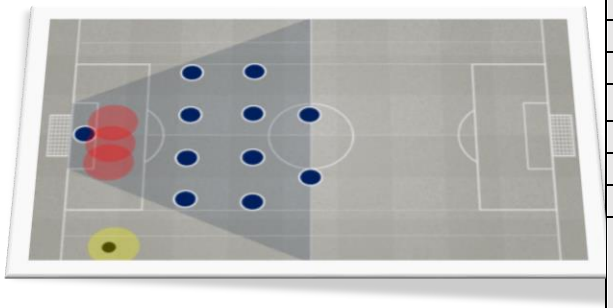
|---|---|---|---|---|---|
| | | | |  | |
| | Covering Defensive Lines. | Minimum of 2 defensive lines behind the ball.<br><br>*In the moment the defensive lines are 'together' they must engage in a dynamic movement up down and sideways. This movement depends on:*<br>*- the 1st defender:*<br>*- other line's movement*<br>*- ball movement* | |  <br>  | |

| | | | | | |
|---|---|---|---|---|---|
| | | *Individual focus on body position: always directed to the ball and foot never parallel.*<br><br>*Team slide creating a strong side and weak side.*<br><br>*Give priority to close spaces on the centre channel (opponent can lead to different strategies if they are too strong in the side channels).* | |  | |

| | | | | | |
|---|---|---|---|---|---|
| | Double Pressure. | Department/line in front of 1st, 2nd, 3rd defender. | | | |
| | 4th Defender. | **1. Ball**<br>**2. Teammates**<br>**3. Opponent**<br>**4. Space** | | | |
| Defend to **WIN** the ball | | | | | |
| Defend to Win **ONLY If covered And if these triggers are ON.** | Ball passed back. | | | | |
| | Closed ball. | | | | |
| | Bad first touch. | | | | |
| | Ball far from carrier. | | | | |
| | Ball not on the ground. | | | | |

## Defending – Phase 3 – Defending Crosses

| PRINCIPLES OF PLAY | | | | Ikonic Representation | Symbolic representation |
|---|---|---|---|---|---|
| GENERAL PRINCIPLES | SUB-PRINCIPLE How? | SUB-SUB-PRINCIPLE How/What/Who/ When/Where? | INDIVIDUAL PRINCIPLES | Visualise-it & demonstrate-it | Verbalise-it |
| Phase 3 – 3rd Defensive Moment Defending Crosses | | | | Coaching diagram / On pitch demonstration | Coaching Cue |
| Defend to **Delay** opponent and **Deny** Space | | | | | |
| Protect the Prime Target Area. | Always attack the ball starting from PTA coverage. | 1. Cover PTA (Prime Target Areas; Hughes & Franks, 2004).<br>2. Put pressure on ball. | |  | |
| | Apply Zone Defence Principles. | Trigger 1: **Ball.** | | | |
| | | Trigger 2: **Teammates.** | | | |
| | | Trigger 3: **Space.** | | | |
| | | Trigger 4: **Opponent.** | | | |
| | Ensure a line of 3, minimum 2, protecting the PTA. | | |  | |
| Limit Space to Play. | Align defensive line with the ball. | Pressure – to delay. | | | |
| | | Cover (Zone Cover). | | | |
| | | GK always covers behind the line of 3. | | | |

| | | | | | |
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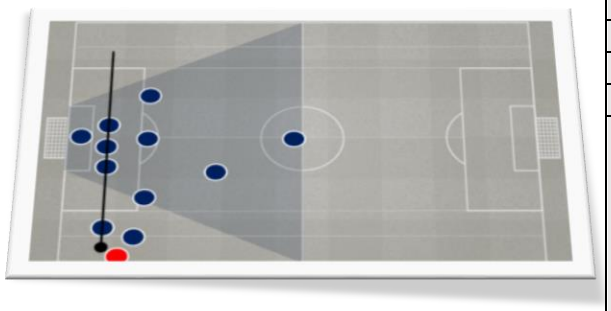
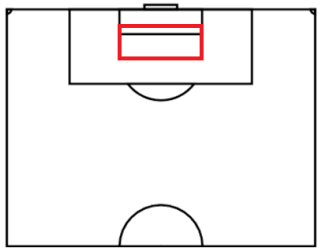
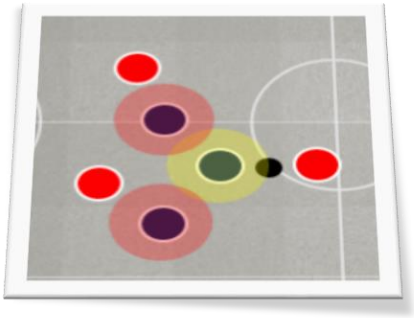
| Avoid being beaten on the side channels. | Defend to delay & deny when 1v1 | LB/RB - Delay, Deny. | |  | |
| | Cover. | CM Cover. | | | |
| | Defend to Win. | Double Pressure. | LW/RW + LB/RB Deflect / Defend. | | |

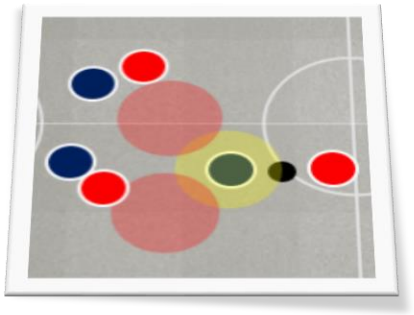


According to Mitrotasios and Armatas (2012) 42.1% of the goals scored in the European Football Championships in 2012 came from what Hughes and Franks (2004, p. 262) call the “prime target area”. This area was defined as the area that spans the length of the six-yard box and is between the penalty spot to within two yards inside the six-yard box. Hughes and Franks stated that about four goals in every five scored from crosses are hit from this area, while Carling, Williams and Reilly (2005) found that 37% of the goals in the 2002 World Cup, were scored from the same area.

## Defending Individual Principles

Zonal defending individual general principles can be applied in any defensive situation

| PRINCIPLES OF PLAY | | | | Ikonic Representation | Symbolic representation |
|---|---|---|---|---|---|
| GENERAL PRINCIPLES | SUB-PRINCIPLE How? | SUB-SUB-PRINCIPLE How/What/Who/ When/Where? | INDIVIDUAL PRINCIPLES | Visualise-it & demonstrate-it | Verbalise-it |
| Zonal Defence | | | | Coaching diagram / On pitch demonstration | Coaching Cue |
| **Zonal Defence Positioning Reference.** | **Zonal Defence or Zonal Pressure** Ball – Teammates – Space – Opponent.<br><br>* In Zonal Pressure the players apply the same concepts but with an idea of being more aggressive. | Positioning reference is first set by the **ball.** | **Pressure** by **first defender** to **close down / delay** the opponent from progression with the ball. |  | |
| | | Positioning reference is secondly set by **teammates.** | 2nd and 3rd defenders (and others) cover and balance / deny space depending on my teammate. | | |
| | | Positioning reference is secondly set by **space.** | 1. Pressure Lines<br>2. PZT<br>3. Horizontal gaps<br>4. Between lines<br><br>Close spaces or allow spaces deliberately. | | |
| | | Positioning reference is secondly set by **opponent.** | Opponent is closed by good reference to spaces. | | |

| | | | | | |
|---|---|---|---|---|---|
| | **Zonal coach Marking** Ball – Teammates- Opponent – Space. | Positioning reference is first set by the **ball.** | Pressure ball from opponent's strong side. |  | |
| | | Positioning reference is secondly set by **teammates.** | Pressure – Cover – Balance with team mate. | | |
| | | Positioning reference is secondly set by **opponent.** | Deliberately close opponents or allow opponents to receive. | | |
| | | Positioning reference is secondly set by **space.** | Close spaces or allow spaces deliberately. | | |

It is possible that a team chooses to play Zonal Pressure/Defence but only one player (example Pirlo's coach Marker) plays in a Zonal coach Marking system. Also, it is possible some coaches would advocate that in the moment an opponent player moves closer to the ball than your zonal position, then it is important for the direct defender to get closer to the opponent, so the opponent here is the main reference prior to space.

## Defending Trigger Points Principles

Trigger points for defending general principles can be applied in any defensive situation.

| PRINCIPLES OF PLAY | | | | Ikonic Representation | Symbolic representation |
|---|---|---|---|---|---|
| GENERAL PRINCIPLES | SUB-PRINCIPLE How? | SUB-SUB-PRINCIPLE How/What/Who/ When/Where? | INDIVIDUAL PRINCIPLES | Visualise-it & demonstrate-it | Verbalise-it |
| Trigger Points | | | | Coaching diagram / On pitch demonstration | Coaching Cue |
| **Phase 1 / Pressure Zone Trap Option** | | | | | |
| **Ball entering the Pressure Zone Trap.** | Prepare to Defend to Win. | | | | |
| **Ball is in the Pressure Zone Trap.** | Defend to Win. | | | | |
| **Phase 2 / No Pressure Zone Trap or ball escaped the Pressure Zone Trap** | | | | | |
| **Ball passed forward.** | Defend to Delay & Deny. | Drop. | Shift, Press, Cover, Balance. | | |
| **Ball passed backwards.** | Defend to force mistake. | Move out. | Press, Cover, Balance. | | |
| **Ball passed sideways OUTSIDE.** | Defend to Delay & Deny. | Shifting. | Shift, Press, Cover, Balance. | | |
| **Ball passed sideways INSIDE.** | Defend to Delay & Deny. | Shifting. | Shift, Press, Cover, Balance. | | |
| **Open ball.** | Defend to Delay & Deny. | Drop Back. | 1st Defender puts pressure, 2nd and 3rd cover, back line defend backroom. | | |
| **Closed ball.**<br>**+ Receiving facing own goal.** | Defend to Delay. | Pressure. | 1st Defender puts close pressure, 2nd and 3rd cover, team moves out, and higher players close spaces. | | |

| | | | | | |
|---|---|---|---|---|---|
| | - Do not allow him to turn. | | | | |
| **Orientation of ball carrier.** | Depends on Strengths & Weaknesses. | | | | |
| Bad first touch. | Defend to Win. | | | | |
| Ball far from carrier. | Defend to Win. | | | | |
| | | | | | |
| Ball not on the ground. | Defend to Win. | | | | |

After a final review the coach added to explain that, if you cannot arrive as a first defender, at the same time as the ball, then you should “hold” your position in the defensive organisation and approach the ball as first defender in a subtler way. It is ill-advised to start running at the ball for pressing when it is evident that you will be late, because this means you will be unable to close the zone you were in, late to close the passing line, and unable to be a threat to the attacker or win possession of the ball.

## COACH SERGIO RAIMUNDO'S MODEL OF PLAY

The following is the Model of Play used by coach Sergio Raimundo in a developmental team in Brazil. This is a project in which Coach Sergio was preparing a set of players with the aim of getting transferred to play in Europe. This Model of Play was constructed after two interviews conducted over video conference, followed up by electronic messaging.

Before publication the final version was also sent to the coach, who had enough time to apply changes as he deemed necessary.

### Moments

In addition to defending and attacking, coach Sergio provided me with his principles for the transitions, both negative and positive.

When providing me with the general principles of the transitional moments, coach Sergio pointed out that he does not agree with the use of the terms "negative" and "positive" transition.

"For me the words have a sense of judgement "good or wrong…as a coach I want both transitions to be positive" he explains.

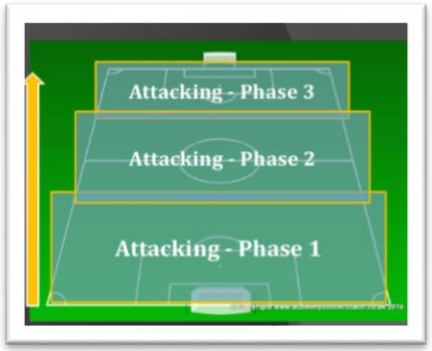
He has also provided the principles for set pieces, as he considered set pieces as another moment of the game, with the differentiating factor being that the ball starts from a stationary position. He makes it clear that the PoP that lead situations in set pieces should be considered in training organization and coaching planning.

## Attacking General and Specific Principles

**ATTACKING**

**GENERAL PRINCIPLES**

1. Make opponent feel defender and respect us from the 1st second of the game (starting ball).
2. Know opponent through team and individual scouting.
3. Body position and space between players in width and depth according to ball, teammates, strategy, opponents body shape and position.
4. Choose best progression options with safe possession or risky passing according moment of the game & strategy.
5. Timing, intensity and direction of passing and runs.
6. Distracting runs.
7. Numerical advantages when we play short balls or player with ball is under pressure.
8. Long runs to break classical forms of defending (e.g. Long W diagonals).




**Behaviour:** Anticipation, Break the classical, Improvisation, Decision making, Communication and Body Language.

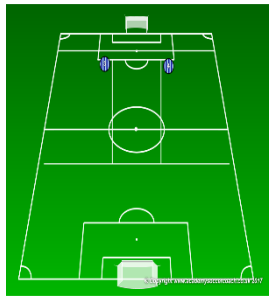
| Attacking – Phase 1 & Phase 2 | | Attacking – Phase 2 & Phase 3 |
|---|---|---|
| **SPECIFIC PRINCIPLES** | | **SPECIFIC PRINCIPLES** |
| 1. Width & depth (compact if not deep).<br>2. Relative distances between players (distance depends on players and strategy).<br>3. Look for different passing lines.<br>4. promote distracting runs.<br>5. opening spaces and maintaining balance in the space.<br>6. To get explanation from coach.<br>7. Orientate reception – open body / feet to ball if to maintain possession.<br>8. Control game pace with passing speed and weight and number of touches.<br>9. Search for free man and try to understand and break opponents pressing.<br>10. Understand when to play short or in depth (win 2nd balls).<br>11. Understand when to run to support or to run in depth.<br>12. Immediate change of behaviour after ball loss to allow negative transition. | | 1. Width & depth (compact if not deep).<br>2. Relative distances between players (distance depends on players and strategy).<br>3. Balance – ex Inside/Outside, width/depth, short/long, short-long (passing).<br>3. Look for different passing lines.<br>4. Distracting runs – change of positions within positional play. (overlaps, rotations).<br>5. Higher ball speed, faster timing of actions, 1 touch.<br>6. Play behind opponent's back when defence line is high, and pass backwards, when defence line is too deep.<br>7. Immediate change of behaviour after ball is lost – Negative Transition. |

## Attacking Individual Principles - Goalkeeper

<table>
<tr><th colspan="3">ATTACKING – INDIVIDUAL PRINCIPLES</th></tr>
<tr><td> 
</td><td></td><td> 
</td></tr>
<tr><th colspan="3">Goalkeeper</th></tr>
<tr><th>Attacking – Phase 1 & Phase 2</th><td></td><th>Attacking – Phase 2 & Phase 3</th></tr>
<tr><td>Width: between the posts depending on strategy, maximum between goal area.<br>Depth: preferably until penalty spot, maximum until penalty area line.<br><br>1. Search for the free man to play a safe 1st pass and if there's too much pressure of opponent, make reposition to FB or W or direct play into a free man / good header.<br>2. Try to understand and break. opponents' pressing strategy.<br>3. Play the ball away from pressing zones<br>4. Use accelerating passes.</td><td>  </td><td>Width: between the posts depending on strategy, maximum between goal area.<br>Depth: preferably until penalty area line, maximum until 3 to 6 meters ahead of it.<br><br>1. Search for the free man.<br>2. Play the ball away from pressing zones.<br>3. Use accelerating passes.</td></tr>
</table>

