

# **Understanding Coaches' Learning: Process, Practice and Impact**

by  
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## **Abstract**

Although it seems clear that coaches become effective practitioners through idiosyncratic combinations of learning experiences (Werthner & Trudel, 2009), little is known about *how* and *why* this occurs and impacts on coaching knowledge and practice (Cushion et al., 2010). This research sought to understand the processes and impact of coaches' learning in the context of UK youth football coaching, specifically centring on a formal education course. The research process utilised a pragmatic and integrated perspective, influenced by impact evaluation frameworks (e.g. Coldwell & Simkins, 2011). A group of 25 coaches were investigated at different points over a period of a year and a half, using a mixture of semi-structured interviews, systematic observations, video-based stimulated recall interviews and course observations, to build up increasingly in-depth levels of data. Using the principles of grounded theory methodology (Strauss & Corbin, 1998) as well as mixed analyses of variance (ANOVA), changes in the knowledge use and practice behaviours of course candidates, and equivalent coaches not undertaking formal education, were compared. The course had subtle impacts on coaches' knowledge conceptions in interaction with wider knowledge sources, yet impact on practice was generally demonstrated only in the areas of questioning content and individually directed coaching interventions. Mismatches between the espoused theory of the course and what the candidates actually perceived, as well as a lack of individualised support to overcome disjuncture (Jarvis, 2006) created barriers to learning, preventing integration of theoretical conceptions into altered coaching practice. A substantive grounded theory was generated to explain the underpinning double-loop 'cognitive filter' and reflective feedback processes involved in coaches' learning. The model demonstrated that practitioners' learning, guided by existing biography and driven by a practical focus on 'what works', was heavily influenced by context. Meaningful learning connected knowledge with implementation in practice through reflection. These processes help explain uneven learning across individuals; addressing for the first time questions of 'what works', 'how', 'why', and for whom in coach learning (McCullick et al., 2009). Thus the results generate an understanding of coaches' learning which can be practically relevant in fostering better opportunities to enhance the development of capable and creative coaches.

## Table of Contents

<b>Acknowledgements.....</b>	<b>i</b>
<b>Abstract.....</b>	<b>ii</b>
<b>Table of Contents .....</b>	<b>iii</b>
<b>Table of Figures.....</b>	<b>vii</b>
<b>Table of Tables .....</b>	<b>ix</b>
<b>Chapter 1: Thesis Introduction .....</b>	<b>1</b>
1.1 Research context .....	2
1.2 Research questions .....	8
1.3 Thesis structure.....	8
<b>Chapter 2: Literature Review.....</b>	<b>12</b>
Introduction .....	12
2.1 The development of coach learning research .....	13
2.2 Formal learning situations .....	18
2.3 Informal learning situations .....	26
2.4 Coaches' learning as a whole - combining learning situations .....	35
2.5 The processes of coaches' learning.....	37
2.6 Summary and conclusions .....	45
<b>Chapter 3: Methodology .....</b>	<b>48</b>
Introduction .....	48
3.1 Paradigm.....	48
3.2 Participants .....	53
3.2.1 Ethical considerations. ....	56
3.3 Design.....	60
3.4 Instrumentation .....	62
3.4.1 Semi-structured interviews. ....	62

3.4.2	Systematic observation. ....	63
3.4.3	Stimulated recall interviews. ....	67
3.4.4	Participant observation – coaching course observation inventory. ....	68
3.5	Procedure.....	69
3.5.1	Piloting. ....	69
3.5.2	Semi-structured Interviews.....	70
3.5.3	Video observations & stimulated recall interviews.....	70
3.5.4	Participant Observations – YAM3 Course.....	74
3.6	Analysis.....	75
3.6.1	Qualitative data. ....	75
3.6.2	Quantitative data. ....	80
3.7	Research Quality.....	80
3.7.1	Consistency.....	81
3.7.2	Credibility. ....	82
3.7.3	Generalisability.....	83
3.7.4	Reflexivity.....	85
3.8	Summary.....	89
<b>Chapter 4: Intervention Delivery and Participant Reactions .....</b>		<b>90</b>
Introduction .....		90
4.1	Intervention: Formal Education Group .....	91
4.1.1	YAM3 intended delivery. ....	91
4.1.2	YAM3 delivery. ....	93
4.2	Comparison Group.....	103
4.3	Intervention Outcomes: Education Group Perceptions & Reactions .....	103
4.3.1	Course content. ....	104
4.3.2	Facilitators to learning. ....	114
4.3.3	Barriers to learning. ....	116

4.4 Summary.....	123
<b>Chapter 5: Knowledge .....</b>	<b>125</b>
Introduction .....	125
5.1 Models of coaching knowledge .....	125
5.1.1 Pre-intervention knowledge.....	126
5.1.2 Post-intervention knowledge: YAM3 coaches. ....	132
5.1.3 Post-intervention knowledge: comparison coaches.....	135
5.2 Case studies .....	139
5.2.1 Carlo's scenario: pre-intervention.....	139
5.2.2 Amy's scenario: the comparison coach. ....	142
5.2.3 Carlo and Amy: post-intervention.....	142
5.2.4 Case-study summary and discussion.....	149
5.3 Knowledge .....	150
5.4 Summary.....	154
<b>Chapter 6: Behaviour and Practice.....</b>	<b>156</b>
Introduction .....	156
6.2 Descriptive and Inferential Statistics .....	157
6.2.1 Rate Per Minute Behaviours. ....	159
6.2.2 Practice States. ....	169
6.3 Coach Behaviour: Summary .....	172
6.3.1 Case Study Profiles.....	173
6.4 Discussion.....	181
6.5 Summary.....	185
<b>Chapter 7: Impact.....</b>	<b>186</b>
<b>What works in coach learning, and why? .....</b>	<b>186</b>
Introduction .....	186
7.1 The 'Filter' Process .....	187

7.1.1	Individual level filter. ....	190
7.1.2	Contextual level filter. ....	194
7.1.3	From knowledge to practice. ....	197
7.2	Summary.....	206
<b>Chapter 8: Conclusion, Implications and Recommendations.....</b>		<b>209</b>
	Introduction .....	209
8.1	Research context and questions.....	209
8.2	Empirical findings.....	211
8.2.1	Overview of original contribution. ....	215
8.3	Implications .....	217
8.3.1	Implications for practice.....	218
8.3.2	Future research. ....	222
8.4	Concluding Thoughts. ....	223
<b>References.....</b>		<b>224</b>
<b>Appendices.....</b>		<b>253</b>

## Table of Figures

Figure 1.1. Framework for professional development evaluation .....	8
Figure 1.2. Framework for thesis structure .....	11
Figure 3.1. Diagram of methodology showing instruments used and number of participants involved in each .....	60
Figure 3.2. Initial scheme of linked concepts and categories .....	78
Figure 4.1. FA coach education provision pathway (FA Learning, 2013; p.53) .....	92
Figure 4.2. Chart of time each individual spent during different activities during the YAM3 – Average of May and September courses .....	94
Figure 4.3. Chart of percentage time spent on different activities during Youth Module 3 (May) from the perspective of individual candidates.....	101
Figure 4.4. Chart of percentage time spent on different activities during Youth Module 3 (September) from the perspective of individual candidates .....	101
Figure 4.5. Diagram of categories and concepts relating to candidate perceptions of, and reactions to the FA Youth Award Module 3. ....	104
Figure 5.1. Overview of YAM3 and comparison coaches' pre-intervention knowledge-in-action, displaying hierarchical concepts, subcategories and categories.....	129
Figure 5.2. Hierarchical concepts, sub-categories and categories of YAM3 coaches' post-intervention knowledge that differed from pre-intervention.....	137
Figure 5.3. Hierarchical concepts, sub-categories and categories of comparison coaches' post-intervention knowledge that differed from pre-intervention and/or YAM3 coaches' post-intervention knowledge.....	138
Figure 5.4. Categories describing conceptions of knowledge and learning (Entwistle & Peterson, 2004, p.409) .....	153
Figure 6.1. Chart of mean values of average RPM coaching behaviours pre- and post-intervention for YAM3 and comparison coaches. ....	160
Figure 6.2. Chart showing average proportion of convergent and divergent questions used by participants pre- and post-intervention.....	164
Figure 6.3. Chart showing average proportion of technical, tactical and other questions used by participants pre- and post-intervention. ....	165
Figure 6.4. Chart showing average proportion of time spend by participants in game, playing, training and other practice states pre- and post-intervention. ....	169
Figure 6.5. Average rate per minute of YAM3 related behaviours, coach A1 .....	175



Figure 6.6. Average percentage time spent in different practice states, coach A1 .	177
Figure 6.7. Average rate per minute of YAM3 related behaviours, coach A2.....	179
Figure 6.8. Average percentage time spent in different practice states, coach A2.	180
Figure 7.1. Grounded theory of the learning 'filter' process of football coaches .....	189

## Table of Tables

Table 3.1. Participants.....	57
Table 3.2. Design including sample sizes and methods used for each group of participants.....	61
Table 3.3. Outline of YAM3 learning outcomes in relation to corresponding CAIS behaviour classifications used for analysing coaches' behaviours.....	66
Table 3.4. Memo associated with 3 open codes .....	79
Table 6.1. Table showing mean values for average Rate Per Minute of questioning used by participants pre- and post-intervention.....	163
Table 6.2. Table showing mean values for average percentage of question type used by participants pre- and post-intervention. ....	163
Table 6.3. Table showing mean values for average percentage of question content used by participants pre- and post-intervention.....	164
Table 6.4. Table showing the mean values for average Rate Per Minute of general positive reinforcement used by participants pre- and post-intervention.....	166
Table 6.5. Table showing the mean values for average Rate Per Minute of specific positive reinforcement used by participants pre- and post-intervention.....	166
Table 6.6. Table showing the mean values for average Rate Per Minute of corrective reinforcement used by participants pre- and post-intervention.....	167
Table 6.7. Table showing the mean values for average Rate Per Minute of specific negative reinforcement used by participants pre- and post-intervention .....	168
Table 6.8. Table showing the mean values for average Rate Per Minute of behaviours directed at individuals by participants pre- and post-intervention.....	169
Table 6.9. Table showing the mean values for average percentage of time spent in playing type practices by participants pre- and post-intervention .....	170
Table 6.10. Table showing the mean values for average percentage of time spent in playing type practices by participants pre- and post-intervention .....	171
Table 6.11. Table showing the mean values for average percentage of time spent in training type practices by participants pre- and post-intervention.....	172
Table 6.12. Table showing the mean values for average percentage of time spent in other practices by participants pre- and post-intervention.....	172

## **Chapter 1: Thesis Introduction**

This research is rooted in my desire to help improve sporting experiences in a practical way. I wanted to use my skills to work with 'real' people in naturalistic sport settings, to find out useful things about what they do and why. I saw the study of coaching, and in particular coach learning, as holding great potential to effect a large number people; compared to the individualistic focus of my background in the psychology of sport, influencing coach education could have an impact on many coaches, in turn influencing the experiences of numerous athletes under their charge.