## Attacking Individual Principles - Defenders

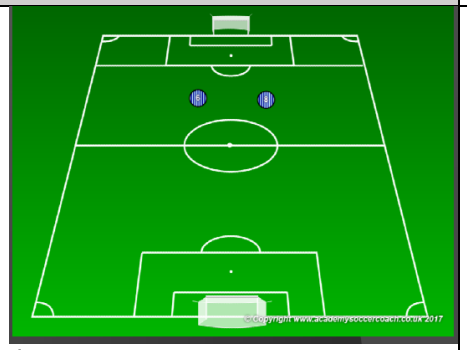
| Centralback | |
|---|---|
| Attacking – Phase 1 & Phase 2 | Attacking – Phase 2 & Phase 3 |
| **Width:** maximum from penalty spot until side line (depending on strategy)<br>**Depth:** maximum from penalty spot until 1st opponent in the pressing.<br><br>1. Search the free man with a short pass and if there's too much pressure of opponent, direct play with front / side or diagonal pass.<br>2. Try to understand and break opponents' pressing strategy.<br>3. Play the ball away from pressing zones.<br>4. Use accelerating and penetrating passes.<br>5. Direct combination with DM and switch roles. | **Width:** maximum from halfway spot until side line<br>**Depth:** from halfway line until approx. 10-meters through opponents' half:<br><br>1. Search for the free man.<br>2. Play the ball away from pressing zones.<br>3. Use accelerating and penetrating passes.<br>4. Direct combination with DM and switch roles. |

**Full backs**

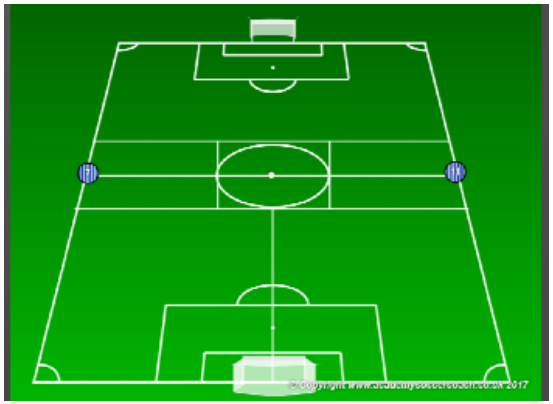
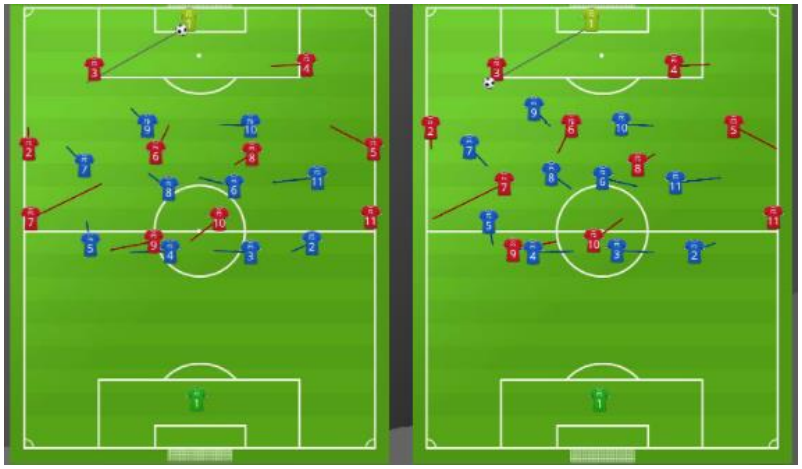
| Attacking – Phase 1 & Phase 2 | | Attacking – Phase 2 & Phase 3 |
|---|---|---|
| **Width:** maximum from the side of the goal line until the side-line.<br>**Depth:** maximum half circle limit until hallway line.<br><br>1. Search the free man with a short pass and if there's too much pressure of opponent, direct play with front / side or diagonal pass.<br>2. Try to understand and break. opponents' pressing strategy.<br>3. Play the ball away from pressing zones.<br>4. Use accelerating and penetrating passes.<br>5. Direct combination with DM, AM, W and switch roles. |  | **Width:** from halfway circle until side line<br>**Depth:** maximum from halfway line until goal line<br><br>1. Search for the free man<br>2. Use accelerating and penetrating passes<br>3. Direct combination with DM, AM, W and switch roles<br>4. Make side and inside penetrating runs<br>5. Achieve to finish / cross often |

## Attacking Individual Principles - Midfielders

<table>
<tr><th colspan="3">Central Midfielder</th></tr>
<tr><th>Attacking – Phase 1 & Phase 2</th><th></th><th>Attacking – Phase 2 & Phase 3</th></tr>
<tr><td>Width: from side line to side line.<br>Depth: From penalty area until midfield line.<br><br>1. Run to search free space or to distract opponent.<br>2. Try to be the free man as maximum as possible / responsible for receiving and accelerate the game forward.<br>3. When receiving a pass always try to receive it to face game options forward.<br>4. Try to understand and break opponents' pressing strategy with penetrating passes.<br>5. Direct combination with CB/AM and able to switch roles.<br>  </td><td></td><td>Width: from side line to side line.<br>Depth: From halfway line (when switching role with CB) until goal line (when penetrating in the attack.<br>1. Be the supporting free man especially for FB/W/AM and switch roles when needed.<br>2. Support the attack with penetrating / distracting runs in free spaces.<br>3. Game thinker and solutions finder.<br>4. Achieve to finish often.</td></tr>
</table>

| Attacking Midfielder | | |
|---|---|---|
| Attacking – Phase 1 & Phase 2 | | Attacking – Phase 2 & Phase 3 |
| **Width:** from side line to side line.<br>**Depth:** halfway between area semi-circle and midfield semi-circle.<br><br>1. Run to search free space or to distract opponent and to give depth options.<br>2. When receiving a pass always try to receive it to face game options forward.<br>3. High awareness of playing in between opponent lines / responsible for receiving the ball and make decisive passes forward. | | **Width:** from side line to side line.<br>**Depth:** from semicircle halfway line (when switching role with CM) until goal line.<br>1. Penetrating / distracting runs in free spaces.<br>2. Try to understand and break opponents' defending strategy with penetrating passes.<br>3. Direct combination with CM/W/STK and able to switch roles.<br>4. Achieve to assist for goal and finish a lot.<br>5. Good 1st touch for passing and finishing and effective on attacking 1v1. |

## Attacking Individual Principles - Attackers

<table>
<tr><th colspan="3">Wingers</th></tr>
<tr><th>Attacking – Phase 1 & Phase 2</th><th></th><th>Attacking – Phase 2 & Phase 3</th></tr>
<tr><td>Width: from side line to middle circle side.<br>Depth: Semicircle (some meters more, some meters less).<br><br>1. Drop back run to search free space to get the ball/distract opponents to opponents to free FB/AM in depth.<br>2. Give depth and be aware of opponent’s offside line.<br>3. Anticipate long passes.<br><br>  </td><td></td><td>Width: from side line till middle of the field<br>Depth: from semicircle halfway line (when switching role with FB) until goal line.<br>1. Penetrating / distracting runs dropping back and diagonals.<br>2. Try to understand and break opponents’ defending strategy with penetrating runs (high pace).<br>3. Direct combination with FB/CM/AM/STK and able to switch roles.<br>4. Achieve to cross and finish a lot.<br>5. Good 1st touch for passing and finishing and effective on attacking 1v1.</td></tr>
<tr><td colspan="3">  </td></tr>
</table>

**Strikers**

| Attacking – Phase 1 & Phase 2 | | Attacking – Phase 2 & Phase 3 |
|---|---|---|
| **Width:** from side line to middle circle side<br>**Depth:** Semicircle (some meters more, some meters less, depending on offside lines - never less than halfway line and even if there are offside lines, it doesn't mean we will respect them, we will provoke them, making them scare of what's behind their back).<br><br>1. Drop back run to search free space to get the ball/distract opponents to free W/AM in depth.<br>2. Give depth and be coach aware of opponents' offside line.<br>3. Anticipate long passes and hold the ball to wait for attacking support. |  | **Width:** from side line to side line<br>**Depth:** 15 meters penalty area semicircle (when supporting play) until goal line.<br>1. Try to understand and break opponents' defending strategy with penetrating runs (long diagonals are a good to confound opponents defence).<br>2. Direct combination with CM/AM/W and able to switch roles.<br>3. Achieve to hold the ball and wait for attacking support.<br>4. Fast finisher adapting to all angles and speed of passes and spinning of the ball. |

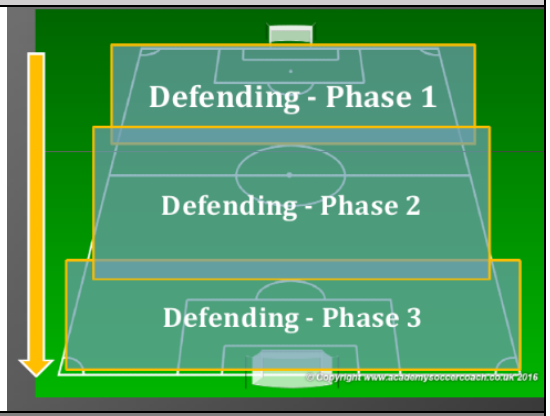
## Defending General and Specific Principles

**DEFENDING**

**GENERAL PRINCIPLES**

1. Stop opponent main individual and team qualities
2. To have balance in space 1-4-4-2
3. Body position and space between players in width and depth according to ball, teammates, strategy, opponents body shape and position.
4. Define risk zones according game strategy and dictate opponent progression and passes
5. Timing, intensity and direction of defending runs (try to anticipate more than only react)
6. If there is a pressure closest passing lines squeeze if not drop back and reorganize
7. Offside strategy when slow attackers, or high pressing and drop back when fast attackers or low block

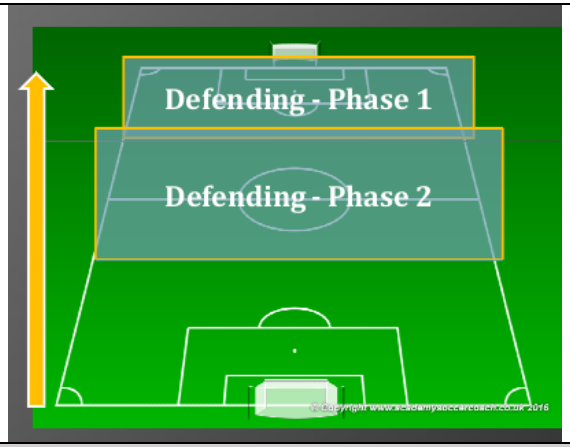
**Behaviour:** Solidarity, teamwork and responsibility, anticipation, communication and body language




| Defending – Phase 1 & Phase 2 | | Defending – Phase 2 & Phase 3 |
|---|---|---|
| **SPECIFIC PRINCIPLES** | | **SPECIFIC PRINCIPLES** |
| 2. Body position – feet for ball in all positions except opposite FB and opposite winger that can open a bit more body shape, so he will be able to see opponent on his back. (palla/porta/compagnio/avversario)<br>3. Dynamic of pressure should be trying to anticipate passes and arrive at man that will receive the ball at the same time has the ball (very difficult but idea should be this one)<br>4. Zone/ball coach Mark and players closing 1 or 2 lines (depends on strategy)<br>5. Avoid interior relations and passes that cross a full line of pressure (avoid passes that go across the 2-up front, then the 4 in the middle, then the 4 in the back, for example. Passes that cross a line of man pressing (1-----4-----4------2)<br>6. Wingers 1st task will be closing interior balls and 2nd close the line. | | 1. Offside Strategy according to game strategy<br>2. Compact for rebounds winning (2nd balls)<br>3. Body position: feet for ball in all positions except opposite FB and opposite winger that can open a bit more body shape, so he will be able to see opponent on his back.<br>4. Close preferably the relation in depth through the line or close interior spaces depends on strategy and best qualities of opponents.<br>5. Zone coach Mark until 11 metres line (for this group of players I decided to do till the 11m as we had a big and fast defensive line with big interception capacity) and from there man coach Mark (defending line + CM + wingers)<br>6. Prevent crosses to happen - directly avoiding cross (close defending distances, normally FB and W)<br>7. Make a pass from an interception |

| | | |
|---|---|---|
| 7. Pressure signs that make the block move forward and backwards – example: ball is played backwards-forward, is covered/uncovered, blind angle of receiving player.<br>8. STK and AM trigger the timing, intensity and direction of runs<br>9. Switching roles and balance<br>10. Offside strategy according to game strategy<br>11. Immediate change of behaviour after winning the ball to allow team balance in attack (positive transition). | | 8. Try to have always 1 man more in the box<br>9. Feet position: ball on the side lines outside the box and behind or until the penalty line, feet should point the edge of the penalty box. Ball passes the penalty line, feet should stay parallel and try to keep body contact or visual contact with opponent (FB can always open body position a bit more to prevent surprises from coming in from their back at maximum speed)<br>10. Immediate change of behaviour after winning the ball to allow team balance in attack (transition moment) – attack according strategy |

## Defending Individual Principles - Goalkeeper

<table>
<tr><th colspan="3">DEFENDING – INDIVIDUAL PRINCIPLES</th></tr>
<tr><td> 
</td><td></td><td> 
</td></tr>
<tr><th colspan="3">Goalkeeper</th></tr>
<tr><td>Defending – Phase 1 & Phase 2</td><td></td><td>Defending – Phase 2 & Phase 3</td></tr>
<tr><td>Width: between the posts depending on strategy, maximum between goal area.<br>Depth: preferably from outside of the penalty area, until penalty spot or goal area line.<br><br>1. Manage depth according to pressure signs<br>2. Communicate team positioning and opponent strategy / momentary opponent runs and team unbalances with the back 4 (more than with others) and all the team constantly.<br>3. Anticipate depth passes on the back of the back 4 (if possible)<br>4. Fast transition after winning the ball</td><td></td><td>Width: preferably between the posts<br>Depth: preferably Until goal line<br><br>1. Communicate team positioning and opponent strategy.<br>2. Anticipate passes on the back of the defence<br>3. Clear crosses to non-dangerous areas (situation perception)<br>4. Understand when to defend 1v1 (space reduction, hands turned towards the ball and fixate position) or a shooting (stop, hand on the side and fixate position) and beware with rebounds<br>5. Fast transition after winning the ball</td></tr>
</table>

## Defending Individual Principles - Defenders

| Centralback | | |
|---|---|---|
| Defending – Phase 1 & Phase 2 | | Defending – Phase 2 & Phase 3 |
| **Width:** minimum from post the most far from him (on the side of the other CB, his partner) maximum until side line if need to double the full back or other player.<br>**Depth:** minimum depends on opponent GK power and accuracy in ball reposition and target player when he plays a long ball (normally less than semi-circle on teams' defending half) or if short ball maximum until semi-circle line on opponent's half<br><br>1. Communicate depth and maintain the line rigour with constant adaptation to cover / uncovered ball momentum and pressure signs. CB that sees the back of the other CB is responsible to communicate him possible bad positioning and adapt to his line in case of off side trap<br>2. Communicate team positioning and opponent strategy / momentaneous<br>3. Strong quality of anticipation to win the ball and try to get opponent unbalanced<br>4. Anticipate depth passes on the back of the back 4 and double partner if needed (another CB, FB or DM)<br>5. Feet should never be parallel to the midfield line. Ball on the right side of the CB, left foot ahead with foot toes pointing to the ball. Ball on the left side of the CB, right foot ahead with foot toes pointing to the ball. Ball on the same line has the CB (in front of him) he should decide what foot to put ahead according to what he understands has bigger chances to be the pass (if the ball have big probability of entering his left side he should put his right foot ahead to facilitate acceleration momentum towards repositioning and if the odds are bigger of the ball to enter on his right side the opposite) | | **Width:** minimum from GK area if he needs to double other CB (his partner) maximum can vary if DM don't arrive on time because they are too high or if wingers don't make recovery runs with the opponent Full Backs (but preferably maximum goes until the penalty box side line (to keep CB in the box)<br>**Depth:** minimum from goal line and maximum until semi-circle line on defending half<br><br>1. Communicate depth and maintain the line rigour with constant adaptation to cover / uncovered ball momentum and pressure signs. CB that sees the back of the other CB is responsible to communicate him possible bad positioning and adapt to his line in case of off side trap<br>2. From penalty circle toward the goal line stay in between posts and coach Mark man-to-man<br>3. Preferably stay in the box to take crosses out with header<br>4. Anticipate frontal passes and don't go after the ball on the 1-2 (block run without fouling)<br>5. Feet position: ball on the side lines outside the box and behind or until the penalty line, feet should point the edge of the penalty box. Ball passes the penalty line, feet should stay parallel and try to keep body contact or visual contact with opponent |

| Full backs | | |
|---|---|---|
| Defending – Phase 1 & Phase 2 | | Defending – Phase 2 & Phase 3 |
| **Width:** minimum from the middle of the goal and the maximum until the side line<br>**Depth:** minimum depends on opponent GK power and accuracy in ball reposition and target player when he plays a long ball (normally less than semi-circle on teams' defending half) or if short ball maximum until half of halfway line (in attacking half)<br><br>6. Maintain the line rigour with constant adaptation to cover / uncovered ball and other pressure signs and direct opponent's movements and compensations.<br>7. Normally FB is the player that sees the back of the CB's, so he is responsible to communicate them possible bad positioning and adapt to his line in case of offside trap<br>8. Communicate team positioning and opponent strategy / momentaneous<br>9. Strong quality of anticipation to win the ball and try to get opponent unbalanced in transition<br>10. When one attacks a high direct ball the other should double his back in case the ball passes through<br>11. Close normally inside spaces more than outside (priority is to close inside).<br>12. Understand and use self-qualities and understand direct opponent's qualities to give space or don't allow opponent to have space at all in frequent 1v1 situations he will get<br>13. Feet should never be parallel to the midfield line. Ball on the right side of the FB, left foot ahead with foot toes pointing to the ball. Ball on the left side of the FB, right foot ahead with foot toes pointing to the ball. Ball on the same line has the FB (in front of him) he should decide what foot to put ahead according to what he understands has bigger chances to be the pass (if the ball have big probability of entering his left side he should put his right foot ahead to facilitate acceleration momentum towards repositioning and if the odds are bigger of the ball to enter on his right side the opposite)<br>14. Always check wider opponent | | **Width:** minimum from the farthest post and the maximum until the side line<br>**Depth:** minimum from goal line and maximum until semi-circle line on defending half<br>1. Communicate depth and maintain the line rigour with constant adaptation to cover / uncovered ball momentum and pressure signs. FB that sees the back of the CB's is responsible to communicate him possible bad positioning and adapt to his line in case of offside trap<br>2. If CB's are in a 2v1 situation and there are no players running into FB positioning he can step forward to augment pressure on opponent<br>3. From penalty circle toward the goal line stay in between posts and coach Mark Man to Man<br>4. Preferably stay in the box to take crosses out with header<br>5. Anticipate frontal passes and don't go after the ball on the 1-2 (block run without fouling)<br>6. Anticipate long diagonals from opponent wingers<br>7. Feet position: ball on the side lines outside the box and behind or until the penalty line, feet should point the edge of the penalty box. Ball passes the penalty line, feet should stay parallel and try to keep body contact or visual contact with opponent<br>8. Always check wider opponent<br>9. Anticipate and avoid crossing to happen |

## Defending Individual Principles - Midfielders

| Central Midfielders | | |
|---|---|---|
| Defending – Phase 1 & Phase 2 | | Defending – Phase 2 & Phase 3 |
| **Width:** side line to side line<br>**Depth:** minimum depends on opponent GK power and accuracy in ball reposition and target player when he plays a long ball (normally semi-circle on teams' defending half) or if short ball maximum until the middle of the opponents attacking half<br><br>1. Constant adaptation to cover / uncovered ball and other pressure signs and direct opponents' movements and compensations.<br>2. Communicate team positioning and opponent strategy / momentaneous<br>3. Close normally inside spaces more than outside (priority is to close inside).<br>4. Aware of 2nd ball after CB header | | **Width:** Side line to side line<br>**Depth:** minimum from goal line if needed to double a CB and maximum until halfway line<br><br>1. Close normally inside spaces more than outside (priority is to close inside).<br>2. Dynamic of pressure and recover position<br>3. Aggressive and strong in divided balls<br>4. Can double full backs when there are 2v1 situations on the side line<br>5. Can double CB whenever they need to go out of position in width or depth<br>6. Aware of 2nd ball after CB header<br>7. Aware of a 3rd man in the box for header or back pass for shooting<br>8. Feet position: ball on the side lines outside the box and behind or until the penalty line, feet should point the edge of the penalty box. Ball passes the penalty line, feet should stay parallel and try to keep body contact or visual contact with opponent |

| **Attacking Midfielders** | | |
|---|---|---|
| Defending – Phase 1 & Phase 2 | | Defending – Phase 2 & Phase 3 |
| **Width:** side line to side line if 1 / divide space if 2 (half-half field)<br>**Depth:** minimum half way line if low pressure maximum until opponent GK<br><br>1. Constant adaptation to cover / uncovered ball and other pressure signs and direct opponents' movements and compensations.<br>2. Aggressiveness on opponent CM and avoid them to turn<br>3. Try to arrive to man that will receive the ball at the same time has the ball<br>4. Fast transition with forward sprints after winning the ball<br>5. Fast backwards replacement if the ball passes is line of pressure (excepts if strategy for the game says the contrary) | | **Width:** side line to side line if 1 / divide space if 2 (half-half field)<br>**Depth:** minimum from GK area line and maximum until semi-circle on teams' attacking half<br><br>1. Close normally inside spaces more than outside (priority is to close inside).<br>2. Dynamic of pressure and recover position<br>3. Fast transition with forward sprints after winning the ball<br>4. Fast backwards replacement if the ball passes his line of pressure (excepts if strategy for the game says the contrary)<br>5. Help in the box if team needs him to have 1 more (Man-to-man situation normally avoid outside shootings)<br>6. Feet position: ball on the side lines outside the box and behind or until the penalty line, feet should point the edge of the penalty box. Ball passes the penalty line, feet should stay parallel and try to keep body contact or visual contact with opponent |

## Defending Individual Principles - Attackers

| Wingers | | |
|---|---|---|
| Defending – Phase 1 & Phase 2 | | Defending – Phase 2 & Phase 3 |
| **Width:** divide space (half-half field)<br>**Depth:** minimum half way line if low pressure maximum until opponent GK<br><br>1. Constant adaptation to cover / uncovered ball and other pressure signs and direct opponents' movements and compensations.<br>2. Sometimes dynamic of pressure and recover position and sometimes pressure and stay high<br>3. Aggressiveness on opponent FB and avoid them to play inside with CM (close normally inside spaces more than outside - priority is to close inside).<br>4. If FB goes inside has a CM and there is no position replacement, go with him<br>5. Try to arrive to man that will receive the ball at the same time has the ball<br>6. Fast transition with forward sprints after winning the ball<br>7. Fast backwards replacement if the ball passes is line of pressure (excepts if strategy for the game says the contrary) | | **Width:** divide space (half-half field)<br>**Depth:** minimum from GK area line (except if momentaneously doing FB positioning) and maximum until semi-circle on teams' attacking half<br><br>1. Close normally inside spaces more than outside (priority is to close inside).<br>2. Dynamic of pressure and recover position<br>3. Fast backwards replacement if the ball passes his line of pressure (excepts if strategy for the game says the contrary) or if we want him to stay high if FB don't make penetrating runs<br>4. Help in the box if team needs him to have 1 more (Man-to-man situation normally avoid 2nd post finishes)<br>5. Feet position: ball on the side lines outside the box and behind or until the penalty line, feet should point the edge of the penalty box. Ball passes the penalty line, feet should stay parallel and try to keep body contact or visual contact with opponent<br>6. Fast transition with forward sprints |
| **Strikers** | | |
| Defending – Phase 1 & Phase 2 | | Defending – Phase 2 & Phase 3 |
| **Width:** divide space if 2 (half-half field) or keep in between penalty box width if 1<br>**Depth:** minimum half way semi-circle on opponents' half if low pressure maximum until opponent GK<br><br>1. Constant adaptation to cover / uncovered ball and other pressure signs and direct opponents' movements and compensations.<br>2. Be the main and first man to indicate change of pace to all the team<br>3. Sometimes dynamic of pressure and recover position and sometimes pressure and stay high | | **Width:** divide space if 2 (half-half field) or keep in between penalty box width if 1<br>**Depth:** minimum from semi-circle of the penalty box and maximum middle of teams' attacking half<br><br>1. Condition passes to one side or another (avoid frontal passes).<br>2. Tries to win the ball on the blind side of opponents' midfielders |

| | | |
|---|---|---|
| 4. Conditioning GK 1st pass (according strategy)<br>5. Try to arrive to man that will receive the ball at the same time has the ball<br>6. Target man in transition for the 1st pass<br>7. Tries to win the ball on the blind side of opponents' midfielders<br>8. Fast backwards replacement if the ball passes is line of pressure (excepts if strategy for the game says the contrary) | | 3. Fast transition with forward sprints after winning the ball, to try to avoid opponents to regain balance<br>4. Target man in transition for the 1st pass<br>5. Tries to win the ball on the blind side of opponents' midfielders |

## Attacking Transition - General Principles

1.Take advantage of opponent unbalances and play the ball to progress according strategy / moment.

2. Who runs, where, when and why?

3. Team process in speed and safety.

4. Type of timing of pass.

5. Distracting runs to lead opponent to open spaces or stay in a defending position we want to dictate.

**Behaviour:** Determination, effectiveness.

## Individual Principles

**GK:** fast hand and foot repositions.

**CB:** make a pass from an anticipation or interception.

**FB:** normally the one from the side where the ball is going to keep maximum speed running forward to try to get a numerical advantage forward and make defenders worry about him.

**DM:** normally back pass option and better man to see what's happening and decide where the momentaneous advantage is.

**AM:** Fast transition with forward sprints after winning the ball (some diagonals with STK or W), to try to avoid opponents to regaining balance / can also be back pass option.

**W:** Fast transition with forward sprints after winning the ball (some diagonals with STK or AM), to try to avoid opponents to regaining balance.

**STK:** Target man in transition for the 1st pass and move towards the goal (rotation or give it back) - (some diagonals with W or AM).

## Defending Transitions - General Principles

1. Delay and dictate progression through nearest man pressing / foul.
2. Switch roles and unbalance opponent.
3. Avoid options in depth / connections.
4. 1-4-4-2 line.
5. Position and body shape according to specific / individual principles.
6. If there is a pressure sign squeeze cutting all the nearest passing lines, if not drop back and reorganise.

**Behaviour:** Solidarity, teamwork and responsibility.

## Individual Principles

**GK:** decide between moving out to anticipate long ball on the back of the defence or starting to drop in.

**CB:** decide between holding the defending line, anticipate a pass or dropping back and try to avoid deep passes.

**FB:** normally try to anticipate W and avoid inside passes. Maintain defending line balance and avoid numerical equality between strikers and CB.

**DM:** Anticipate and avoid AM rotations. Maintain triangle between CB's and himself. Might have to use foul to stop the game.

**AM:** Powerful on reaction and anticipation. Very active on trying to recover the ball, can make pressing superiority on man with ball and avoid internal passes. Might have to use foul to stop the game.

**W:** Powerful on reaction and anticipation. Very active on trying to recover the ball, can make pressing superiority on man with ball and avoid internal passes.

**STK:** Tries to take advantage of the blind side of opponents to win the ball.

## APPENDIX 3.1

## QUALITATIVE CONTENT ANALYSIS APPLIED

| THE IMPACT ON THE QUALITY OF THE STUDY<br>Which external and internal resources are available? | The process of a QCA (Bengtsson, 2016) | | The process of a QCA (Bengtsson, 2016)<br>**APPLIED** | |
|---|---|---|---|---|
| | **PLANNING** | | **Area 1 - Main Area** | **Area 2 – Supporting Area** |
| | **AIM** | **Is there an interesting problem taped in size to be elucidated?** | Identifying the Process of Coaches' Knowledge Generation for CPP. | Identifying the SMCK for CPP |
| | **SAMPLE AND UNIT OF ANALYSIS** | **Who can best answer the queries set out in the aim?** | **Phase 1:** Existing Literature in the field; theory-guided sampling – purposeful sampling<br>**Phase 2:** 10 Expert Coaches – purposeful sampling - snowballing | 2 expert coaches – purposeful sampling |
| | **METHOD OF DATA COLLECTION** | **How should the information from the informants be collected?** | **Phase 1:** Existing literature from databases<br>**Phase 2:** Recordings of semi-structured interviews | Recording Semi-Structured Interviews |
| | **METHOD OF ANALYSIS** | **How should the collected data be analysed?** | **Manifest method** of analysis. When hidden meaning was evident, I clarified it through a second short interview or by other methods of verifying correspondence. | |
| | **PRACTICAL IMPLICATION** | **Do we need someone's approval?** | **Phase 1:** Approval from Prof. Shulman<br>**Phase 2:** Approval from the participants | Approval from the individual expert coaches |
| | **DATA COLLECTION** | | | |
| | By written or verbal questions, or by observations, and transform the collected data into a written text | | **Phase 1:** By obtaining the needed publications<br>**Phase 2:** By semi-structured interviews. *Transcription will not be necessary as coding will be performed directly on the audio file on NVivo.* | Through semi-structured interviews. *Transcriptions not needed.* |
| | **DATA ANALYSIS** | | | |
| | *Either*<br>**Manifest analysis**<br>Surface Structure<br>"What has been said?" | *Or*<br>**Latent analysis**<br>Deep structure<br>"What intended to be said?" | Manifest analysis of what content and expert coaches 'said'. | |

| | | Area 1 - Main Area | Area 2 – Supporting Area |
|---|---|---|---|
| **Stage 1** | **DECONTEXTUALISATION**<br>**Identify meaning units**<br>Create code list, repeat and start at new pages<br>Coding System Inductive or Deductive | **Phase 1:** Codes were created ***inductively*** while analysing the content.<br><br>**Phase 2:** A ***deductive*** code lists was generated from phase 1 and applied here. An **inductive** approach to the generation of new codes or re-organisation of the old ones was allowed. | A ***deductive*** code lists based on the main findings in Area 1 was applied.<br><br>*These codes were clear points of reference for coaches during interviews as they are the way coaches categorise their thinking.* |
| **Stage 2** | **RECONTEXTUALISATION**<br>Include "content" - exclude "dross" Distance<br>Compare with the original data | Every time the text was read, it became clearer which content belongs to a code and which needs to be eliminated from this study. This process happened on numerous occasions, including during the Categorisation process. | |
| **Stage 3** | **CATEGORISATION**<br>Identify homogeneous groups<br>Triangulation by investigators<br><br>Bring subjects together<br>Condense meaning units<br>Bring subjects together | The first process of analysis in phase 1, inductively led to the following categories. These were deductively used in phase 2: Scrutiny of the Environment, Acquisition of Knowledge, Transformation of Knowledge, Coaches' Dissemination of knowledge, Coaches' regeneration of knowledge.<br><br>The final developments can be observed in the visual representation of version 2.1. | Moments of the Game<br>Phases of each Moment<br>General Principles<br>Sectoral Principles<br>Inter-Sectoral Principles<br>Individual Principles<br>Coaching Cues<br>Visualise |
| **Stage 4** | **COMPILATION**<br>Draw realistic conclusions<br>Member check, colleagues, inquiry audit<br>Use the words themselves stay close to the text<br>Find the underlying meaning of the text | • Presented a visual to summarise the Coaches' Process of Knowledge Generation for CPP and its Components and Sub-Components<br>• Quantify of meaning units was indicated in text<br>• Consideration of how findings relate with literature and research question was discussed.<br>• Triangulation and processes to obtain trustworthiness are discussed further down. | • As per area 1, but without the discussion and link to the literature as it is only intended at helping the reader to contextualise the Process of Knowledge Generation and the needed Subject Mater Content Knowledge. |
| | **CREATING A REPORT AND PRESENTATION OF THE RESULT** | **The Coaches' Process of Knowledge Generation for CPP** | **The Model of Play of 2 coaches in Appendices** |