At the beginning of the project, I thought back to the hundreds of children and young people I must have come into contact with during my fledgling coaching experiences, and how I learnt to work with them in the ways I did. As an averagely skilled football player, I often felt my coaches played a significant role in my development and enjoyment (or more accurately, my lack thereof). I remembered a particularly unhelpful piece of wisdom from one coach in the past; during a pre-match huddle with my team, he informed everyone that I "wasn't the player I used to be" as if at the age of 14, I was already past my best and beyond help! A few years on, these experiences formed the basis of my beginnings in coaching (Sage, 1989). Wishing to use my skills to engender a better experience for athletes in a similar position, while earning money through a sport I was passionate about, I enthusiastically engaged with introductory coach education courses. Once thrown in at the deep end (Rynne, Mallett & Tinning, 2010) of working alone with 21 seven year olds in the oppressive Massachusetts sun, however, I floundered spectacularly in a true 'reality shock' (Jones & Turner, 2006), and doubted if I was really cut out for coaching. Wholly unprepared for the reality of coaching practice, I grilled a more experienced colleague, with his help meticulously preparing until 2am that night for my next session. Thankfully, things (my knowledge, practice, effectiveness and enjoyment) improved after that first 'train crash'.

On beginning to access the academic literature on coach learning, it seemed those experiences were nothing new. Scholars wrote of the complexity of the coaching process, the inadequacy of formal coach education in preparing practitioners for this messy reality, and the subsequent importance of coaches' deep-seated experiences and interactions with others in their development (e.g., Cassidy,

Jones & Potrac, 2009; Cushion, Armour & Jones, 2003; Jones, 2007). Reading these papers and chapters from the point of view of a coach, the arguments made intuitive sense. Looking at the supporting research having spent my academic life in traditional, experimentally- and theoretically-informed training, however, it was clear that coaching was a relatively underdeveloped academic area. The evidence substantiating claims about coach education, learning and development seemed weak (e.g. Nash & Sproule, 2011; Stephenson & Jowett, 2009; Vella, Crowe & Oades, 2013; Wiman, Salmoni & Hall, 2010; Wright, Trudel & Culver, 2007). Many of the research studies relating how coaches develop their complex craft were exploratory, very descriptive, often incomplete, and largely uninspiring. Consequently, whilst there were many recommendations there was no clear evidence on 'what works' in coaches' learning and education, why, and for whom (Cushion Nelson, Armour, Lyle, Jones, Sandford & O'Callaghan, 2010). Moreover, the existing research seemed to have no easy connection between their findings and impacting practice; that is, making things better for coaches and athletes. In order to have the impact I desired, my research needed to be more thorough, rigorous, and methodologically and practically aligned with the settings in which I wanted to make a difference. So began the approach to this project, which is framed in more detail over the remainder of the chapter.

## **1.1 Research context**

In the wider continuing professional development literature approaches to the evaluation of 'education' have set out thorough frameworks capable of generating data to answer these questions (e.g. Coldwell & Simkins, 2011; Goodall, Day, Lindsay, Muijs & Harris, 2005; Guskey, 2002). However, research assessing coach education programmes are yet to utilise an evaluative framework and perhaps more seriously has yet to provide any direct evidence of impact. The research instead is "piecemeal" (McCullick, Schempp, Mason, Foo, Vickers & Connolly, 2009, p.331) and tends to focus atheoretically on participant perceptions and self-reported learning at one time point (e.g. Banack, Bloom & Falcão, 2012). This type of evidence constitutes the most basic and least informative level of evaluation (Goodall et al., 2005). Crucially this approach cannot measure key variables or identify relationships between them. The result has been a lack of necessary

information on how all aspects of learning fit together, either effectively or conflictingly (McCullick et al., 2009). For example, it does seem that learning from formal coach education provision varies across different individuals (e.g. Leduc, Culver & Werthner, 2012). Yet research in these settings has focused on the courses more than the learners as the unit of investigation, with no tangible links to measured outcomes of learning (c.f. Coldwell & Simkins, 2011), making it difficult to fully understand what works for whom, and why (Cushion & Nelson, 2013). Empirical research that does focus on coaches and their learning as a whole, beyond formal situations, has tended to descriptively list retrospectively reported learning sources of specific populations around the world (e.g. Camiré, Trudel & Forneris, 2012; Winchester, Culver & Camiré, 2011; 2013; McMaster, Culver & Werthner, 2012; Rynne & Mallett, 2012; Rynne, Mallett & Tinning, 2010). In the UK, learning research typically focuses on highly experienced top-level coaches (e.g. Jones, Armour & Potrac, 2003; Nelson, Cushion & Potrac, 2012), yet around half of practitioners work with children at club, county and regional competition levels (Sports Coach UK, 2011).

Taken together, the existing coach learning research has not generated evidence explaining how learning opportunities work for different individuals. As a result there appears limited or no development of frameworks that can improve learning and practice within different populations of coaches; for example those operating in contexts below the very highest levels (Griffiths, 2009).

The proliferation rather than integration of these compartmentalised perspectives means that although coaching is a burgeoning research area, many of the same messages predominate (Nash, Martindale, Collins, & Martindale, 2012), revealing little about the processes and outcomes of coaches' learning as a whole. Currently, we can only speculate that rather than building up a linear set of discrete learning opportunities, coaches actively integrate a multitude of experiences as interconnected modes of learning, in a non-systematic manner (Nelson, Cushion & Potrac, 2006; Abraham, Collins & Martindale, 2006). To address this, some scholars have taken influence from wider research in cognitive psychology and learning to explain the underpinning processes involved (Lyle, 2010). The sum of a coach's past experiences, knowledge and practice are said to act as a filter through which each learning situation will pass (Cushion et al., 2003), exerting a guiding influence

on what is learned (Trudel, Culver & Wernther, 2013). In addition, this biography, also referred to as cognitive structure, is thought to become modified as coaches learn from further events and experiences (Jarvis, 2006; Moon, 2001). It is argued that more organised cognitive structures, built up through learning, enhance efficient processing, perceptual, planning, decision making and communication skills (e.g. Abraham & Collins, 1998; Côté, Salmela, Trudel, Baria & Russell, 1995; Dodds, 1994; Lyle, 2010; Nash & Collins, 2006; Schempp, McCullick, & Sannen Mason, 2006).

While intuitively appealing, research in coaching is yet to provide direct evidence of these processes manifested in changed knowledge and behaviour. As with much coaching literature, existing data comes from coaches' self reports of their supposed learning and practice (e.g. Abraham et al., 2006; Cassidy, Potrac & McKenzie, 2006; Deek, Werthner, Paquette & Culver, 2013; Leduc et al., 2012; Lemyre, Trudel & Durand-Bush, 2007). Importantly, no research has gauged the nature or extent of changes in knowledge or situated behaviour through longitudinal comparisons related to practice. Such cognitive development and its outcomes for practice are still poorly understood, representing a promising avenue for researching coaches' learning (Côté et al., 1995; Cushion & Lyle, 2010).

Existing cognitive behavioural analyses remain limited by a rather narrow individual focus and impersonal view of learning as simple linear knowledge acquisition or behavioural outputs (Turner, Nelson & Potrac, 2012). This approach tends to overlook more social and situated forms of learning, as well as the importance of context in resulting practices. Therefore, ideas informed by more constructivist assumptions such as situated and reflective learning have the potential to advance cognitive and behavioural theories (Tusting & Barton, 2003) to more closely fit the social, contextual nature of coaching (e.g. Jones, Bowes & Kingston, 2010; Potrac, Brewer, Jones, Armour & Hoff, 2000). As a result, it could be argued that an effective combination of theories is needed to build and specifically develop 'coach learning' theory (Cushion & Nelson, 2013). A theory that can explain how coaches dynamically interact with the learning environments they encounter, actively transforming and constructing knowledge that assimilates with and alters their existing biography as a whole and links to situated action, is a necessary addition to move the field forward.

Such theory building requires that we assess moderating contextual variables and individual participant level antecedents in combination with multiple outcomes of learning to allow detailed analysis and understanding about the processes at work. Multiple method studies in wider education settings have generated 'level models' that operationalise this more advanced level of impact evaluation (e.g. Coldwell & Simkins, 2011; Guskey, 2002). These models (see pp. 8, 24) provide a practical, flexible and realistic framework to enable more nuanced engagement with questions such as whether, why and how long-term changes in knowledge and practice occur, and why apparently similar learning activities have different consequences for different individuals (Coldwell & Simkins, 2011). Given that coaches learn from a complex combination of different experiences, the most powerful way to investigate these issues is to take an expansive view of coaches' learning in various situations and the resulting influences on knowledge and practice over time. In other words, to better understand coaches' learning and behaviour, temporal interplay between the individual and the social context must be kept in view (Colley, 2003).

Accordingly, this particular study aims to take up these challenges within the background context of increased funding and attention towards developing coaches in the United Kingdom. Over the past ten years, the introduction of a National standard for coaching certification (United Kingdom Coaching Certificate, UKCC) and the UK Coaching Framework have furthered a vision of coaching as a profession that enables "excellent coaching every time for everyone" (Sports Coach UK, 2007). These initiatives endeavour "to promote 'athlete-centred coaching practice' and 'learner-centred coach education'" through a focus "on coaching as a critical thinking activity – enabling and empowering coaches to make effective decisions" (Sports Coach UK, 2007, p.9). Football, the most coached sport in the UK, with the greatest number of coaches (Sports Coach UK, 2011), further reflects this intended shift from what has been described as traditional educator-centred, rationalistic patterns of coach education (e.g. Chesterfield, Potrac & Jones, 2010; Jones & Turner, 2006). The English Football Association (The FA) developed a new pathway of courses aimed specifically for youth coaches, putting the young player at the centre of its philosophy. A series of 'Youth Awards' were introduced in the face of ever more disappointing performances by the senior national team, perceived to be falling "behind many other countries in the technical development of English

players” (The FA, 2008, p.7). The resulting impetus for change, towards establishing a world-leading, remedial coaching programme, was underpinned by five pillars; one of which encompassed revitalised coaching awards, and another - research and development - focused on quality improvement (The FA, 2008).

As part of this research and development pillar, The FA sought to investigate all aspects of its coaching system including the key area of coach pathways, and in particular the Youth Award Module 3, the final module of its new age-appropriate coach education structure. This project therefore developed in line with The FA’s aim to generate and deliver research that is relevant and focused towards evaluation (The FA, 2008, p.38). The Module 3 was identified for specific attention by The FA as the concluding part of the Level 3 Youth Award, at that point in time the highest age-appropriate coaching qualification available (subsequently, the youth UEFA ‘A’ Licence has been approved at Level 4). As such, access to the course as an attendee and participant observer was granted as part of a research partnership with The FA. These origins of the research also underlined the importance of theoretical sampling to gain an understanding that lent itself to feedback and quality improvement for the FA (see also p.55). Research in football coaching in the UK has largely focused on ‘what coaches do’ in behavioural terms (e.g. Cushion & Partington, 2011; Cushion, Ford & Williams, 2012; Smith & Cushion, 2006) and in relation to social and micro-political complexity at the highest levels (e.g. Cushion & Jones, 2006; 2012; Jones, 2009; Potrac & Jones, 2009; Potrac, Jones, Gilbourne & Nelson, 2012). Coaches’ learning and the development of these aspects of complex practice are less well addressed. Similar to the wider literature, the coach learning research in football that does exist is based solely on practitioners’ perceptions and experiences (e.g. Chesterfield et al., 2010; Jones et al., 2003; Nelson & Cushion, 2012; Piggott, 2012; Stephenson & Jowett, 2009). Such research while informative remains devoid of links to situated action or explanations of ‘what works’, ‘why’ and for whom (Cushion et al., 2010). Therefore, to further an understanding of coach learning these fundamental gaps in the literature need to be addressed.

Therefore, the aim of this project was to understand coach learning in the context of UK football coaching, specifically centring on youth coaches and the FA’s Youth Award formal education courses. The project looked to examine ‘what works’, ‘why’ and for whom in a setting that could make use of, adapt and extend CPD



evaluation frameworks (Coldwell & Simkins, 2001). This provided a way of exploring how coaches learn, the impact of this learning, and the contextual and individual level factors impinging on varying outcomes of knowledge and behaviour in context. Therefore the significance of this study lies in providing the first in-depth, longitudinal, systematic practice-linked evaluation of coaches' overall learning, with the aim of generating an integrated, empirically based theory to explain the processes, practices and impact of such learning (Cushion & Nelson, 2013).

## 1.2 Research questions

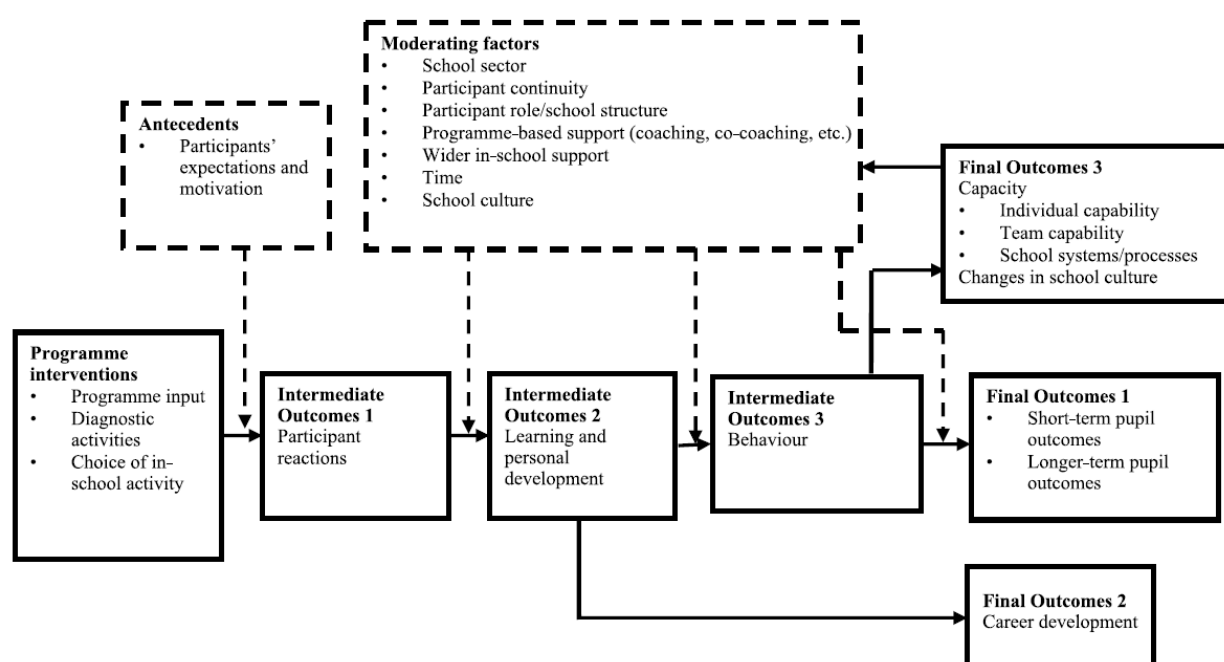
In order to tackle the overarching problem of understanding how coaches learn, the specific research questions to be addressed are as follows:

- What impact of learning is evident via changes in coaches' use of coaching knowledge over time?
- What impact of learning is evident via changes in coaching practice over time?
- 'What works' in coach learning; why have changes occurred or not occurred?
  - How does learning relate to the design, delivery and perceptions of a formal learning course (The FA Youth Award Module 3)?
  - How do coaches' existing experiences, knowledge and contextual factors influence learning?

## 1.3 Thesis structure

Reflecting my approach to the research process, the thesis takes influence from Coldwell and Simkins' (2001) level model framework for professional development evaluation (see Figure 1.1) in its structure. As alluded to on p.24, the characteristics of the model rendered it relevant to the current research approach, as both a guide to and a means of thinking about the various levels and types of data collected.

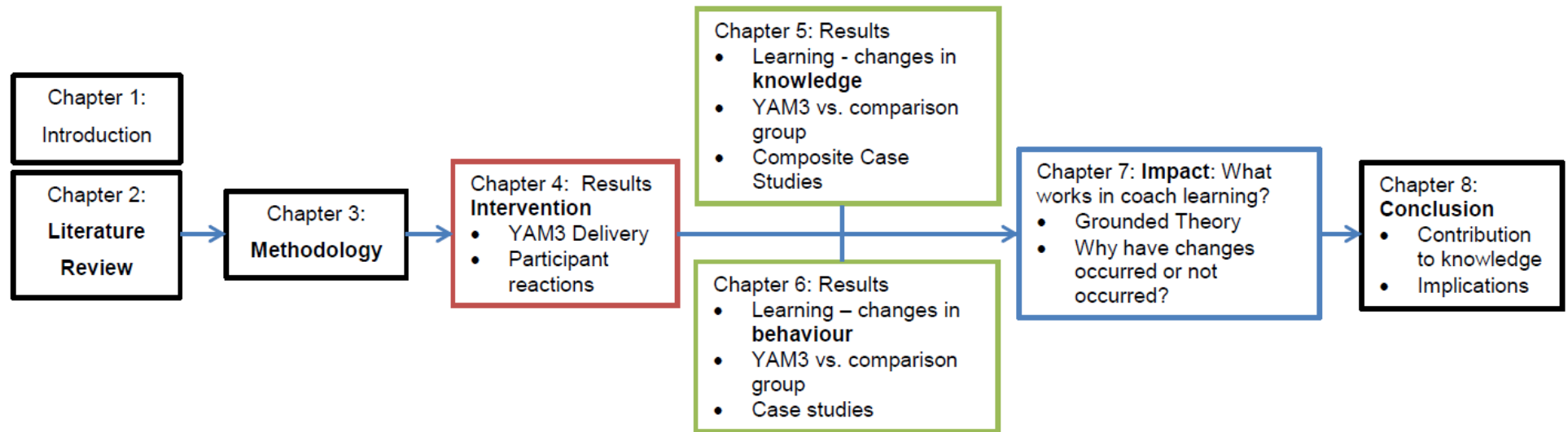
**Figure 1.1. Framework for professional development evaluation** (Coldwell & Simkins, 2001)