*The process of a QCA from planning to presentation (Bengtsson, 2016) applied.*

## APPENDIX 3.2

## THE COMPILATION OF VERSION 1.1

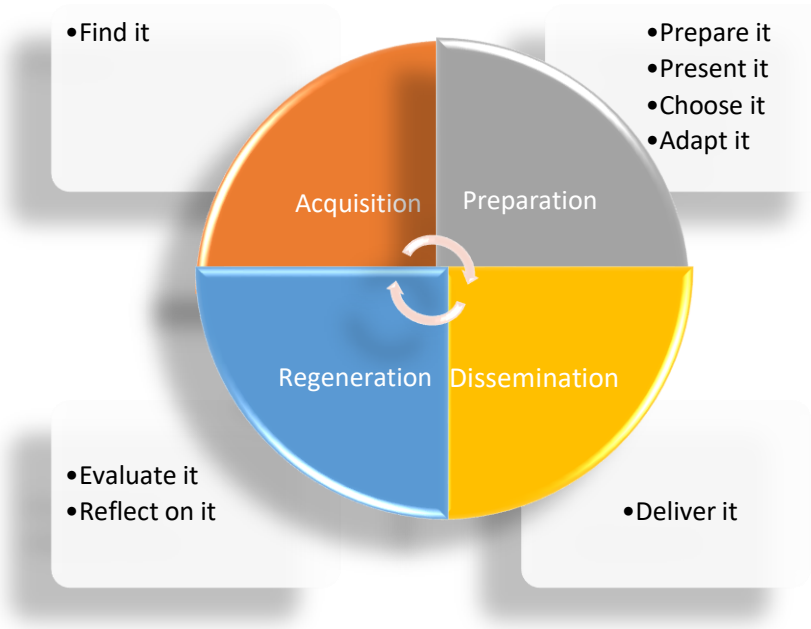



*Figure A: The Coaches' Process of Knowledge Generation for CPP version 1.1. A Visual Representation.*

Explanation of The Coaches' Process of Knowledge Generation for coaching through Principles of Play – Version 1.1

**Find-it:** As indicated in figure above coaches can start the process of knowledge generation by identifying and comprehending (Shulman, 1987) their philosophy of the game and the desired model of play. This can be done in an introspective approach (***introspect-it***). The players' characteristics and the system of play can be shaped by the coaches' philosophy and by the model of play. At the same time, coaches need to be aware that the players' characteristics has an immense influence on the same model of play. In my view, this indicates a gap in Shulman's categories of the knowledge base. I would propose adding, **The Knowledge of the Self** as an important category.

Whatever the complexity inherent to soccer (Pimenta, 2014), 'playing' can be studied scientifically (Resende, Amieiro, & Barreto, 2011) and therefore coaches can break it down into its elementary operations. This is what Bruner (1963) calls 'economy' within the structure of knowledge. Once coaches formalise the knowledge of the self and identify the players' characteristics, they

are able to develop their own model of play. At this stage, they would need to identify and understand the general principles of their game (micro-tactical principles). Then they need to comprehend all the collective (principles), sectoral or inter-sectoral (sub-principles), and individual (sub-sub-principles) principles of the game, which fit the pre-identified philosophy and model, and which cover all the moments of the game - attack, defence, defensive transition and attacking transition (Oliveira, 2014b, 2014a). In this case, coaches would need what Shulman calls '*curriculum or curricular knowledge'*; they need to grasp all the sources which can inform their content knowledge about PoP. It is by the investigation (**investigate-it**) of these sources that coaches can compose the body of knowledge required for instruction. While knowledge can be systematically identified through the same investigative process, game development and other coaches' investigative approach, it regenerates continuously. Therefore, knowledge determined in the present is not absolute, but merely a contribution in the process of uncovering further knowledge in the future.

**Prepare-it:** The second phase of the process addresses how this knowledge is prepared and transformed (Shulman, 1987) for its pure function – instruction through PoP. This is where ***pedagogical content knowledge*** comes into action. The body of knowledge identified in the first phase needs to be structured and simplified in such a way that it reaches a higher level of 'economy'. It also needs to acquire the 'power' of words (Bruner, 1963). This is why it is important for coaches to prepare the full body of knowledge by being critical and analytical in the way they interpret the acquired knowledge. The coach needs to **own (-it)**, holding a personal interpretation of the knowledge, in light of the main philosophy and model of the game.

This process leads the coach in dividing all the relevant knowledge into segments and structuring it in preparation for instruction (Shulman, 1987). This breaking of complex soccer knowledge into simpler elementary knowledge pieces (**segment-it**), enhances the economy of knowledge as it leads to the creation of a roadmap of knowledge. "This reduction of complexity is done without impoverishing and without taking the behaviours out of context. This creates an articulation between the parts forming a connection of meaning" (Oliveira, 2014b, p. 88). It is important that, when combined together, these

pieces will lead to the original complex knowledge, and furthermore, to the generation of new propositions (***productiveness***) (Bruner, 1963). The ***power*** of the structure of knowledge culminates when, with the use of simple terms, complex knowledge is manipulated and shifted from rough intuitive ideas to clear and specific understandings.

After generating their knowledge, the coach needs to own it and then segment-it. By this stage of transformation of knowledge, the coach translates the complexity of conceptual understandings of soccer into a personal simplified textual representation of the whole. This 'training dossier' as Mourinho would call it (Oliveira, 2014a) is the text that initiates the teaching process (Shulman, 1987).

**Present-it:** After preparing his/her own document/dossier of playing soccer, the coach would be in possession of all the principles needed for the teaching and learning of his/her visualised game. This is the point at which the coach begins thinking about how this knowledge should be presented to his/her athletes.

*Tactical Periodization* makes the case for a good balance between exercising and information (Oliveira, 2014b, 2014a), therefore when thinking about preparing for instruction, the coach needs to think about the balance of both verbal (symbolic representation) and practical (enactive representation) instructions. Ikonic representations is the third way suggested by Bruner (1963) for knowledge representation to the learner. In **verbalise-it,** the coach prepares the coaching verbal-cues that may be used during feedback and explanation in the training sessions. These are necessary to 'simplify' the concept and knowledge behind the principles. As proposed by Oliveira, (2014a, p. 71), coaches need "to make a word mean a thousand pictures" through symbolic representations.

Coaches know that the use of **demonstrate(-it)ion** on the pitch and **visual(ise-it)s** (normally by pictures, diagrams and videos) may also aid in the athletes' processing of information and understanding. For this reason, it is important that coaches prepare the demonstrations they need to explain a particular principle and its verbal explanation. Preparing pictures, diagrams (coaches' boards) or video captures may also assist in the athlete's understanding of the represented knowledge.

Finally, I refer to the ‘enactive’ representation in Bruner; knowing by doing. This is an important aspect of soccer coaching, and therefore the preparation of coaching exercises at a late stage in the process should be questioned. As identified by *Tactical Periodization*, coaching should not prioritise exercises (in form of games) over the learning objectives of the same coaching session. These objectives should be based on knowledge acquisition and knowledge preparation. The principles that lead the game (not the exercises) should be the leading factors in the specification of learning objectives. Exercises should be applied only with the intention of delivering the knowledge that is underlined by specific principles (Oliveira, 2014a). For this reason, before getting to the stage of designing or adopting an exercise for their training sessions, coaches need to go through a process by which they can internalise the principles which they intend to teach in that same session. This symbolic – ikonic – enactive process of formulating coaching knowledge, differs to the way in which it would be presented to the players, which is likely better delivered in an ***enactive – ikonic – symbolic*** process.

Having simplified the complexity of his/her game philosophy and model of play and having structured the relevant knowledge in a specific roadmap of knowledge, the coach can begin to think about the athletes and their needs. In the final phase of preparation, the coach needs to make several decisions to identify the coaching methodology, the parts of which principles that will be introduced, the exercises which are best for the intended purpose, and the way knowledge shall be represented according to the needs of the respective soccer players.

**Choose it:** *Tactical Periodization*, like the Theory of Instruction suggests that for knowledge to be converted into a structure that is economical, productive and powerful, hence transferable, it should be presented through ‘induction’; where through relevant exercises, the learner meets the learning concept and has enough time to make sense of it on his/her own (Bruner, 1963, 1966, Oliveira, 2014a, 2014b). This is analogous to allowing the soccer player as a learner to ‘guess’ understandings about the concept in an autonomous manner, as suggested by guided discovery.

On a side note, it is important to understand the vulnerability of the coach, and how critical it is for the coach to acquire deep knowledge. Allowing the players to be at the centre of the learning process through a 'guided discovery', should not mean, letting the learner get to destinations that do not make sense for the group. While different opinions should be encouraged, and while it is important to ensure that the learning environment is safe and supports proactive learners who explore and solve problems, the coach needs to have a deep and detailed understanding of the knowledge, to be in a position to defend and demonstrate the destination that mostly matters for the team. This is why the coaching methodology suggested by *Tactical Periodization* is called 'guided' discovery and not 'free' discovery. Also, therefore it is crucial that coaches prioritise PoP above exercises both in planning and delivery, to ensure that their feedback is specific to the PoP, and to detailed planning.

Finally, in the preparation phase, a step away from instruction, the coach should lead a process of selection, to determine which parts of the whole body of knowledge are necessary for the development of the individuals and the group. The coach's ***general pedagogical knowledge*** (Shulman, 1987) would need to be applied in a way that the available body of knowledge is ***adapt(-it)***ed to the needs of the learners, and his/her preferred methodological approaches. The coach is required to think about the progression of the presented knowledge to spiral athletes' learning. This can facilitate a process by which learners are given the opportunity to revisit previously covered knowledge in order to clarify or consolidate it (Bruner, 1963).

**Deliver-it:** Although one might argue that coaching delivery has nothing to do with knowledge acquisition, I emphasise the proposition that knowledge is acquired at all stages. Reflective practitioners are those who have the ability for autonomous self-development and are able to generate new knowledge from both reflection-in and reflection-on-action (Cassidy et al., 2009).

**Evaluate-it:** "The coach needs to know whether learning has taken place and consequently, progress needs to be monitored and evaluated" (Reilly & Williams, 2003, p. 199). In accepting this, we need to be clear that learning and progress should be evaluated from the athlete's level of performance and

development. The coach's performance across all stages is an important prerequisite for learning. Therefore, in this process, I propose that coaches should evaluate the learning outcome acquired by the athletes and their own performance across all stages, the latter is often overlooked. This is supported by Shulman, (1987, pp. 18-19) who differentiates and underlines the importance of the teacher's evaluation of:

1. his/her learners during the learning process,
2. learning to provide coach Marks and feedback,
3. the material being taught,
4. the process of teaching and learning.

While I agree with Shulman's suggested areas of evaluation, I further propose that for a football coach to deeply CPP, the whole process of knowledge generation should be revisited and evaluated, because any minute area of the process may be influential on the outcome. Evaluating one's model of play, one's understanding of the coaching environment or one's way of segmenting knowledge (to mention a few) may lead to important contextual understandings of why learning is happening or not happening.

**Reflect-on-it:** While in evaluation the coach assesses and makes judgement about previous coaching and learning processes, in reflection s/he spends time seriously thinking (Oxford University Press, 2016) about the intricacies of those same processes, trying to understand what led to such processes and what can be improved or maintained. Reflecting on the teaching and learning process of the athletes, the coach can understand a lot about his/her own learning (Shulman, 1987). Reflecting on the learning process within the process of knowledge generation may provide the coach with a whole array of new conceptualisations about the knowledge which was generated or not generated.

A coach informs himself/herself about the decisions taken in the process of knowledge acquisition, transformation and dissemination, by evaluating their own, players' and colleagues' opinions. This provides the coach with enough understanding to be able to reflect upon and regenerate his/her own knowledge.