The model places emphasis on acknowledging the antecedents and moderating factors that impact on various outcomes of professional development. In the current setting of coach education and learning, these could involve coaches' roles and club contexts, their reasons for attending the course and their previous experiences of formal education. There are also a number of potentially significant antecedents to the programme intervention not covered by the model and not yet addressed in the literature, including NGB organisational factors and the role of coach education tutors, their background, beliefs about and understanding of coaches' learning. Following the model, the assumed final outcomes in this setting are 'improvements' in coaches' expertise and practice (Gilbert & Trudel, 1999) as well as the wider professionalization of sports coaching (Lyle, 2007a), despite a great deal of ambiguity over what these outcomes would actually look like and the nature or even the existence of 'good' coaching (e.g. Nash et al., 2012; Turner et al., 2012). While the rather imprecise term of coaching has been defined as "the guided improvement, led by a coach, of sports participants and teams" (European Coaching Council, 2007, p.5), its usage generally implies some form of athlete development (Lyle & Cushion, 2010). Therefore the programme intervention is ultimately intended to lead to improved athlete outcomes (final outcome 1) through coach behaviour. In the UK, coach education is considered to be a crucial element in improving sporting standards, demonstrated by massive government investment (Cushion et al., 2003), yet there is a lack of research evidencing these widely held assumptions (Côté, Bruner, Erikson, Strachan & Fraser-Thomas, 2010). Adapting Coldwell and Simkins' (2001) model for the purposes of the current research questions, settings, and the investigation into coaches' learning as a whole, the format for the thesis is shown in Figure 1.2. This introductory chapter has served to briefly summarise and contextualise the study, frame the research questions and identify the significance and outcomes of the research. Chapter 2 provides a more detailed critical review of relevant literature, leading to Chapter 3's description and explanation of the methodology, acknowledging my active role in the research process. Chapters 4, 5 and 6 look at the results; exploring the 'learning intervention period', and changes in participants' coaching knowledge and behaviours respectively. The thesis culminates in chapter 7 on impact; which explains what works, why, and for whom through a grounded model of the processes of coaches' learning. The position of the study and its main original contributions to knowledge are then established in the

concluding chapter. Although the framework is based on distinct chapters, importantly, each draws on various types of data to achieve an integrated understanding of the concepts discussed. The arrowed line running horizontally through the framework represents the overarching theme of understanding coach learning, linking the chapters together to provide a consistent focus. Level models tend not to provide enough detail of mechanisms or theories underlying the different 'boxes' (Coldwell & Simkins, 2001) and therefore the processes indicated by the connecting lines, as well as chapter 7 on impact, will become fundamental explanatory aspects of the report. Constantly linking ideas and theoretical analysis will be crucial to ensure the structure allows more than a simple course evaluation, representing an in-depth, integrated, mixed method, longitudinal examination of the holistic processes and products of coach learning.

Figure 1.2. Framework for thesis structure



## Chapter 2: Literature Review

### Introduction

Sport coaches have a prominent role to play in the performance, participation, enjoyment and wider development of many thousands of sport performers (Townend & North, 2007). Scholarship in coaching has seen growing acknowledgement of the complexity of this role, which involves many contextual variations, tensions, negotiations and social dilemmas (e.g. Saury & Durand, 1998; Jones, 2006). Learning and pedagogy are recognised as central to quality coaching (Armour, 2010; Jones, 2006), and while athletes are conventionally placed as the learners, coaches also have their own, equally important learning trajectory that mirrors the multifaceted reality of their craft (Lyle, 2002). Although the academic study of coach learning and development has flourished in the past two decades (Gilbert, Côté & Mallett, 2006; Trudel, Gilbert & Werthner, 2010), there is a lack of robust empirical evidence explaining how coaches learn (McCullick, Schempp, Mason, Foo, Vickers & Connolly; 2009), and limited useful integration with professional development programmes (Abraham & Collins, 1998). It seems clear that coaches become effective practitioners via idiosyncratic combinations of various learning experiences, yet the nature and nuances of this process, and its impact on coaching practice, is poorly understood (Cushion et al., 2010). The proliferation of a number of limited research perspectives means that many of the same messages have become repeated with increasing breadth, neglecting deeper analyses (Jones, 2006; Nash, Martindale, Collins & Martindale, 2012). A more complete understanding of how coaches develop and use their knowledge and skills would be invaluable in fostering better learning opportunities, superior coaching, and furthering the field of coaching as a well-informed profession with a skilled workforce (Taylor & Garratt, 2010; Wiman, Salmoni & Hall, 2010). This research aims to address these issues in providing an in-depth, integrated, longitudinal and practice-linked investigation of coaches' learning *in situ*.

The current chapter serves to set up and frame the project within the existing research context, drawing upon literature in a number of pertinent areas from coaching to professional development, teaching, expertise and adult learning. First, some general conceptual boundaries are delineated to clarify how the literature has

so far approached the issue of coaches' learning. Current scholarship on 'what works' in formal coach education will then be reviewed and critiqued, followed by an exploration of the wider, more informal learning opportunities coaches utilise. The review will then shift towards examining the processes and theoretical explanations that can elucidate *how* learning situations combine to influence coaches' knowledge and practice.

## **2.1 The development of coach learning research**

The academic study of sport coaching originated from sport science and physical education in the early 1970s (Jones, 2005), with the volume and scope of scholarly activity steadily increasing around the world ever since (Gilbert & Trudel, 2004; Rangeon, Gilbert & Bruner, 2012). In perhaps the most comprehensive published review of coaching research, Gilbert and Trudel (2004) conducted a content analysis of 610 studies, revealing the prominence of quantitative, reductionist methodologies. Following a dominant psychological discourse (Cushion, 2010), many early endeavours concentrated on describing 'effective' coaching behaviours (Tharp & Gallimore, 1976), defining excellent coaches based on observable outcomes or competencies (e.g. Bloom, Crumpton & Anderson, 1999) and contrasting the practice of 'experts' and 'novices' (e.g. Jones, Housner & Kornspan, 1997). Nevertheless, a decade ago Gilbert and Trudel (2004) noted a trend towards increasing use of qualitative methodologies, in new approaches that challenged the portrayal of coaching in terms of single variables and context-free, unproblematic models (Jones, 2005). Indeed, by 2007 and 2008, citation network analysis suggested the field had undergone an epistemological shift, moving from descriptive observation studies towards an interest in understanding the deeper complexity of coaching in specific settings (Rangeon et al., 2012). This reflected a growing view of coaching as a critical pedagogical and sociological endeavour, with greater appreciation of the multifaceted, ambiguous, context- and interaction-dependent nature of the role (e.g. Cushion, 2007; Saury & Durand, 1998; Potrac, Jones & Armour, 2002). Coaching effectiveness was beginning to be seen as more than just the transfer of knowledge through efficient application of a technical, sequential process (Cushion et al., 2010).

Alongside these shifts in conceptual understanding and methodological approach, the development of complex coaching craft abilities began to capture the interest of scholars and practitioners alike. Systematic reviews demonstrate that research foci underwent a move from outlining the characteristics of ‘expert’ coaches and their practice, towards questions of how the dynamic underlying processes are acquired (Rangeon et al., 2012; Nash, Martindale, Collins & Martindale, 2012). Approximately a quarter of the key publications in coaching science in 2007 and 2008 pertained to the sub-topic of coach development, more than any other subject matter within the field (Rangeon et al., 2012). Forty-six papers on coach learning were published between 1993 and 2009 (Cushion et al., 2010), and academic interest in the processes through which coaches enhance their expertise and are socialised into coaching continues to grow (Nash et al., 2012; Piggott, 2013). Indeed, the development of highly skilled and accredited coaches has substantial practical relevance; in the United Kingdom Coaching Framework, for example, professional learning is stressed in five out of 12 ‘strategic action areas’ intended to create a world-leading coaching system by 2016 (Sports Coach UK, 2008). Nevertheless, scholarly activity in coach learning has so far had a limited impact on the domain that it is researching (Abraham & Collins, 2011; Trudel & Gilbert, 2006), and coach educators are often unaware of research-based frameworks that could guide practice (Lyle, 2007a). Possible reasons for this lack of substantive application lie with the limitations of existing research, which fails to take “a big picture approach” (Abraham et al., 2006, p.549). As well as being disseminated mainly in academic journals distanced from practitioners, coaching risks addressing questions driven more by esoteric research agendas (Abraham & Collins, 2011) for example sociological interpretations of trust (e.g. Purdy, Potrac & Nelson, 2013), than pertinent practical such as how to nurture innovative coaches (e.g. Cushion et al. 2003). In addition, the suggestions generated are not specific or structured enough for implementation (Abraham & Collins, 2011), and are often based on flawed research or speculation (e.g. Vella et al., 2013). Accordingly, although many scholars have made idealistic prescriptions *for* coach learning, the underpinning evidence of coach learning is incomplete (Nelson et al., 2006). Thus, there is a need for more robust empirical research that can explain coaches’ learning and cross the research-practice divide to inform and improve coach education.