A Simplified Explanation of The Coaches' Process of Knowledge Generation for coaching through Principles of Play **– Version 1.1**

| # | Type | Nature of knowledge | Where / Notes | Shulman | Bruner 1963 | Bruner 1960 |
|---|---|---|---|---|---|---|
| **Coaches' Acquisition of Knowledge (Collection)** | | | | | | |
| **Find it** | | | | | | |
| 1 | Introspect-it | - Philosophy of the game<br>- Model of play | Within, personal opinion and preferences | Comprehension | | Productiveness |
| 2 | Investigate-it | - General soccer principles<br>- Collective principles<br>- Sectoral principles<br>- Inter-sectoral principles<br>- Individual principles | Observing coaches in games and training<br>Observing players playing and training<br>Reflection upon own coaching<br>Books, videos, discussions etc. | | Economy | Non-specific transfer – transfer of principles and attitudes. |
| **Coaches' Transformation of knowledge (Analysis and Representation)** | | | | | | |
| **Prepare it** | | | | | | |
| 3 | Own it | Critically interpret and analyse the above-acquired knowledge and the newly generated knowledge | | Transformation – Preparation | Economy, Power | |
| 4 | Segment it | Based on general, collective, sectoral, inter-sectoral and individual principles | | | | |
| **Present it** | | | | | | |
| 5 | Verbalise it | Coaching cues that simplify each principle may help during instruction | | Transformation – Representation | Symbolic | |
| 6 | Demonstrate it | Preparing situations that can be used to demonstrate the principles for better understanding | | | Ikonic | |
| 7 | Visualise it | Together with the above demonstrations, videos and images may aid in instruction | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | Prepare Exercises | It is only at this stage that exercises shall be designed for each of the identified principles. This assures what in TP is called the principle of 'specificity' | | | Enactive | |
| **Choose it** | | | | | | |
| 9 | Choose Methodology | As suggested in TP, the main methodology shall be **principles led**, **game-specific exercises** explored by soccer players through **'guided discovery'**. | All the necessary material would have been already identified and prepared by this stage. The methodology choice although presented at this stage would have affected the way preparation would have been done. | Transformation - Selection | Induction – No Premature Symbolisation - Guessing | |
| 10 | Choose Parts of knowledge | Selecting the parts that are relevant to the needs of your group of players. | | | | |
| **Adapt it** | | | | | | |
| 11 | **Adapt it** | Preparing the way knowledge shall be represented for the needs of your group of players. | *Note: consider the spiral progression of knowledge and revisiting of knowledge* | Adaptation | | |
| **Coaches' Dissemination of Knowledge** | | | | | | |
| **Deliver it** | | | | | | |
| 11 | Deliver | Deliver the knowledge acquired and prepared through coaching sessions, and other methods. | | Instruction | | |
| **Coaches' Regeneration of Knowledge** | | | | | | |
| **Evaluate it** | | | | | | |
| 12 | Evaluate | Check what your players have learned, hence your performance as a teacher | | Evaluation | | |
| **Reflect on it** | | | | | | |
| 13 | Reflect | Upon your evaluation, you can review your previous stages, adapt and regenerate knowledge acquisition. | | Reflection | | |

The Coaches' Process of Knowledge Generation for CPP 1.1.
Simply Explained.

# APPENDIX 3.3

## CRITERIA CHECKLISTS

**Process of Knowledge Acquisition**
**Area 1 – Phase 1**

**According to chosen literature (purposeful sampling)**

**Source Title:** Tactical Periodization. The Secrets of soccer most effective training methodology.
Author/s: Raúl Oliveira Date of Publication: 2014
Publisher: N/A

**Rigour in the sources selection process**

| | Criteria of Selection | Y/N | Notes |
|---|---|---|---|
| 1 | This source is written by renowned authors in the field. | Y | |
| 2 | This source is related to one of the theories that underpin this study. | Y | Tactical Periodization |
| 3 | This source or parts of it, is/are related to the areas of:<br>a. Coaching<br>b. Pedagogy<br>c. Instruction<br>d. Learning<br>e. Or any other area directly related to these above. | Y | Coaching Methodology |

*Criteria Checklist for a purposeful sampling of publications being selected.*

**Checklist for the use of books and other documents**

When using books or other documents in social research you should feel confident about answering 'yes' to the following questions:

1 Am I satisfied that the documents are genuine in terms of what they purport to be (not drafts, forgeries, misleading second versions etc.)?

2 Have I considered the credibility of the documents in terms of:
- The type of document (published book, journal article, official statistics)?
- The author(s) of the document (status, role, in a position to know)?
- The sponsorship of the document (organization, funding, pressure group)?
- The accessibility of the information they use (public domain, restricted, secret)?

3 Am I satisfied that I have taken account of possible bias in the documents arising from:
- The purpose of the document (description, theory, persuasion)?
- How representative the document is (typical, extreme)?
- The editing and selection of extracts used by the author(s)?
- The interpretation of facts, theories or statistics given by the author(s)?
- The sensitivity of the information contained?



*'A checklist for the use of books and other documents' (Denscombe, 2014, p. 229)*

| | | Y/N |
|---|---|---|
| 1 | Is the collected data, 'true data' (manifest)? | Y |
| 2 | Is there any latent data which is necessary? | N |
| 3 | Are codes created in an inductive manner? | Y |
| 4 | Has all text been revisited and has it all been coded, or excluded? | Y |
| 5 | Is the text referring to how knowledge can be identified, acquired, used, prepared, and regenerated? | Y |
| 6 | Is the text referring to how knowledge can be transformed in teaching/coaching instructions? | Y |
| 7 | Is the text referring to how knowledge can be prepared for the learner to absorb? | Y |
| 8 | Is the text referring to how knowledge can be transferred for future learning or regenerated knowledge? | Y |
| 9 | Is the text referring to how learning can happen through principles? | Y |
| 10 | Is the text referring to areas of knowledge needed in coaching football principles? | Y |

*A Criteria checklist for rigour in the data collection and analysis processes.*

| | **Purposeful sampling – Criteria for coaches.** | Y/N |
|---|---|---|
| 1 | I am a qualified soccer coach with a minimum of a UEFA A coaching licence | Y |
| 2 | I have a minimum of ten years' experience in coaching soccer | Y |
| 3 | The Principles of Play are central to my training sessions | Y |
| 4 | The soccer principles I introduce are linked to my style or model of play | Y |
| 5 | I work on group, department/inter-department) and individual soccer principles | Y |
| 6 | I consider the phases of the game as an important part of my coaching | Y |
| 7 | Soccer principles are the starting point of my process to plan training sessions | Y |
| 8 | I normally plan a session, and then fit the soccer principles accordingly | N |
| 9 | My coaching instructions are directed by the soccer principles I would want to introduce. | Y |
| 10 | I have been using 'the Principles of Play' in my coaching for at least five years | Y |
| 11 | I consider coaching as a pedagogical endeavour | Y |

*Purposeful sampling criteria for coaches*

# APPENDIX 3.4

## PARTICIPATING COACHES' PROFILES

### SERGIO RAIMUNDO ** Confirmed by coach

Born in 1984, (32 years in 2016), Portuguese, UEFA A obtained from the Irish Football Association in 2016. Obtained a Degree in Sports Sciences and a master's in physical education from the University of Human Kinetics of Lisbon.

| Coaching Experiences | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 2008-11 | Serie-A | Youths | Coach | Portugal | Benfica |
| 2011-12 | Serie A | U19 | Asst Manager | Portugal | Benfica |
| 12-14 | Serie A | U15, U17, U19 | Technical Director | Senegal | Etoile Lusitana |
| 12-14 | Serie A | U19 | Head Coach | Senegal | Etoile Lusitana |
| 14-15 | Serie A | U19 | Manager | Portugal | AD Oeiras |
| 15-16 | Serie D Salzburger Liga | 1st Team | Manager | Austria | Bischofshofen |
| 16-17 | Serie A Parana League | Development Project | Technical Director | Brasil | Diamante Sport Club |

### HUGO VICENTE ** Confirmed by coach

Born in 1977 (39 years old in 2016), Portuguese, with a UEFA A which he obtained from the Norwegian Football Federation in 2016.

| Coaching Experiences | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 2001-07 | Amateur | Youths | Coach | Portugal | Paio Pires FC |
| 2007-10 | Amateur | Senior | Manager | Portugal | Paio Pires FC |
| 2007-10 | Amateur | Youths | Academy Director | Portugal | Paio Pires FC |
| 2007-10 | Pro | Children | Coach | Portugal | SL Benfica |
| 2010-13 | Pro | Youths | Coach | Portugal | SC Braga |
| 2010-13 | Pro | Youths | Technical Director | Portugal | SC Braga |
| 13-15 | Semi-Pro | 1st Team | Manager | Norway | Bergsöy IL |
| 2016 | Semi-Pro | 1st Team | Manager | Norway | Follo FK II |
| 2016 | Amateur | Children | Coach | China | SL Benfica |
| 2017 | Pro | Youths | Coach & Coach Educator | Norway | Viking FK |
| 2018 | Pro | Senior | Manager | Norway | Viking FK II |

| | | | | | |
|---|---|---|---|---|---|
| 2018- | Pro | Under 17 | Manager | Denmark | FC Copenhagen |

**JOSEPH GRECH ** Confirmed by coach**

Born in 1968, (48 years in 2016), Maltese, with a UEFA PRO which he obtained from the Malta Football Association in 2017.

| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 2000-05 | 3rd Division to Premier Division | Seniors | Coach | Malta | Msida FC |
| 2005-07 | National Team | Youths | Coach | Malta | Under 17 |
| 2007-08 | Premier Division | Seniors | Coach | Malta | Floriana FC |
| 2008-10 | Second Division | Seniors | Coach | Gozo | Ghajnsielem FC |
| 2010-12 | First Division | Seniors | Coach | Malta | Pieta FC |
| 2012-13 | Second Division | Seniors | Coach | Malta | Gzira FCA |
| 2013-16 | Youths | Under 19 | Coach | Malta | Valletta FC |
| 2016-17 | Third Division | Seniors | Coach | Malta | Msida FC |
| 2017-18 | First Division | Seniors | Coach | Malta | Pembroke FC |
| 2019 | Premier Division | Seniors | Coach | Malta | Mosta FC |

**ANDREW WEAVILL ** Confirmed by coach**

Born in 1956, (61 years in 2016), English, with a UEFA A which he obtained from the Malta Football Association in 2010.

| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 1977-92 | Various Divisions | Seniors | Coach | England | RAF Teams |
| 1992-93 | Semi Pro | Seniors | Asst Coach | England | King's Lynn FC |
| 1993-94 | Premier Division | Seniors | Head Coach | Malta | Rabat Ajax FC |
| 1994-96 | Premier Division | Seniors | Head Coach | Malta | Sliema Wanderers FC |
| 1996 | Premier Division | Seniors | Asst Coach | Malta | Hibernians FC |
| 1996-98 | Malta Footbal Association | | Asst Technical Director | Malta | Coaching Education |
| 1998-01 | Premier Division | Seniors | Head Coach | Malta | Hamrun Spartans FC |
| 2001-04 | Youths | U15/16 | Coach | England | Huddersfield Town FC |

**MARK MILLER ** Confirmed by coach**

Born in 1962, (54 years in 2016), English, with a UEFA PRO which he obtained from the Malta Football Association in 2017.

| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 1991-94 | Premier Division | Seniors | Player/Coach | Malta | Floriana FC |
| 1994-96 | Premier Division | Seniors | Player/Coach | Malta | Sliema FC |

| | | | | | |
|---|---|---|---|---|---|
| 1997-98 | Premier Division | Seniors | Player/Coach | Malta | Hibernians FC |
| 1998-00 | Premier Division | Seniors | Coach | Malta | Hibernians FC |
| 2000-08 | National Teams | Youths | Coach | Malta | U17, U19, U21 |
| 2008-12 | Premier Division | Senior | Coach | Malta | Hibernians FC |
| 2012-14 | Premier Division | Seniors | Coach | Malta | Valletta FC |
| 2015-16 | Premier Division | Seniors | Coach | Malta | Qormi FC |
| 2016-18 | Premier Division | Seniors | Coach | Malta | Hibernians FC |
| 2018- | Premier Division | Seniors | Coach | Malta | Mosta FC |

**FANNAR BERG GUNNOLFSSON ** Confirmed by coach**

Born in 1984, (32 years in 2016), Icelandic, with a UEFA A which he obtained from the Football Association of Iceland in 2016.

| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 2006-10 | Amateur | Youths | Coach | Iceland | |
| 2011 | Amateur | Youths | Coach | Iceland | |
| 2011-13 | Semi Pro | Youths | Coach | Iceland | * double role |
| 2011-13 | Semi Pro | Reserves | Coach | Iceland | * double role |
| 2014-16 | Pro | Youths | Coach | Norway | |
| 2016- | Semi Pro | Seniors | Coach | Norway | |

**BRIAN (nom de plume)**

Born in 1967, (49 years in 2016), Irish, with a UEFA A which he obtained from the Irish Football Association.

For ethical purposes team's names, age groups and divisions are kept confidential as requested by the participant.

| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 2004-06 | Premier Division | Seniors | Coach | Ireland | - confidential |
| 2006-07 | Premier Division | Seniors | Coach | Ireland | - confidential |
| 2008-09 | Premier Division | Seniors | Coach | Ireland | - confidential |
| 2010-11 | Premier Division | Seniors | Coach | Ireland | - confidential |
| 2012-12 | Premier Division | Seniors | Coach | Zimbabwe | - confidential |
| 2014-15 | Premier Division | Seniors | Coach | South Africa | - confidential |

**RAY (nom de plume) ** Confirmed by coach**

Born in 1981, (35 years in 2016), English, with a UEFA A which he obtained from the Football Association (England) in 2003.

For ethical purposes team's names, age groups and divisions are kept confidential as requested by the participant.

| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 2 | Pro | 21 | Dev. Coach | England | - confidential |
| 5 | Youth Development | 11-16 | Coach | England | - confidential |
| 3 | Semi Pro | 18+ | Coach | England | - confidential |
| 2 | | 18+ | Coach | England | - confidential |

**SERGIO SOLDANO ** Confirmed by coach**

Born in 1961, (55 years in 2016), Argentinian, with a UEFA A which he obtained from the Malta Football Association in 2013. He obtained all his previous coaching certification from the FIGC (Italy).

| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 1994-04 | Pro | Coaches | Coaching Educator | Italy | Parma AC |
| 2004-11 | Pro | Coaches | Coaching Educator | Italy | Inter Milan |
| 2012-17 | National Team | U16/17 | Youth Development Officer | Malta | Malta Football Association |
| 2012-17 | National Team | U16/17 | Coach | Malta | Malta Football Association |
| 2017-18 | Amateur | U16/17 | Coach | Malta | Malta Football Association |

**PAUL ZAMMIT ** Confirmed by coach**

Born in 1969, (47 years in 2016), Maltese, with a UEFA PRO which he obtained from the FIGC (Italy) in 2013.