This lack of useful evidence is reflected in the large section of the coach learning literature which is characterised by a concern for defining, categorising and describing learning experiences (Piggott, 2013). Several years of research employing life story narratives and case studies (e.g. Gearity, Callary & Fulmer, 2013; Jones, Armour & Potrac, 2003; 2004; Nash & Sproule, 2011), learning profiles (e.g. Gilbert, Lichtenwaldt, Gilbert, Zelezny & Côté, 2009; Winchester, Culver & Camiré, 2012), and qualitative interviews (e.g. Abraham et al., 2006; Lemyre, Trudel & Durand-Bush, 2007) have set out to explore what coaches believe is most important in their development. This literature has identified numerous learning sources valued by a range of coaches in different settings and domains around the world. The specific populations of coaches investigated include high school teacher-coaches (Camiré, Trudel & Forneris, 2012; Winchester, Culver & Camiré, 2011; 2012) disability sport coaches (McMaster, Culver & Werthner, 2012) and experienced female coaches (Callary, Werthner & Trudel, 2012) in Canada; elite national and international coaches in the U.S. (Gould, Gianni, Krane & Hodge, 1990); high performance institute of sport coaches in Australasia (Rynne & Mallett, 2012; Rynne, Mallett & Tinning, 2010); 'expert' case studies in the UK (e.g. Jones, Armour & Potrac, 2003; Nash & Sproule, 2011); high-performance international coaches in Ireland (Bertz & Purdy, 2011); and Portugese coaches (Mesquita, Isidro & Rosado, 2010).

These studies provide insight into the learning pathways of rather restricted groups without necessarily explaining the reasons for coaches' use of these sources, or what is learned in different situations. For example, Jones and colleagues (2004) conducted in-depth interviews with eight successful elite coaches across five different sports, about their careers, education and developing beliefs about coaching. The resulting life story narratives demonstrated that athletic experience, athletes, formal coach certification, coaching experience, other coaches, mentors, seminars, workshops and extensive reading were all sources that contributed to learning. In a contrasting approach, Erickson and colleagues (2008) used 'quantitative interviews' with 44 Canadian coaches working at developmental levels in unidentified team and individual sports. This sample of coaches indicated their actual and preferred sources of coaching knowledge through a chart rating system. The source most often reported was learning by doing, used by 59 per cent of

participants; followed by interaction with others; then formal education at 33 per cent. However, around half of participants indicated that they would actually prefer to learn more from coach education and mentoring relationships (Erickson et al., 2008). While interesting, these data remain one-dimensional data and are rather limited in being unable to elucidate *why* and *how* coaches utilised, or preferred, different learning sources in these ways. Moreover, the reasons for participants' desires for increased formal learning, despite only a third actually using it as a key source of knowledge, are unknown. It is therefore unclear what practical benefit these findings hold for the development of coaching knowledge, and how they link to situated action. Research is required that elucidates how coaches approach different learning sources, and the ensuing influence on coaching knowledge and practice.

Broadly, such retrospective self-report studies have indicated that coaches develop through a complex blend of different opportunities (Werthner & Trudel, 2009), yet identifying coaches' learning sources in this way tells us very little about *how* and *why* these particular situations are utilised, or *what* coaches learn from them. In their schematic of the coaching process based on interviews with 16 'expert' UK coaches, Abraham et al. (2006) noted the use of a broad range of development methods across individuals, with serendipity the only uniting structure. Likewise, Werthner and Trudel (2009) found that 15 Canadian Olympic coaches sought out learning sources according to their individual needs and took advantage of opportunities as they happened to arise, in an idiosyncratic manner. Therefore, looking in more detail at specific situations and the learning processes involved is seen as an important step in understanding coaches' development (Werthner & Trudel, 2006).

A number of scholars have attempted to organise this descriptive research by clarifying and classifying coaches' learning in various forms and situations (e.g. Nelson et al., 2006; Werthner & Trudel, 2006). However, this has resulted in a field that is arguably hampered by definitional ambiguity. For instance, Cushion and Nelson (2013) demonstrate that coach development, coach learning, coach education, continuing professional development (CPD), training, certification and accreditation are some of the myriad terms employed interchangeably and inconsistently. Recent positions (e.g. Cushion & Nelson, 2013; Nelson et al., 2006)

have advocated use of the term *coach learning* to bring together understanding of the broad process of socialisation into coaching, placing emphasis on the person upon whom change is expected. Since studies have shown that coaches' learning occurs through various means, in a number of disparate situations, this term acknowledges *all* the mechanisms that can lead to enhanced knowledge and practice (Cushion & Nelson, 2013), thus extending "far beyond any formal training program" (Côté, 2006, p.221).

This broader notion of coach learning has been classified based on the work of Jarvis (2009) and Moon (2004) by Trudel and colleagues who adopted the terms mediated, unmediated and internal to describe the multitude of situations that coaches learn from (Trudel, Culver & Werthner, 2013; Werthner & Trudel, 2006). In mediated situations, coaches do not select the material to be taught; the learning context is typically controlled and delivered by 'experts' as part of coach education programmes or workshops. Unmediated learning involves coaches self-initiating and managing what information they learn, often to resolve personal coaching issues via interactions with others. Internal learning situations, meanwhile, involve 'cognitive housekeeping'; reorganisation of existing knowledge without addition of new material, perhaps through reflection (Trudel et al., 2013). A useful aspect of this framework is that it allows for shifts between different types of learning within the same context; for example in the common event of discussing new topics with other coaches (unmediated) during a coach education course (mediated) (Deek et al., 2013). Meanwhile, other coaching scholars take influence from Coombs and Ahmed's (1974) framework of adult learning in formal, non-formal and informal situations to conceptually locate how sports coaches develop knowledge (e.g. Nelson et al., 2006). Formal learning takes place in an institutionalised, hierarchically structured educational system, while non-formal learning centres on organised workshops or conferences for particular subgroups of coaches. Informal learning is identified as the lifelong process by which knowledge, skills, attitudes and insights are accumulated from everyday experiences, beyond formal institutions (Nelson et al, 2006).

Across the research landscape as a whole, academics tend to echo Trudel and Gilbert's (2006) use of Sfard's (1998) dichotomous root metaphors for learning

attempting to either explore coaches' acquisition of knowledge through formalised education programs (i.e. formal and non-formal episodes), or focus on learning through participation in informal daily experiences, and interacting with the environment and others. While definitional ambiguities and complexities still exist around the use of these terms, they provide a useful framework to organise a discussion of the research around coach learning (Colley, Hodgkinson & Malcom, 2003; Cushion & Nelson, 2013).

This section has traced the development of the coach learning literature towards its current form, indicating that a large body of descriptive research has identified the complexity of coaches' learning from a multitude of different sources. While demonstrating that coaches value learning by doing, through informal interactions with others and on formal courses, these retrospective self-report studies unfortunately cannot provide answers to questions of pertinence to coach learning and education, such as 'what works', why and for whom in different learning situations (Cushion et al., 2010). It is to these learning situations the review now turns.

## **2.2 Formal learning situations**

In an effort to increase the professionalism and qualifications of coaches working with athletes, national governing bodies (NGBs) around the world develop, offer and deliver coach certification programmes. Regulated formal coach certification and education programmes are thought of as key to coaches' development, enhancing their knowledge (Turner & Nelson, 2009; Werthner & Trudel, 2009) and efficacy (Campbell & Sullivan, 2005). Accordingly, certification has received increasing attention, re-organisation and funding in recent years, for example through the UK Coaching Certificate, the National Council for the Accreditation of Coach Education (USA), the National Coaching Certification Program (Canada), and Australian Institutes and Academies (Trudel, Gilbert & Werthner, 2010). This influx of resources around the world has engendered a heightened level of accountability and accentuated the importance of evaluating the impact of such programmes.

Twenty years ago, Campbell (1993) wrote of a growing acceptance that what needs to be investigated is not the training course coaches attend, but rather the

outcomes that it generates. Since then, a multitude of scholars have researched and written about coach education, yet reviews (e.g. Cushion & Nelson, 2013; McCullick, et al., 2009) indicate few studies assess the effectiveness of such programmes. Existing studies have yielded information predominantly about coaches' perceptions of courses and preferences in terms of delivery (e.g. Chesterfield et al., 2010; Deek et al., 2013; Falcão, Bloom & Gilbert, 2012; Leduc et al., 2012; McCullick, Belcher & Schempp, 2005; Nelson et al., 2012; Quinn, Huckleberry & Snow, 2010; Turner & Nelson, 2009; Vella, Crowe & Oades, 2013). These have often adopted an exploratory approach, describing participants' likes and dislikes, or what they thought they learned, with regard to the particular course in question. A typical methodology in this sense was exemplified by McCullick et al.'s (2005) study of a national professional golf education programme in the USA. The authors collected group interview and journal data from 26 certification candidates of varying experience, as well as observational data of the course and five educators (McCullick et al., 2005). Although it was unclear how the observations were conducted, or indeed what data they yielded, interviews encouraged the golf coaches to share their perceptions of different elements of the course after each day of the 10-day long course. Particular regard was given to student acceptance of content, what could be done differently, overall success and ratings on a scale of 1 to 10 (McCullick et al., 2005). The authors identified four major factors that participants viewed as strengths of the education program which enhanced their training; a logical structure and encouraging environment; pedagogical knowledge modelled by the educators; relevant content provided by knowledgeable educators; and the integration of pertinent research. Although McCullick et al. claim that the results valuably tell us 'what works' in coach education design, this type of research does not actually link to or reveal any impact on course candidates' resulting learning outcomes, *why* or *how*. These same criticisms apply to other perception studies which consistently indicate coaches' preferences for collaborative discussions with other coaches, less tutor-driven delivery, high quality resources and a focus on processes and theory linked practice (Cassidy et al., 2006; Nelson et al., 2012; Turner & Nelson, 2009; Vella et al., 2013).

In a similar vein, research has also investigated course design and implementation (e.g., Demers, Woodburn & Savard, 2006, van Klooster & Roemers,

2011; Mallett & Dickens, 2009), coach educators' reflections (e.g., Cassidy et al., 2006; Hussain, Trudel, Patrick & Rossi, 2012), curricula (e.g., Cassidy & Kidman, 2010), the design of course materials (e.g., Lyle, Jolly & North, 2010), and participants' demographics (e.g., Callary, Werthner & Trudel, 2011). These studies exist alongside a multitude of other position papers, book chapters and reports that consider formal coach education (e.g. Abraham & Collins, 1998; Abraham, Collins, Morgan & Muir, 2009; Cushion et al., 2003; Cushion & Nelson, 2013; Grecic & Collins, 2013; Lyle, 2007a; Mallett, Trudel, Lyle & Rynne, 2009; Nelson, Cushion, Potrac & Groom, 2012; Roberts, 2010; Trudel et al., 2010; 2013). A number of criticisms of existing coach education provision have arisen from these two strands of scholarship. Although these studies and chapters have stressed that practitioners do not particularly value learning in these settings, which are thought to lack relevance to situated knowledge use and practice, the literature has provided no concrete evidence linking any aspects of education with coaching competency (Cushion et al., 2010). Therefore, research designs that can substantiate "taken-for-granted" outcomes of formal coach education (Lyle, 2007a, p.18) would be particularly valuable.

The literature shows that typical formal coach education relies on 'guided' or mediated learning, with little control by the coach over what is learned (Chesterfield et al., 2010). It entails certain prerequisites, results in certification, and is built around compartmentalised, standardised curricula over short blocks of time (Nelson et al., 2006). Most programmes contain information related to the technical, tactical and bio-scientific aspects of sporting performance, subdivided into modules (Abraham & Collins, 1999; Campbell, 1993; Jones, 2006). Enhanced athletic achievement and performance are prioritised, while the educational and social function of the coach is largely ignored (Jones, 2006). Criticisms of formal courses point to a perceived lack of relevancy, focusing on a misalignment with practitioners' requirements, and a failure to develop knowledge and skills reflecting the dynamic demands of the coaching process (e.g., Abraham & Collins, 1998; Cushion et al., 2003; Lyle, 2007a; Saury & Durand, 1998; Trudel et al., 2010). Coaches also report that too much decontextualised, abstract information is presented in a short amount of time (Lemyre et al., 2007; Knowles et al., 2001). Much of what is learned in these settings is used primarily in the context of recalling information for tests or

assessments, therefore remaining inert; supposedly leaving coaches unable to transfer what they are taught to their everyday contexts (Cassidy, Jones & Potrac, 2004; Chesterfield et al., 2010; Cushion, et al., 2003; Mallett et al, 2009). More sophisticated empirical research is needed to elucidate these impressions, however, and usefully link them to learning and subsequent outcomes.

Consequently, research shows that as coaches attach minimal importance to formal learning situations (Harvey, Cushion, Cope & Muir, 2013; Lemyre et al., 2007), some attend only because of the compulsory nature of certification (Wright, Trudel & Culver, 2007). Chesterfield et al. (2010), for instance, conducted retrospective, in-depth interviews with six professional coaches who had successfully completed the second highest-level coaching qualification within European football. Using a variant of grounded theory combined with sociological analytical frameworks to look at the social processes in the data, the authors found that formal course content was only deemed useful when it complemented their existing beliefs about effective coaching. Against the backdrop of required certification, coaches presented an outward appearance of acceptance while privately disagreeing with and rejecting certain course messages (Cushion et al., 2003). Interview data also provided evidence to support claims that formal coach 'education' is more accurately described as training or even 'indoctrination' (Cushion & Nelson, 2013; Nelson et al., 2006). Although Chesterfield et al.'s study is a rare theoretically-informed investigation of coaches' experiences of the complexities of formal education, it still relies on practitioner self-reports without any link to the impact on resulting learning and coaching practice, or indeed the intentions of the course. Therefore these methodologies could be further developed to afford a more complete insight into the workings of coach education.

Rather than a person-oriented educational experience which aims to work with individual differences to stimulate coaches' analytical and critical abilities, the literature suggests coaches are often subjected to a more mechanistic set of activities which focus on acquiring standardised knowledge, behaviours and skills and prescribing 'the right way' of doing things (Cushion & Nelson, 2013). Many of the previously mentioned criticisms of formal provision can be linked back to this foundation, and to an accused lack of consideration for how people learn (Abraham

& Collins, 1998). Courses that unproblematically adopt the indoctrination-style view of coach educators as knowledgeable experts, and expect coaches to willingly receive and emulate a uniform 'gold standard' of coaching delivery or philosophy (Abraham & Collins, 1998), frame coaching knowledge as dualistic, absolute and provided by authority (Entwistle & Peterson, 2004).

Thus the 'right way' presented on courses is often based on a toolbox approach to overcoming perceived typical coaching issues (Cushion & Nelson, 2013). Learning, therefore, is shaped as merely acquiring and reproducing decontextualised factual information. This scenario fails to match the complex realities inherent within coaching (Nelson et al., 2006). Delivering neatly 'packaged' rationalistic, standardised knowledge therefore only equips coaches to satisfy governing bodies' criteria for coaching competency, limiting their ability to understand, value, reason between and appropriately draw on various forms of knowledge and approaches in creatively tackling unique everyday coaching dilemmas (Cushion & Nelson, 2013; Entwistle & Peterson, 2004). Coach training is thought to 'de-skill' coaches, framing them as "merely technicians engaged in the transfer of knowledge" (Macdonald & Tinning, 1995, p. 98), and therefore they come away feeling it is irrelevant to their needs. In response to these issues, Lyle (2007a) identified five key themes of recommendations that coaching scholars have put forward as changes to bring about 'better' coach education. These are 1) designs more closely linked to the perceived demands of coaching; 2) development of personal models of coaching; 3) use of learning theories; and 4) more attention towards the cognitive skills underlying desirable practice.

Like the wider coaching literature, however, these ideas are rarely properly evidenced or transferred into practice. Regarding formal coach education, Piggott (2012, p.6) takes up the thread of several other scholars (e.g. Armour, 2010; Cushion et al., 2003; Lyle, 2007a; Nelson et al., 2006) in contending that academics have been "perhaps too quick to offer solutions to problems that remain poorly understood". While there are numerous prescriptions *for* coach learning, the evidence *of* coach learning is limited (Cushion & Nelson, 2013). Current provision generally remains uninfluenced by the multitude of recommended improvements put forward by coaching research, which has at times investigated discrete research topics more than prevalent concerns in coach education (Abraham & Collins, 2011;



Trudel & Gilbert, 2006). In addition to this, the critiques offered are typically based on scholars' viewpoints.

In the UK, recent research has begun to provide some empirical and theoretically linked data on issues pertinent to facilitating practitioners' learning in formal situations (e.g. Chesterfield et al., 2010; Nelson et al., 2012; Piggott, 2012). Despite this growing scrutiny and the varied information now available in the area of coach education, however, most research that claims to assess effectiveness relies on cross-sectional designs, reflections and coaches' self-reports of their learning and perceived changes in practice as a result of their attendance (e.g. Cassidy et al., 2006; Deek et al., 2013; Leduc et al., 2012; McCullick, Schempp & Clark, 2002; Vella, Crowe & Oades, 2013) with little rationale behind the employment of methods or why particular questions are asked (McCullick et al., 2009). Even the most up-to-date studies use rudimentary Likert scale responses to evaluate formal coach education provision (e.g. Vella et al., 2013). For example, data collection methods in one recent paper comprised written answers to four open questions, combined with 5-point Likert scale items such as 'how helpful did you find the training program overall?' From these the authors claim to generate "insights into the effectiveness of formal coach training programs" (Vella et al., 2013, p.428). Although the nine Australian participation-level soccer coaches that took part were able to indicate that they valued collaborative learning with others and practical demonstrations to help apply theoretical principles, the limited data cannot engender any meaningful understanding of coaches' learning and the complex processes involved.

These methods of gauging learning are flawed because they rely on coaches' notoriously poor awareness of their own practice (e.g. Partington & Cushion, 2011). Reviews and research studies show that coaches can struggle to explain the reasons behind their practice, and what they say they do is often very different from the behaviours they display (e.g. Kahan, 1999; Harvey et al., 2013; Partington & Cushion, 2011). Therefore, coaches' perceptions of their practice are "poor substitutes for real observation of coaching behaviour" (Kahan, 1999, p.33). Moreover, designs without a pre-course 'baseline' comparison overlook the temporal nature of learning (Goodall et al., 2005) and therefore fail to evidence meaningful change and impact (Cushion et al., 2010; Metzler & Blankenship, 2008). The

absence of longitudinal indicators of change in the literature means a link between coach education learning and coaching practice is implied yet its nature and extent is left unclear (Lyle, 2007a). The wider educational programme evaluation literature (e.g. Guskey, 2000) has categorised evaluative approaches in terms of 'levels' which progressively advance towards the ultimate intentions or outcomes of the intervention in question. The participant reaction studies seen in coach education research typically form the first or most basic level of evaluation, as they cannot be used to measure key variables or identify relationships between them (Coldwell & Simkins, 2011). These 'opinionnaire' type studies (Cushion et al., 2010) cannot gauge changes in knowledge, skills, attitudes or practice, and thanks to their highly impressionistic, often rushed and ritualistic nature are perhaps the least informative type of evaluative evidence (Goodall et al., 2005). Therefore, coaching scholars could adopt and adapt CPD evaluation frameworks, built on several years of interplay between theorising and delivery in the educational domain (Coldwell & Simkins, 2011). These models have set out thorough guidelines capable of generating data to enable more nuanced engagement with questions such as whether, why and how long-term changes in knowledge and practice occur, and why apparently similar learning activities have different consequences for different individuals (Guskey, 2000). For instance, important antecedents and situational moderating factors are considered alongside various intermediate outcomes of educational interventions, with an emphasis on the complex interactions between these key variables (Coldwell & Simkins, 2011).