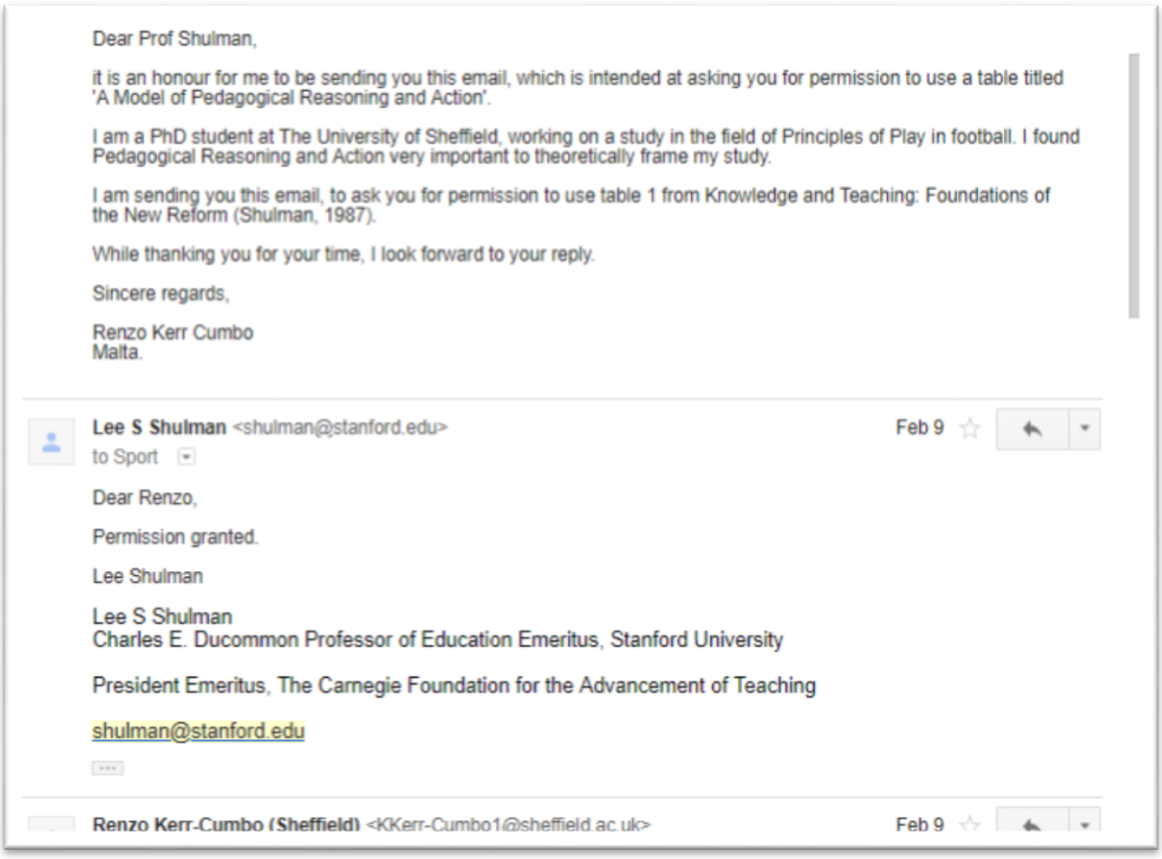
| **Coaching Experiences** | | | | | |
|---|---|---|---|---|---|
| **Seasons** | **Level** | **Age Group** | **Role** | **Country** | **Notes** |
| 2003-04 | 1st Division | Seniors | Coach | Malta | Mosta FC |
| 2004-05 | Premier Division | Seniors | Coach | Malta | Mosta FC |
| 2005-06* | Premier Division | Seniors | Coach | Malta | Mosta FC |
| 2006-09* | Premier Division | Seniors | Coach | Malta | Valletta FC |
| 2009-15 | Premier Division | Seniors | Coach | Malta | Birkirkara FC |
| 2015-17 | Premier Division | Seniors | Coach | Malta | Valletta FC |
| 2017-19** | Premier Division | Seniors | Coach | Malta | Birkirkara FC |

* Till October 2005, * From November 2005

**Till December 2018.

# APPENDIX 3.5

## PERMISSION



Dear Prof Shulman,

it is an honour for me to be sending you this email, which is intended at asking you for permission to use a table titled 'A Model of Pedagogical Reasoning and Action'.

I am a PhD student at The University of Sheffield, working on a study in the field of Principles of Play in football. I found Pedagogical Reasoning and Action very important to theoretically frame my study.

I am sending you this email, to ask you for permission to use table 1 from Knowledge and Teaching: Foundations of the New Reform (Shulman, 1987).

While thanking you for your time, I look forward to your reply.

Sincere regards,

Renzo Kerr Cumbo
Malta.

**Lee S Shulman** <shulman@stanford.edu> Feb 9
to Sport

Dear Renzo,

Permission granted.

Lee Shulman

Lee S Shulman
Charles E. Ducommon Professor of Education Emeritus, Stanford University

President Emeritus, The Carnegie Foundation for the Advancement of Teaching

shulman@stanford.edu

**Renzo Kerr-Cumbo (Sheffield)** <KKerr-Cumbo1@sheffield.ac.uk> Feb 9

*An e-mail sent by Professor Shulman, granting me permission to use his table.*

# APPENDIX 3.6

## TRUSTWORTHINESS (SHENTON, 2004)

| Suggestions | In this study |
|---|---|
| **Credibility**<br><br>Definition:<br>*"How congruent are the findings with reality?"* | |
| **a: Adoption of research methods well established both in the qualitative investigation in general and in information science in particular** | Bengtsson (2016) provided a very clear step by step process. |
| The line of questioning should be derived from those that have been successfully utilised in similar projects. | Very limited projects in the area, however questioning and probing were based on discourse coming from the coaching world and the world of PoP. |
| Dervin's (1976, in Shenton) method where participants reflected on a situation… | Participants in this study needed to reflect on the document provided to them. |
| **b. Early familiarity with the culture of participating organisation** | I am an active practitioner myself. Also, I allowed myself time to get to know the participants' background |
| **c. Random Sampling** | Due to the nature of the study and the type of participants needed, Random Sampling was a plausible option. |
| **d. Triangulation** | Data, investigator, theoretical and methodological triangulation. Explained in more detail below |
| **Investigators' Triangulation**<br><br>(Archibald, 2016; Tobin & Begley, 2004; Yeasmin & Rahman, 2012) | **MATTHEW MUSCAT INGLOTT**<br>*Sports Lecturer*<br>*Fitness Professional*<br>*VET Expert*<br><br>***Skills and Expertise***<br>B.Ed. (Hons) Physical Education, reading for a PhD in Education Research & Development at the University of Lincoln. Sports Lecturer and a fitness professional and columnist.<br><br>**Stage and Extent of Collaboration**<br><br>***Conceptual and Methodological:*** Matthew was very important in the conceptual development of this study, as we have held numerous meetings discussing the study from a conceptual and |

| | |
|---|---|
| | methodological approach. It was in a discussion with Matthew early in my study that I realised how important it is, from a constructivist point of view, to look into the Coaches' Process of Knowledge Generation for CPP besides the CK needed to CPP.<br><br>**Data Collection:** In a discussion with Matthew about the problem I had in entering the field (in a project in Malta) it became very clear that to obtain content knowledge, (PCK and CCK) in soccer, it would be even better if I could include expert coaches, ideally foreign coaches coming from different countries.<br><br>**Analysis:**<br>Matthew read through the analysis and findings and discussions chapter and came up with all the questions he felt needed clarification. In certain instances, I had to go back to the data to clarify my writings, in other moments, it was only necessary to re-write parts in a clearer manner.<br><br>Matthew was very influential in my coming up with the final diagram of the conceptualised process. He insisted that if the participants spoke about a 'spiral' the design needed to show a spiral. |
| | **IVAN WOODS**<br>*Sports Lecturer*<br>*UEFA A Soccer Coach*<br><br>***Skills and Expertise***<br>B.Ed. (Hons) Physical Education, reading for an MSc in Performance Coaching at Stirling University, Scotland, UEFA A Coach and an ex Malta National team player with 50 caps.<br><br>**Stage and Extent of Collaboration**<br><br>**Analysis:**<br>With his soccer expertise both as a player and a coach, and with his academic expertise especially in coaching processes and models, Ivan was very influential in discussing the development of the Conceptualised Process and in reviewing the CK presented in this study. |

| | |
|---|---|
| | Ivan criticised the conceptualised process at the stages of visual display 4 and visual display 5. He had made it clear that certain concepts need to be presented better visually.<br><br>Ivan was also involved thoroughly in reading the CK presented. He confirmed the presented content.<br><br>**MARK BUTTIGIEG**<br>*PE Teacher*<br>*UEFA Pro Soccer Coach*<br>*Soccer Physical Trainer*<br><br>***Skills and Expertise***<br>B.Ed. (Hons) Physical Education, master's in teaching, ex. Malta National Team Physical Trainer, and now Assistant Coach in the Malta Premier Division. Coach Mark's thesis for his UEFA PRO was about *Tactical Periodization*.<br><br>**Stage and Extent of Collaboration**<br><br>**Analysis:**<br>Mark was asked to review the diagram presented in 4.2. As a UEFA PRO coach specialising in *Tactical Periodization* coach Mark has confirmed the visual display as a true visual presentation of the said coaching methodology and principles. |
| **e. tactics to help ensure honesty** | Participants could refuse participation or withdraw at any stage.1 has in fact withdrawn from the study at an early stage.<br><br>Participants were given the status of experts, and I treated them as such, encouraging them to feel comfortable in saying what they believe. |
| **f. iterative questioning** | I returned to matters previously raised through rephrased questions. Contradictions, and/or indication of a non-clear understanding of the area, were indicated in the findings. |
| **g. negative case analysis** | Not applied |
| **h. frequent debriefing sessions** | Discussions were constantly held with my supervisors, a UEFA A football coach, a PhD student who is also a sports lecturer, and an MSc in Sports Coaching student who is also a sports lecturer. |
| **i. Peer scrutiny of the research project** | **Methodology**<br>Numerous discussions on email and face to face |

| | |
|---|---|
| | were held with my supervisors. I also engaged in deep discussions with fellow students in my PhD cohort and in the presentations and seminars held with the School of Education at The University of Sheffield.<br><br>**The Process' Design**<br>The PhD student mentioned above, contributed substantially when it came to the final design of the Process of Knowledge Generation for CPP.<br><br>The master's student colleague was also influential in the clarification of certain terms used.<br><br>**Categorisation**<br>The PhD student (colleague) was provided with a sample of meaning units for cross reference with the final findings.<br><br>All the participants were provided with their meaning units matrix and were allowed to point out any desired changes or any disagreements with the categorisation process. |
| **j. reflective commentary** | Although I did write a very deep analysis chapter, I did not essentially keep a 'diary' form of reflective commentary. Nonetheless, this does not mean that I lacked in my reflective approach. Proof of this is the continuous discussions held with my tutors both by email and Skype. These reflections are reflected and intertwined in my writings, sometimes evident in some of the 'extra' subsections… such as the metaphor of knowledge. |
| **k. background, qualifications and experience of investigators** | Perhaps this PhD shall make me a better candidate in this field! That is why I tried to be as transparent as possible in my writing.<br><br>However, I humbly believe that who I am so far should qualify as valid qualifications and experience, including a B.Ed Hons in PE, an MSc in Sports Coaching, a UEFA B and a UEFA A, together with 8 years' experience in sports lecturing, 4 years' experience of thesis supervision and examination at the University of Malta, and 18 years' experience in football coaching. |
| **l. member checks**<br><br>Participatory modes of research | The participants were asked to check all the meaning units obtained from their interview, including the categorisation and my shorter explanation of each unit.<br><br>The participants were given the full draft exactly one week before supervisor's corrections. They |

| | |
|---|---|
| | were particularly asked to make sure that the findings and discussions chapter represent what they really had in mind. They could give me feedback as per their opinion on the matter, both in general or in line with their own contributions.<br><br>**Verified by:** Coaches Mark Miller, Hugo Vicente, Sergio Raimundo, Paul Zammit, Joseph Grech and Fannar.<br>**Verification did not reach the author:** Coaches Brian, Ray, Andy Weavill, and Sergio Soldano. |
| **m. a thick description of the phenomenon under scrutiny** | I have included as much detail as possible, although I recognise that there is always room for more. |
| **n. examination of previous research findings** | There is very little research in the field. The findings that have contributed to this study were analysed thoroughly and have also been described in various forms to deeply inform the reader. |

| **Suggestions** | **In this study** |
|---|---|
| **Transferability**<br><br>Definition:<br>*"Is concerned with the extent to which the findings of one study can be applied to other situations"* | |
| | I hope that the context has been designed well enough, and the comprehensive description of the analysis is enough to provide the possibility for transferability.<br><br>I also believe that with the findings themselves giving a great value to contextuality, allows the emerging process to be more transferable in its general terms. |
| **Number of organisations** | No organisations |
| **Number of participants** | Given in detail below |
| **Restrictions on the type of people who contributed data** | Although expertise in the phenomenon being studied was assured, it is still evident that no one of the coaches is one of the elite few. This might and might not influence the transferability.<br><br>Furthermore, only one of the coaches was into grassroots. In fact, I would say that this study contributes most to the senior sector of coaching. Still, a few references to the |

| | |
|---|---|
| | grassroots sector have been made and used in this study. |
| **Data Collection Method**<br><br>**Number and length of data collection sessions**<br><br>**The period over which data was collected** | All listed in the methodology and analysis chapters. |

| **Suggestions** | **In this study** |
|---|---|
| **Dependability**<br><br>Instead of Reliability<br>The study process should be reported in detail. | |
| **The use of overlapping methods** | 1 – Analysis of existing publications;<br><br>2 – Analysis of interviews |
| **Process reported in detail** | |
| **a. The research design and its implementation, describing what was planned and executed on a strategic level;** | Detailed Analysis Chapter |
| **b. The operational detail of data gathering, addressing the minutiae of what was done in the field** | |
| **c. Reflective appraisal of the project, evaluating the effectiveness of the process of inquiry undertaken.** | This was mostly done in the discussion chapter, when values and challenges of the conceptualised process were discussed.<br><br>A reflective process was also held with the two collaborating colleagues (PhD and Masters' students) |

Confirmability in qualitative research compares to objectivity in quantitative studies. Ensuring, as far as possible, that the findings reflect the informants' point of view rather than the researcher's. Shenton (2004) suggests the following steps, which have been addressed in this study as shown below.

| Suggestions | In this study |
|---|---|
| **Confirmability**<br><br>Definition:<br>*"The concept of confirmability is the qualitative investigator's comparable concern to objectivity"*<br>**Ensuring that the findings reflect the informants' ideas and not the researcher's.** | |
| **Triangulation to reduce investigator's bias** | Explained in more detail below |
| **Admission of researcher's beliefs and assumptions** | Done across the whole study, starting with positionality in the first chapter. Also including the way, I look at knowledge, and my own view of coaching being a pedagogical endeavour. |
| **Recognition of shortcomings in study's methods and their potential effects** | Listed in the discussion and conclusion chapters. |
| **In-depth methodological descriptions** | The analysis chapter was intended at providing in depth and transparent description. |
| **Diagrams to show an audit trail** | This Appendix contributes to this part of the process. |

# APPENDIX 4.1

## 1st STAGE OF THE ANALYSIS PROCESS.

## VERSION 1.1- MANUAL QCA APPLIED

| Stage | Description | Tasks | References |
|---|---|---|---|
| **SOURCE** | Existing Publications | **ANALYSIS** | Stage 1 (Manual) |
| **Stage 1 - Decontextualisation** | | | |
| **1st Reading** | During the review of the literature | | Readings one and two were intended at understanding "what is going on?" in the texts (Bengtsson, 2016). |
| **2nd Reading** | "Wholistic" read for familiarisation with the data | | |
| **3rd Reading** | Selective reading of relevant parts only | | Focus on detail |
| **Identifying Meaning Units** | Identifying meaning units | | |
| **Open Coding** | Label each meaning unit | | Inductive coding |
| **Memos** | Writing any note that comes to mind | | |
| **Stage 2- Recontextualisation** | | | |
| **Distancing** | Staying away from data for 2 weeks | | |
| **4th reading – Clean** | Reading and coding a clean set of data sources | | |
| **Open Coding** | Highlighting and manual coding on the sides of the PDF | | Inductive coding |
| **Comparison** | Comparing the two sets of coded data sources. | | Triangulation for trustworthiness |
| **Decisions** | Decisions were taken on the text that was coded differently across the two sets | | Discussions with an expert validator helped in this process. |
| **Confirmations** | Confirming all the text that has been coded the same across the two data sets. | | |
| **Dross** | The unwanted text was confirmed | | |
| **Stage 3 - Categorisation** | | | |
| **5th Reading Data Displays** | Network Visual Display | | Figures 4.1, 4.2, 4.3 |
| **Categories** | A deep analysis of the visuals created, led to a next level visual which | | Figure 4.3 |

| | | | |
|---|---|---|---|
| | integrates all the three areas. | | |
| **Categories** | The results obtained from Figure 4.3 and the re-reading of texts, a first level of categorisation were attempted. | Shulman's work was influential in the creation of categories. | First Inductive Categories Comprehension, Transformation, Instruction, Evaluation and Reflection, New Comprehension |
| **Stage 4 - Compilation** | | | |
| **Version 1.1 Textual Explanation** | The first tentative at conceptualising the process | | Appendix 3.2 |
| **Visual Diagram** | A visual diagram was drafted | | Appendix 3.2 |
| **Simplified Explanation** | A simplified explanation of the process was created | Intended to be used with coaches in the next phase. | Appendix 3.2 |

## 2nd STAGE OF THE ANALYSIS PROCESS.

## VERSION 1.2 - COMPUTER-ASSISTED QCA APPLIED

| SOURCE | Existing Publications | ANALYSIS | Stage 2 (NVivo & Excel) |
|---|---|---|---|
| | | | |
| **Stage** | **Description** | **Tasks** | **References** |
| Quality | 3 months were allowed between the 1st stage and 2nd stage of analysis. | Distancing from the data may assist in increasing validity and reliability by reducing personal bias. | |
| **The Decontextualisation** | | | |
| | "Wholistic" read for familiarisation was this time skipped | | |
| 5th Reading | Selective reading of relevant parts only | | Focus on detail |
| Identifying Meaning Units | Identifying meaning units | | **Inductively** |
| Open Coding | Label each meaning unit | | Inductive coding |
| Memos | Writing any note that comes to mind | | |
| **Recontextualisation** | | | |
| Distancing | This was obtained by allowing 3 months between stage 1 and 2 | | |
| Comparison | Comparison of the meaning units coded in stage 1 and 2 was important. | | Triangulation for trustworthiness |
| Decisions | Decisions were taken on the text that was coded differently across the two sets | | |
| Confirmations | Confirming all the text that has been coded the same across the two data sets. | | |
| Dross | The unwanted text was confirmed, and coach Marked | | |
| **Categorisation** | | | |
| Categories in a Table | Extended meaning units were condensed on MS Excel | | |

| | | | |
|---|---|---|---|
| Categorisation | A process of categorisation was performed on MS Excel | | Note taking and rough diagrams on paper were also necessary |
| Comparison | Comparison of the newly formed categories (stage 2) with the previously formed categories (Stage 1) was done | | |
| New Category | Predisposition was created | | |
| Sub-categories | Several sub-categories were confirmed, others adapted or joined, while new ones were also generated. | | Refer to Appendix 4.3 for a sample of part of the Analysis Schedule. |
| Confirmed Categories | A final decision has been taken on the final set of categories | First Inductive Categories Predisposition, Acquisition, Preparation, Dissemination, Regeneration. | Table 4.3 |
| **The Compilation** | | | |
| Version 1.2 Textual Explanation | The second tentative at compiling the process of knowledge acquisition. | | |
| Version 1.2 Visual Diagram | A more elaborated visual diagram was drafted | | Figure 5.2 |
| Simplified Explanation | A simplified explanation of the process was created. It also indicated changes from the first one. | This was also intended to be used with coaches in the next phase of the study. | Table 5.1 |

# APPENDIX 4.2

## THE PROCESS OF CATEGORISATION – PHASE 1

| Themes | Categories | Sub-categories | Sub Level 2 |
|---|---|---|---|
| Comprehension (Generation) | A clear understanding of Subject Matter | | |
| | A clear understanding of the Context | Learning predisposition | |
| | | Coach's Philosophy of the game | |
| | | Players' Characteristics | |
| | | Coach's knowledge and preferences about the system of play, a model of play etc. | |
| | | Coach's knowledge and preferences about principles, sub-principles etc. | |
| Transformation | Preparation of text into a structured curriculum | Simplification of knowledge (Economy) | Breaking down PoP |
| | | Structure of knowledge (Productiveness) | Hierarchy of Importance of PoP |
| | | Language (Power, Symbolic) | |
| | Representation – examples, demonstrations etc. | Symbolic Representation – using words | |
| | | Enactive Representation – by doing | |
| | | Ikonic Representation – using images | |
| | Selection – methodological and organisational | Sequence "In what order do we present things?" | Progression and periodization of PoP |
| | Adaptation to learner's characteristics | | |
| Instruction (Dissemination) | | | |
| Evaluation & Reflection | | | |
| New Comprehension (regeneration) | | | |

| Shulman | Bruner | Oliveira |
|---|---|---|
| Pedagogical Reasoning and Action | TI | TP |

*The Categorisation Table Phase 1 – Part 1*

## APPENDIX 4.3

## ANALYSIS SCHEDULE – PHASE 1

| MEANING UNIT | CONDENSED MEANING UNIT | | | SUB-CATEGORIES | CATEGORIES |
|---|---|---|---|---|---|
| The process of preparation will usually include (1) detecting and correcting errors of omission and commission in the text, and (2) the crucial processes of structuring and segmenting the material into forms better adapted to the teacher's understanding and, in prospect, more suitable for teaching. | From Learner to Learning Facilitator | Hierarchy | | Detection and Correction | ACQUISITION |
| A TI is *prescriptive* in the sense that it sets forth rules concerning the most effective way of achieving knowledge or skill | Instruction | TI - Prescriptive | | Acquisition Definition | ACQUISITION |
| Translatability of corrective information can in principle also be applied to the form of representation and its economy. If learning or problem solving is proceeding in one mode-en-active, iconic or symbolic-corrective information must be provided either in the same mode or in one that translates into it. Corrective information that exceeds the information-processing capacities of a learner is obviously wasteful. | Individual Characteristics | Economy - Productiveness - Power | Transferability | Demonstrations | PREPARATION |
| A third aspect of a TI deals with the optimal sequence that is required for learning. In what order do we present things? | Hierarchy? Sequence? Structure? | Instruction | ZPD | Sequence | PREPARATION |

# APPENDIX 4.4

## APPLICATION OF QCA IN PHASE 2

| SOURCE | Interviews | ANALYSIS | Stage 3 - NVivo |
|---|---|---|---|
| **Stage** | **Description** | **Tasks** | **References** |
| **The Decontextualisation** | | | |
| **Interviewing** | First familiarisation process | | |
| **Listening to Recordings** | Second familiarisation process | | |
| **Coding List** | Creating codes deductively | | Appendix 4.5 |
| **Open Coding** | Label each meaning unit | On videos/audios in NVivo | Deductive Coding |
| **Memos** | Writing any note that comes to mind | | |
| **Recontextualisation** | | | |
| **Coding all sources** | Assuring that all content is covered in NVivo is a very easy task. | Highlighting “Coding for all Nodes” in NVivo’s View menu bar, I could check that all audios or videos are coded fully. | |
| **Coding Confirmation** | Confirming that all content has been coded appropriately. NVivo makes this much easier too. | Viewing only the sound player and having ‘Coding Stripes’ showing ‘All Nodes Coding’ makes it easy to listen to all the interview parts according to their coding stripes and adjust accordingly when necessary. | Figure 4.5 |
| | | This was indirectly repeated during the ‘**categorisation**’ process as there were a few instances when it became evident that certain | |

| | | | |
|---|---|---|---|
| | | meaning units were more deemed fit for a different category (node/code). | |
| **Dross** | Unwanted recordings were re-listened to and either coded appropriately or confirmed and coach Marked as 'dross' | NVivo – View – Coding for all Nodes.<br>Re-listening only to the areas which are not coach Marked as coded and decide whether to code it or to coach Mark it as Dross. | |
| **Categorisation** | | | |
| **Entering all meaning units in Excel** | I listened to every meaning unit coded under each node/category in NVivo. | I created a sheet in Excel, which included the main theme, category and subcategory. | |
| **Condensed Meaning Units** | Each meaning unit has been shortened, without losing the content of the unit<br>(Graneheim & Lundman, 2004) | Both the meaning unit and the condensed meaning unit were entered in Excel, alongside their source. | |
| **Themes, Categories, sub and sub-sub-categories.** | Each meaning unit and its condensed meaning unit were put under a theme. Themes, categories and sub-categories were mainly the same as the codes used in NVivo. | Themes were set deductively based on the previously set themes. | |
| **Categorisation Verification** | "To validate the outcome and to strengthen the validity of the study, the investigator can perform a respondent validation, a member check, which means that the investigator goes back to the informants and presents the results in order to achieve an agreement". (Bengtsson, p. 13) | | |
| **Categorisation** | At this stage, once meaning units were condensed, sub-categories within the same categories started emerging. For example, it | I spent hours looking at the Excel sheet and considering how each meaning unit answers the main research question "**What is the process of knowledge acquisition that informs expert** | Note taking and rough diagrams on paper were also necessary |

| | | | |
|---|---|---|---|
| | was very evident that coaches who were talking about Match Analysis (Category under the component Scrutiny of the Environment) they were referring to different aspects of match analysis – hence the different sub-categories. | **coaches when preparing instructions to coach football principles?**<br><br>To help me focus on my research question, I have printed the same research question on an A4 in large fonts and kept it attached to my desk all the time. | |
| **Ending Categorisation** | This step kept ongoing and sometimes I kept coming back to it even when I was writing my analysis and designing my final diagram of the process presented in this study. | | |
| **The Compilation** | | | |
| **Manifest Analysis (or Latent?)** | Manifest analysis was chosen for this study, as I wanted to stay with the participants' words. While Manifest Analysis was employed throughout, I allowed myself to give an interpretation to moments were participants were felt to be hesitant about their answers. | Latent Analysis was used in moments were coaches were evidently (based on my analytical interpretation) talking about covert and overt knowledge. | |
| **Summary Draft 1** | 700 meaning units from 10 different sources led to 6 components divided into various subcomponents. | The exercise entailed in issuing this summary has also helped in applying a further polish of how sub-categories link to the previous categories in view of the research question and the process being presented to answer this question. | |
| **Summary comparison** | To check that no important points have been lost through the process, between phase 1 and 2, a comparison of the two summaries is held. | | |

| The Compilation – Part 2 | | | |
|---|---|---|---|
| **PoP Coaching Process Design** | Taking that the above did not focus on the 'coaching process' but only on the emergent themes and categories, it was now time to look at the themes and categories from a coaching process point of view. | The construction of the Coaches' Process of Knowledge Generation for Coaching through Principles of Play and its components started by putting the themes and categories in a visual diagram, looking at it and contemplating about the coaching process. Changes were considered important, and the diagram evolved various times. This process catalysed corrections of the Themes, Categories and subcategories on [a new copy of] the Excel file. This allowed me to appropriate structure discussions in the next chapter. | |
| **Visual Diagrams** | Visual Diagrams representing the final findings to come out with a representative diagram | | |
| **VD – Level 1**<br><br>Personal Interpretations | A diagram of the components and sub-components as were after the final categorisation process.<br><br>This was only built on the Themes and Level 1 Categories Only | Changes based on my own analytical interpretation were held on this first visual, and updates were done on Excel<br><br>Rechecks with Excel where held continuously. | Figure 5.3 |
| **Rigorous Internal Validation** | Rechecks with Excel where held continuously.<br><br>Going back and forth through categories and meaning units was essential to stay with data. | Filtering in Excel proved to be an important tool. This led to identifying few meaning units that were not in the right place once again. | |
| **VD – Level 2&3** | An updated diagram of the components and sub-components as adapted after VD – Level | Changes led by my own analytical interpretation were held on this first visual, and updates were | Figure 5.4 - 5.5 |

| | | | |
|---|---|---|---|
| Personal Interpretations | 1 was drawn.<br><br>This was built with the Categories Level 2 and 3 taken into consideration too. | done on Excel. | |
| **Rigorous Internal Validation** | This time a very rigorous recheck and comparison between the Visual Display level 3 and the excel sheets with all the meaning units and their categorisation was made | Each section on the visual design was found on the excel sheet and coach Marked with a different colour. At the end of the process, this left all the meaning units which were not yet included in the visual in any way. | **Find It** and **Segment It** was not included in the VD before this stage.<br>All changes are in fact highlighted in Green in the V D – Level 4 |
| **Visual Representation – Level 4** | This visual represents visual Level 3, but with the improvements identified from the previous validation process. | | Figure 5.7 |
| **Visual Representation – Level 5**<br><br>Coaches feedback re Conceptualised Process | | At this stage more, importance was given to the feedback the participants (44) gave about the conceptualised process itself | Figure 5.8 |
| **Rigorous Internal Validation** | Rechecks with Excel where held continuously.<br><br>Going back and forth through categories and meaning units was essential to stay with data. | Filtering in Excel proved to be an important tool. This led to identifying few meaning units that were not in the right place once again. | |
| **Discussions** | Analysing how findings correspond with literature | | |

# APPENDIX 4.5

## CATEGORISATION COMPARISON PROCESS

| Categories from Version 1.2 Categorisation (Table 4.3) | | | |
|---|---|---|---|
| **Themes** | **Categories** | **Sub-categories** | **Sub-categories Level 2** |
| Predisposition | Coach's Predispositions | Coach's Philosophy of the game | |
| | | Coach's knowledge and preferences about the system of play, a model of play etc. | |
| | | Coach's knowledge and preferences about principles, sub-principles etc. | |
| | | Personal Objectives | |
| | | Existing Knowledge | |
| | | Coaching Methodology | Philosophy |
| | | | Planning |
| | Environmental Predispositions | Club's Objectives | |
| | | Culture and Attitudes | |
| | Individual Predispositions | Players' Characteristics | |
| | | Learning predisposition | |
| | | Players' Objectives | |

| Categories from Version 1.2 (Colloquial) | | |
|---|---|---|
| **Themes** | **Categories** | **Sub-categories** |
| **Scrutiny of the Environment** | Scrutinize It | Coach |
| | | Environment |
| | | Players |
| | | Objectives |

| | | | |
|---|---|---|---|
| ~~Comprehension~~ Acquisition | A clear understanding of Subject Matter | | |
| | A clear understanding of the Context | | |
| | Sources of knowledge | | |
| | Detection and correction for teacher's understanding and suitable for teaching. | | |

| | | |
|---|---|---|
| **Acquisition of knowledge** | Identify It | Model It |
| | | Find It |
| | | Build It |

| | | | |
|---|---|---|---|
| ~~Transformation~~ Preparation | Preparation of text into a structured curriculum | Simplification of knowledge (Economy) | Breaking down MoP, PoP |
| | | Structure of knowledge (Productiveness) | Hierarchy of Importance of PoP |
| | | Language (Power, Symbolic) | |
| | Representation – examples, demonstrations etc. | Symbolic Representation – using words | |
| | | | |
| | | Enactive Representation – by doing | |
| | | Ikonic Representation – using images | |
| | Selection – methodological and organisational | Sequence "In what order do we present things?" | Progression and periodization of PoP |
| | Adaptation to learner's characteristics | | Considering consensual target |
| | Considering contextual predisposition | | |
| | Curriculum Design | | |
| | Training Sessions Design | | |

| | | |
|---|---|---|
| **Transformation of Knowledge** | Prepare it | Own It |
| | | Segment it |
| | | Simplify It – Common Language |
| | Operationalise it | Verbalise it |
| | | Demonstrate it |
| | | Image it |
| | Plan it | Sequence It |
| | | Programme it |
| | Prepare it | Adapt it (change order) |
| | | Build it (change order?) |
| | Operationalise it | Integrate It |

| | | | |
|---|---|---|---|
| ~~Instruction~~<br>Dissemination | Coaching Delivery | | |
| | Coaching Methodology | | |
| | Feedback and Instruction | Questioning and Probing | |
| | | Answering and Reacting | |
| | | Praising and Criticising | |
| | Checking Learning ** | | |

| | | |
|---|---|---|
| **Coaches' Dissemination of Knowledge** | Deliver | Deliver |
| | | Provide Experiences |
| | Facilitate it | Apply Pedagogical Methodology |
| | | Questioning and Probing |
| | | Answering and Reacting |
| | | Praising and Criticising |
| | | |

| | |
|---|---|
| ~~Evaluation & Reflection~~<br>Regeneration | Evaluation |
| | Reflection |
| | New Comprehension ** |

| | | |
|---|---|---|
| **Coaches' Regeneration of Knowledge** | Evaluate it | Evaluate |
| | Reflect on it | Reflect |
| | | |