Only a handful of studies have attempted to gain a more complete picture of coach education by supplementing participant interviews and questionnaires with observations, field notes, document and video analysis (Gilbert & Trudel, 1999; Hammond & Perry, 2005). For example, Hammond and Perry (2005) illustrated the strength of multi-dimensional assessments in their study of soccer coaching course effectiveness. They used video analysis and computer logging of timings and events, course syllabus document analysis, candidate Likert scale questionnaires and an instructor interview to highlight mismatches between the intended course delivery and the educators' actual practice. The authors also found an imbalance in the use of theory rather than practical modules, despite largely favourable participant questionnaire responses (Hammond & Perry, 2005). This study usefully

demonstrates that participant perceptions alone reveal only a small part of the full picture of coach education courses. Such studies constitute a more powerful level of evaluation than the currently prevailing basic 'level 1' assessments of participants' reactions (Coldwell & Simkins, 2011; Guskey, 2002). While formal course observations and educator reflections have become a relatively common tool in the coach education literature, studies are often vague about exactly what is observed, how, why, and in their analysis and reporting (e.g. McCullick et al., 2005).

To date only one study has developed and applied a multidimensional approach in combination with assessments of changes in coaching practice over time, to directly evaluate a coach education programme and its impact on one attendee's knowledge and behaviour. Gilbert and Trudel (1999) were influenced by a human resource development model in their test of a large-scale programme evaluation strategy. They focused on three complimentary questions; (a) was the course delivered as designed, (b) did the coach acquire any new knowledge, and (c) was there a change in behaviours or use of course concepts after the course. Analysis and integration of multiple methods including participant observation, pre- and post- course interviews, knowledge tests, systematic observation and stimulated recall demonstrated that the course was not delivered as designed, and there was no change in the coach's knowledge, despite small changes in the use of course concepts in the field. Despite the detailed information afforded about one coach's knowledge and coaching practice, this was a paper primarily designed to present methodological ideas rather than advance understanding of practitioner learning.

More than a decade after its publication, no studies have gone on to use the comprehensive evaluation strategy, with any more than one single participant or with comparison groups, perhaps due to its complex and time consuming nature (Gilbert & Trudel, 1999). Hence, we are still no closer to being able to say with any certainty what impact (if any) formal coach education has on coaches, beyond their perceptions. The study represents a useful starting point in that it allows identification of potential links between formal course concepts and changes in thoughts and behaviour. Indeed, recent models of CPD evaluation stress the importance of multiple measures of a broad set of variables, building on participant reactions to assess learning, behaviour, antecedents and moderating factors

(Coldwell & Simkins, 2011). Built on several years' practical application and adaptation in education settings, such models trace the effects of development interventions through a series of levels, each of which more closely approaches the 'ultimate' outcomes of the intervention (Guskey, 2000). One particular framework by Coldwell and Simkins (p.8) was designed to be flexible to the particular social setting it is used in, and to explore how learners' experiences interact with individual and organisational situational factors. Thus, a key strength is the ability to investigate why apparently similar learning activities have different consequences for different individuals; the idiosyncratic learning noted in coaching (e.g. Werthner & Trudel, 2009). A similar longitudinal, multiple-cohort undertaking in PE teacher education has shown that such research can successfully be used to guide evidence-based program improvements as well as academic knowledge about teaching in general (Metzler & Blankenship, 2008).

The evaluation of coach education programs remains one of the most pressing issues in sport science (Chesterfield et al., 2010; Gilbert & Trudel, 1999; Nash & Collins, 2006). However, this section has indicated that the literature on formal learning has overall failed to provide any direct evidence of impact. Therefore, research that takes up this challenge and employs a range of systematic, longitudinal methods is clearly required. More sophisticated empirical studies are needed to determine 'what works at all' and 'what works best' in coach education, identifying the 'active ingredients' of different approaches for developing different types of coaching knowledge (McKenna, 2009). However, formal coach education is only one part of a complex picture, and this review now considers another significant part, namely informal learning situations.

### **2.3 Informal learning situations**

Even if information regarding formal learning materialises, it will provide only a partial picture of coaches' learning. Despite often being treated as conceptually distinct, formal learning occurs in combination with more informal learning situations, which can be self-directed or more incidental (Cushion et al., 2010). Indeed, coaches spend several years of their career engaged in everyday learning experiences, in contrast to formal education courses which cover only a few days or weeks; so it is not surprising that they repeatedly report experience and observation of other

coaches to be key learning and knowledge sources (Cushion et al., 2003; Erickson, Bruner, MacDonald & Côté, 2008; Rynne & Mallett, 2012; Schempp, Templeton & Clark, 1998; Young, Jemczyk, Brophy & Côté, 2009).

Experience is agreed to play a primary role in 'becoming' a coach (Sage, 1989), with successful coaches having accumulated a large amount of total coaching time and involvement as an athlete (Gilbert, Côté & Mallett, 2006). Averages range from 11 seasons, and five years as an assistant coach at elite levels (Erickson, Côté & Fraser-Thomas, 2007), to over 20,000 hours' engagement with athletes (Lynch & Mallett, 2006), and 23 years for National team coaches (Young et al., 2009). More skilled and well-respected coaches generally start their career earlier and have been coaching for significantly more years (Young et al., 2009). Coaching experiences can allow trying out new ideas, learning from mistakes and gaining confidence (Jones, Armour & Potrac, 2003; Wilson et al., 2010); in other words, experiential learning through doing (Gilbert & Trudel, 2001). More in-depth evidence is required, however, to examine why this differs from non-reflective practice, and how it works in synthesis with coaching knowledge and behaviour.

Gilbert and Trudel's (2001) multiple method case studies with youth ice hockey and soccer coaches continue to constitute the only evidence on *how* learning occurs from experience. Through the use of multiple methods combining interviews, document analysis, observations and video and audio recordings Gilbert and Trudel's suggest that experiential learning takes place through coaches' engagement in reflection in response to coaching issues, bound by their personal approach to coaching. Coaches appeared to develop and refine strategies through generation, experimentation and evaluation (Gilbert & Trudel, 2001). In an extension of Schön's (1983) ideas, coaches engaged in learning *through* experience using reflection-in-action in the midst of activities, and reflection-on-action between games or practices. Coaches learnt *from* retrospective reflection-on-action when 'thinking back' after the event. The results suggest that the 'best' coaches learn more from events because they critically reflect rather than simply accumulating experience (e.g. Gilbert, 2009; Schempp et al., 2007). More recently, Peel and colleagues (2013) provided an autoethnographical account of one rugby coach's development through reflective practice. By looking back on his coaching diary, photographs, and conversations

with players, parents and peers, the lead author centred on 'critical incidents' or events that had an impact on his thinking and action. Through an advanced appreciation and use of different theories in his reflection, the coach was able to identify four core values in his coaching practice that would not have otherwise been fully understood or explicable (Peel, Cropley, Hanton & Fleming, 2013). In this manner, in-depth theoretically aware investigations can reveal more about the mechanisms and impact of reflective practice in coaches' learning.

It is apparently "self-evident" that such reflection is crucial to one's improvement as a coach (Strean, Senecal, Howlett & Burgess, 1997), mediating the gaining of new knowledge, and thus placing it at the heart of all experience-based learning theories (Gilbert & Trudel, 2001; Nelson & Cushion, 2006). Reflection, a systematic analysis and reframing of material in external or internal experience, is assumed to bring new understanding of action situations, the self and taken-for-granted assumptions (Moon, 2004). It is thought to play a role in the development of appropriate learning behaviour and good quality learning (Moon, 2004; see also p.44). Indeed, research has observed that coaches tend to engage in more critical thinking as they gain more experience, developing the ability to check the accuracy of existing assumptions underlying their coaching strategies (e.g. Schempp & McCullick, 2010). Equally, Olympic level coaches report 'always thinking about' their sport, athletes' progress, observations, other coaches and what needs to be changed or developed, in an effort to continually learn more and improve (Werthner & Trudel, 2009). While a section of the 'Top 100 golf instructors in America' also reported actively self-monitoring, or introspectively analysing, modifying and implementing their own behaviours to set themselves goals and develop perceived weaknesses (Schempp et al., 2007). Building on these initial studies, research that appropriately exploits the variety of well established reflection-based learning theories to identify why this method of learning seems so pervasive and powerful is warranted. Conversely, several of the studies inspecting developmental profiles of skilled coaches have not however identified reflection as a critical factor (e.g. Gilbert et al., 2009; Schempp, You & Clark, 1998; Young et al., 2009), perhaps because they did not ask about or look for it.

While useful in showing some of the processes involved, there remains a lack of research directly linking reflection to measures of learning. This hinders our appreciation of the importance of and processes involved in reflection as a learning tool for coaches. For instance, the nature of the supposed link between reflection and improved coaching practice is unknown (Cushion et al., 2010). In a similar vein, we do not know what coaches learn from reflection, or how this relates to their behaviour. The different types of reflection used, and their impact on learning and knowledge also need to be elucidated (Werthner & Trudel, 2006). Moon (2004) suggests that some types of reflection may be more effective than others for learning. While superficial reflection may constitute nothing more than a largely unhelpful descriptive recall of events (Cushion et al., 2010), increasing depth and quality of reflection is thought to be characterised by enhanced flexibility, awareness, and sophisticated knowledge conceptions (Moon, 2004). Moon (2004) also proposes that reflective learning can take place when there is new material to learn, when there is no new material, and when representing initial learning, for example from written reflections. The latter two categories involve reconsidering existing ideas, perhaps influencing understanding and knowledge organisation via 'cognitive housekeeping' (Moon, 2004). Importantly, these ideas have only been recently touched upon in coaching, in research that focused more on formal education with cursory links to outcomes (Leduc et al., 2012). Research investigating the different types of reflection, and how they moderate the generation of new coaching knowledge in different settings, would thus be beneficial for the field of coach learning.