# APPENDIX 4.6

## DEDUCTIVE LIST OF CODES APPLIED

| Themes | Categories | Sub-categories |
|---|---|---|
| **1. Scrutiny of the Environment** | 1.1 Scrutinize It | 1.1.1 Environment |
| | | 1.1.2 Players |
| | | 1.1.3 Objectives |
| | | 1.1.4 Coach (Self) |
| **2. Acquisition of Knowledge** | 2.1 Identify It | 2.1.1 Model It |
| | | 2.1.2 Find It |
| | | 2.1.3 Build It |
| **3. Transformation of Knowledge** | 3.1 Prepare It | 3.1.1 Own It |
| | | 3.1.2 Segment It |
| | | 3.1.3 Simplify It (common language) |
| | | 3.1.4 Adapt It |
| | 3.2 Plan It | 3.2.1 Sequence It |
| | | 3.2.2 Programme It |
| | 3.3 Operationalise It | 3.3.1 Verbalise It |
| | | 3.3.2 Demonstrate It |
| | | 3.3.3 Image It |
| | | 3.3.4 Integrate It |
| **4. Dissemination of Knowledge** | 4.1 Deliver it | 4.1.1 Deliver |
| | | 4.1.2 Provide Experiences |
| | 4.2 Facilitate It | 4.2.1 Apply Pedagogical Methodology |
| | | 4.2.2 Questioning and Probing |
| | | 4.2.3 Answering and Reading |
| | | 4.2.4 Praising and Criticising |
| | 4.3 Check It ** | 4.3.1 Check Learning |
| **5. Regeneration of Knowledge** | 5.1 Evaluate it | 5.1.1 Evaluate |
| | 5.2 Reflect on It | 5.2.1 Reflect |
| | 5.3 Regenerate It ** | 5.3.1 New Comprehension |

*** These two categories did not exist before. However, in retrospect, it was noticed that it was an area covered by the analysed theories.*

# APPENDIX 4.7

## SUMMARY OF THEMES CATEGORIES, SUB and SUB-SUB-CATEGORIES.

| Themes | Categories | Sub-categories | Sub-sub-categories |
|---|---|---|---|
| Scrutiny of the Environment | Club | Committee Philosophy<br>– Culture<br>– History<br>Objectives<br>Methodology<br>Coaching Domain<br>League<br>Setup<br>Facilities | |
| | Players | Age<br>Language<br>Objectives<br>Relationship with MoP<br>Personality<br>Recruitment<br>Response to Coach's Communication | |
| | | Characteristics | Analysis |
| | Coach (Self) | Experiences | Seeing the Game |
| | | Knowledge | Transfer of Knowledge<br>Known & Unknown<br>Pedagogy<br>Continuous Learning<br>Beyond Soccer |
| | | Leadership | Emotional Intelligence |
| | | Philosophy | Beyond Soccer<br>Personality<br>Pedagogical<br>Game Model |
| | | Self-Development | |
| | | Objectives | |
| | Match Analysis | Opponents<br>Other Teams | Matches |
| | | Own Team | Past Matches<br>Present Matches<br>Training<br>Players' Eye View |
| | Time Frame | | |
| 2. Common Strategy | 2.1 Identify It | A Shared Strategy | |
| | | Which (knowledge) | |
| 3. Acquisition of Knowledge | 2.1.1 Model It | Model of Play | Systems of Play<br>Style of Play<br>Phases of Play<br>Sectors/Departments<br>Principles of Play<br>- General Principles<br>- Sub-principles (Specific) |

| | | | |
|---|---|---|---|
| | | | - Individual Principles<br>Strategy |
| | | Pedagogical Reasoning | Adaptation |
| | 2.1.2 Find It (knowledge) | What | Principles of Play<br>General Principles<br>Specific Principles<br>Self Growth<br>Tactical Observations<br>- Patterns<br>Moments of the Game |
| | | How | Creating<br>Exploring<br>Selective Analysis<br>Technology |
| | | Where | Self,<br>Coaches,<br>Coaching Education,<br>Community of Practice,<br>Experiences,<br>Games,<br>Reading (Internet),<br>Own Players |
| | | Why | |
| | 2.1.3 Build It | Model of Play | Programme<br>Principles of Play<br>Details<br>- Specific Principles<br>- Individual Principles<br>**- Strengths & Weaknesses**<br>- A Language Code<br><br>Adaptation<br>Developmental |
| 4. Transformation of Knowledge | 3.1 Prepare It *(this can become adapt it)* | 3.1.4 Adapt It *(this can become own it and own it categories come here)* | Model of Play<br>**General Principles**<br>Strategy<br>Players' Self Determination<br>Simplification |
| | | 3.1.2 Segment It | Four Corners<br>Moments & Phases<br>General Principles<br>**Sub-principles (Specific)**<br>Scenarios<br>Sectoral/Intersectoral<br>**Individual** |
| | | Simplification | Review Segmentation Sequence<br>**Verbalise It**<br>Clear Behaviours |
| | 3.1.1 Own It | How<br>Why | |
| | 3.2 Plan It | 3.2.1 Sequence It | Developmental Programmes<br>General Principles |

| | | | |
|---|---|---|---|
| | | | Sub-principles (Specific)<br>Individual – Sectoral – Intersectoral<br>Moments & Phases<br>Progressive Sequence |
| | | 3.2.2 Programme It | Session-Micro-Meso-Macro<br>- Weekly Programme<br>Developmental Programmes<br>Flexibility<br>Moments & Phases<br>Programme led Feedback<br>Scenarios<br>Tactical Programming |
| | **3.3 Design It** | Aims of the Sessions | Pedagogical Aims |
| | | 3.3.1 Verbalise It | Common Language<br>Interventions<br>Pedagogical Knowledge |
| | | 3.3.2 Demonstrations | Visual<br>Reading<br>Kinaesthetic |
| | | MoP Based Exercises | |
| | | 3.3.4 Session Planning | Adaptations<br>Conditions<br>Cycle<br>Exercises<br>PoP<br>Principles of Training |
| 5. Dissemination of Knowledge | Create a Learning Environment | Teach about Learning | |
| | | Teach Self-Regulation | |
| | Pre-Training Session | Communicate | Explain<br>Shared Leadership |
| | | Evaluate | |
| | | Rehearse it | |
| | Training Session | Explain | |
| | | Provide Experience | Guided Discovery |
| | | Teaching | Adapting Principles of Play<br>Apply Pedagogical Methodology<br>- Answering & Reacting<br>- Give Feedback<br>- Questioning & Probing<br>- Inductive – Deductive<br>- Praising & Criticising |
| | | Evaluate & Reflect | Transfer of Learning |
| | | Consolidate | |
| 6. Regeneration of Knowledge | 5.1 Evaluate it | 5.1.1 Evaluate Learning | |
| | | Generate Feedback | |

| | | | |
|---|---|---|---|
| | | Micro – Meso – Macro Cycle | |
| | | Model of Play as a Yard Stick | |
| | | Transfer of Learning | |
| | 5.2 Reflect on It | Understand | |
| | | Model of Play as a Yardstick | |
| | 5.3 Regenerate It | 5.3.1 New Comprehension | |

# APPENDIX 4.8

## SUMMARY OF THEMES REVIEWED INCLUDING COACHES REACTIONS.

| Theme | Category | Sub Category | Sub-sub Category |
|---|---|---|---|
| Scrutiny of the Environment | Club | Committee Philosophy<br>– Culture<br>– History<br>Objectives<br>Methodology<br>Coaching Domain<br>League<br>Setup<br>Facilities | |
| | Players | Age<br>Language<br>Objectives<br>Relationship with MoP<br>Personality<br>Recruitment<br>Response to Coach's<br>Communication | |
| | | Characteristics | Analysis |
| | Coach (Self) | Experiences | Seeing the Game |
| | | Knowledge | Transfer of Knowledge<br>Known & Unknown<br>Pedagogy<br>Continuous Learning<br>Beyond Soccer |
| | | Leadership | Emotional Intelligence |
| | | Philosophy | Beyond Soccer<br>Personality<br>Pedagogical<br>Game Model |
| | | Self-Development | |
| | | Objectives | |
| | Game Analysis | Opponents<br>Other Teams | Matches |
| | | Own Team | Past Matches<br>Present Matches<br>Training<br>Players' Eye View |
| | Time Frame | | |

| | | | |
|---|---|---|---|
| ~~2. Common Strategy~~ | ~~2.1 Identify It~~ | ~~A Shared Strategy~~ | *Part of Conceptualisation* |
| | | ~~Which (knowledge)~~ | *Moved to find knowledge* |
| Conceptualisation | Model It - MOP | Model of Play<br>Style of Play<br>Phases of Play<br>Sectors/Departments<br>Principles of Play<br>- General Principles<br>- Sub-principles (Specific) | |

| | | | |
|---|---|---|---|
| | | - Individual Principles<br>Strategy | |
| | | ~~Pedagogical Reasoning~~ | ~~Adaptation (moved to Regeneration of Knowledge)~~ |

| | | | |
|---|---|---|---|
| ~~Acquisition of Knowledge~~<br><br>Generation of Knowledge | 2.1.2 Find It (knowledge) | What | Principles of Play<br>General Principles<br>Specific Principles<br>Self Growth<br>Tactical Observations<br>- Patterns<br>Moments of the Game |
| | | How | Creating<br>Exploring<br>Selective Analysis<br>Technology |
| | | Where | Self - Coaches<br>Coaching Education<br>Community of Practice<br>Experiences<br>Games<br>Reading (Internet)<br>Own Players |
| | | Why | |
| | ~~**2.1.3 Build It**~~ | ~~Model of Play~~ | ~~Programme~~<br>~~Principles of Play~~<br>~~Details~~<br>~~- Specific Principles~~<br>~~- Individual Principles~~<br>~~**- Strengths & Weaknesses**~~<br>~~- A Language Code~~<br><br>~~Adaptation~~<br>~~Developmental~~ |

| | | | |
|---|---|---|---|
| Transformation of Knowledge | Build It - Model of Play | MoP | Programme<br>Principles of Play<br>Details<br>- General Principles<br>- Specific Principles<br>- Individual Principles<br>- Strengths & Weaknesses<br>- A Language Code<br><br>Strategy<br>Adaptation<br>Developmental |
| | | ~~3.1.4 Adapt It~~ | ~~Model of Play~~<br>~~**General Principles**~~<br>~~Strategy~~<br>~~Players' Self~~ |

| | | | |
|---|---|---|---|
| | | | ~~Determination~~<br>~~Simplification~~ |
| | | 3.1.2 Segment It | Four Corners<br>Moments & Phases<br>General Principles<br>**Sub-principles (Specific)**<br>Scenarios<br>Sectoral/Intersectoral<br>**Individual** |
| | ~~3.1 Prepare It~~<br>*Adapt it* | Simplification | Simplification of Concept<br>Review Segmentation<br>**Verbalise It**<br>Clear Behaviours |
| | **3.1.1 Own It** | How<br>Why | |
| | **3.2 Plan It** | 3.2.1 Sequence It | Developmental Programmes<br>General Principles<br>Sub-principles (Specific)<br>Individual – Sectoral – Intersectoral<br>Moments & Phases<br>Progressive Sequence |
| | | 3.2.2 Programme It | Session-Micro-Meso-Macro<br>- Weekly Programme<br>Developmental Programmes<br>Flexibility<br>Moments & Phases<br>Programme led Feedback<br>Scenarios<br>Tactical Programming |
| | **3.3 Design It** | Aims of the Sessions | Pedagogical Aims |
| | | 3.3.1 Verbalise It | Common Language<br>Interventions<br>Pedagogical Knowledge |
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| | | MoP Based Exercises | |
| | | 3.3.4 Session Planning | Adaptations<br>Conditions<br>Cycle<br>Exercises<br>PoP<br>Principles of Training |

| | | | |
|---|---|---|---|
| Dissemination of Knowledge | | | |
| | | Teach Self-Regulation | |
| | Pre-Training Session | Communicate | Explain<br>Shared Leadership |
| | | Evaluate | |
| | | Rehearse it | |
| | Training Session | Explain | |
| | | Provide Experience | Guided Discovery |
| | | Teaching | Adapting<br>Principles of Play<br>Apply Pedagogical Methodology<br>- Answering & Reacting<br>- Give Feedback<br>- Questioning & Probing<br>- Inductive – Deductive<br>- Praising & Criticising |
| | | Evaluate & Reflect | Transfer of Learning |
| | | Consolidate | |

| | | | |
|---|---|---|---|
| Regeneration of Knowledge | 5.1 Evaluate it | 5.1.1 Evaluate Learning | |
| | | Generate Feedback | |
| | | Micro – Meso – Macro Cycle | |
| | | Model of Play as a Yard Stick | |
| | | Transfer of Learning | |
| | 5.2 Reflect on It | Understand | |
| | | Model of Play as a Yardstick | |
| | 5.3 Regenerate It | 5.3.1 New Comprehension | |



Approved: 25/11/2016

Renzo Kerr-Cumbo
Registration number: 140209910
School of Education
Programme: PhD in Education

Dear Renzo

**PROJECT TITLE:** LEARNING THE PRINCIPLES OF PLAY A qualitative epistemological study of expert coaches content knowledge about the principles of play in football.
**APPLICATION:** Reference Number 011369

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 25/11/2016 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 011369 (dated 01/11/2016).
- Participant information sheet 1024317 version 1 (26/10/2016).
- Participant information sheet 1024316 version 1 (26/10/2016).
- Participant information sheet 1024315 version 1 (26/10/2016).
- Participant information sheet 1024314 version 1 (26/10/2016).

The following optional amendments were suggested:

*Attention should be paid to the reviewers comments though these do not necessarily raise ethical issues but rather methodological and pragmatic ones.*

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Yours sincerely

David Hyatt
Ethics Administrator
School of Education