Peel and colleagues (2013) did touch on the difference between critical reflection, which challenges established ways of thinking, and technical and practical reflection, their account is largely a 'thick description' of one coach's reflections. Deep, critically reflective learning may only be achievable by a privileged few, like the post-graduate protagonist in Peel et al.'s (2013) study, since the process itself is challenging and requires more assistance than is typically provided, especially within formal education settings (Francis, 1995; Knowles, Borrie & Telfer, 2005; Nash, 2003). Therefore more experimental research is needed to substantiate ideas and examine the organisation and development of knowledge and cognitive structures associated with reflection (Winitzky, 1992).

Reflection may occur collaboratively, as a common theme occurring in descriptions of coaches' learning is the presence of and interaction with others (Gilbert & Trudel, 2001; Schempp et al., 1998; Trudel & Gilbert, 2006). Interactions with coaches and athletes are perceived to be as important, if not more so, than the theoretical knowledge delivered by coach educators (Cassidy et al., 2006; Jones et al., 2003; Saury & Durand, 1998; Schempp et al., 2007). An example of this comes from one of the first studies in coaching by Bloom et al. (1998), who utilised semi-structured interviews with 'expert' team sport coaches. The participants indicated that they shaped their coaching knowledge and philosophies with the help of more senior mentors, in turn going on to mentor athletes and younger coaches themselves. This work supports the notion that coaches are sometimes seen to undergo an 'apprenticeship of observation', which begins with receiving and observing coaching as an athlete, and continues later as beginner coaches or assistants, associating and working with some experienced mentor (Sage, 1989).

Mentoring is generally characterised as a dynamic reciprocal working relationship in the field, typically involving one individual with more experience, and one with less experience (Nash, 2003). A review of mentoring in coaching by Jones, Harris and Miles (2009) explained that such on-going relationships can be structured through formal programmes, but are usually formed out of serendipity, allowing both parties to develop professional and personal skills (Cassidy & Rossi, 2006; Nash, 2003). Moreover, retrospective self-report research with US high-school coaches suggests mentoring and apprenticeships provide a key foundation for contextualised knowledge, practice and coaching philosophies (Gilbert et al., 2009), while academics have claimed these relationships can formalise experiential learning (Colley et al., 2003) and may be particularly important in teaching the social and interpersonal aspects of coaching (Werthner & Trudel, 2009). Accordingly, the concept of mentoring has become commonly adopted within sports coaching (Jones et al., 2009) and is a concept that should be considered in the evaluation of coach learning. Despite the generally assumed association with good practice in terms of developing coaches' knowledge and expertise (Bloom et al., 1998), mentoring can also involve negative or 'toxic' relationships, unmet expectations, and neglect (Jones et al., 2009). The mentor is customarily seen as the powerful member of the dyad, who benignly passes on knowledge as a commodity to 'empower' the mentee



(Colley et al., 2003). Uncritical, unstructured forms may serve to reproduce these power differentials as well as existing cultures and practices, rather than progressing accepted knowledge (Cushion et al., 2003).

Reflective of the wider informal learning literature, no studies have provided data on what coaches learn from these working relationships or how they utilise them in practice, and links to a sound theoretical base that can underpin practice need to be clarified. Vygotsky's (1978) ideas on learning (see p.45) may provide such a framework; explaining how more knowledgeable others use cultural tools to scaffold tasks and enable mentees' development towards new skills (Cushion, 2006). Comparison and integration of these explanatory tenets with naturalistic coaching data is thus a plausible next step for research in mentoring and coach learning as a whole.

In terms of learning from and with others, situated Learning theory (Lave & Wenger, 1991) can also facilitate analysis of the process by which learners become part of a community of practice (CoP) (Culver & Trudel, 2006). Neophyte coaches are said to initially practice on the periphery of the CoP; a social participation or set of active relations among groups of people in a domain of knowledge (Lave & Wenger, 1991). Learning through the formation of relationships or social participation plays an integral role in the gradual transition towards becoming a full participant or 'old-timer'. Research in coaching has however emphasised that CoPs are not simply groups of people that gather together to learn (Culver & Trudel, 2008). According to the ideas of Wenger (1998), all individuals belong to multiple CoPs in different domains, which are distinguished by their particular common purpose or 'joint enterprise', and 'shared repertoires' of routines, gestures, words and actions. Coaching scholars have claimed that the constructionist CoP framework is useful in considering methods of knowledge production and dissemination in social practice (Cushion, 2006) with ongoing interactions seen as permitting the negotiation of meaning, and inherent structures acting as a scaffold for learning (Culver & Trudel, 2008). Recently, though, Piggott (2013) called into question the validity of uncritically prescribing CoPs as a model for coach education (e.g. Vella et al., 2013), claiming this practice could limit the growth of innovative coaching knowledge as conservative customs are shared through social structures.

However, many of these ideas are presented in position papers or book chapters (e.g. Cushion, 2006; Piggott, 2013) without links to specific research evidence. The few empirical research studies investigating coaches' learning within naturalistic social networks have found that groups of coaches sharing common interests and regular interactions generally struggle to form genuine and effective CoPs (e.g. Culver, Trudel & Werthner, 2009; Trudel & Gilbert, 2004). The competitive context, power relations and individual agendas inherent in sport can act as a significant barrier to their operation and the formation of a 'joint enterprise' (Occhino, Mallett & Rynne, 2012; Trudel & Gilbert, 2004). A handful of projects attempting to set up and cultivate such situations in the field have also yielded mixed results (Culver & Trudel, 2006). Consequently, the composition, structure and functions of effective coaching CoPs, and what they would look like in practice, remain vague. Alternatively, more relaxed criteria, whereby participants are more loosely bound than in CoPs, may offer better conceptualisation of coaches' social learning (e.g., Culver & Trudel, 2006; Occhino et al., 2012). Dynamic social networks (DSNs) can match the way coaches have been observed to actively seek and share knowledge across a small but trusted group of confidantes, in pursuit of individual rather than jointly agreed goals (Occhino et al., 2012). A balanced view of CoPs, as one conceptual framework among others that can help us understand learning processes through social participation, should therefore be promoted (Rynne, 2008).

Although it seems clear that coaches learn from experiencing and reflecting on coaching, on their own or in co-operation with others, the limitations of existing research hinder appreciation of what and how much is actually learned (Cushion et al., 2010), and the details and processes involved. Fundamentally, research on coaches' informal learning is sparse, fragmented and often lacks an empirical and theoretical basis (Jones et al., 2009). Many studies superficially outline or list informal learning situations without clear definitions, a conceptual base, links to coaching practice, or useful applications (e.g. Hanratty & O'Connor, 2012; Nash & Sproule, 2011). Recollections or suppositions around one area or mode of informal learning are reported, failing to acknowledge these within coaches' overall development or important contextual influences (e.g. Bloom et al., 1998). No studies have directly linked reflection, experience, mentoring or CoPs to any measures of

learning, meaning it is unclear whether and how these change coaches' knowledge, skills or practice (Cushion et al., 2010). It does, however, seem that the learning occurring in informal situations is meaningful to coaches yet varies in quality; posing a 'training conundrum' in its lack of amenability to accreditation (Owen-Pugh, 2009). Overall, coaches utilise a number of learning situations occurring informally in tandem with their day-to-day practice, which vary between individuals and combine through chance. Nevertheless, theoretically informed research that provides useful answers to deeper questions of pertinence to coaching is required, for instance around how and why individuals use situations where the primary purpose is not learning to inform their coaching.

Despite these limitations and a lack of research evidence, there have been attempts to integrate informal, self-directed and unmediated learning situations with formal provision (Cushion et al., 2010), in an effort to overcome the limitations of the latter (see p.20). This is seen as a way of structuring and accrediting otherwise inconsistent informal learning, while harnessing its power to better engage with both 'cutting edge' content relevant to the complex, context-laden reality of practice, and the process of coaches' learning (Morgan, Jones, Gilbourne & Llewellyn, 2013). In some cases, traditional didactic acquisition-led coach education formats are beginning to follow a 'paradigm shift' towards more open, participation-based and innovative development strategies (Cassidy & Kidman, 2010; Morgan et al., 2013; Piggot, 2012). Alternative approaches to learning, such as problem-based learning, structured mentoring, reflection, communities of practice, narrative approaches and ethno-dramas have all been recommended as useful modifications to instil in practitioners a 'quality of mind' whereby as transformative intellectuals they can construct, question and connect knowledge and adapt to dynamic human contexts (e.g. Cushion et al., 2003; Jones, 2000; Morgan, Jones, Gilbourne & Llewellyn, 2012).

As already demonstrated, reflective practices are frequently suggested as a complementary approach to enhance coach education (e.g. Cushion & Nelson, 2006; Nash, 2003; Peel et al., 2013). However, evidence suggests that the decontextualised nature of courses is unlikely to allow learners to construct and implement strategies overcoming dilemmas specific to their coaching practice

(Cushion & Nelson, 2006). Done properly, reflection is time-consuming, intellectually and emotionally challenging, and usually requires the cooperation of a skilled 'dialogical other' (Knowles et al., 2005; Peel et al., 2013). Formalised mentoring relationships could therefore provide a useful structure for reflective practice. Research suggests, however, that rather than being implemented for purely pedagogical reasons, mentees can view formalised mentoring programmes as a form of social control (Sawiuk, Groom & Taylor, 2013). Indeed, due to its inherently informal nature, mentors often receive little in the way of training or support (Cushion & Nelson, 2013). Scholars have therefore criticised the simple adoption of mentoring in the absence of knowledge of the possibilities of what can be achieved, and sufficient research evidence to fortify our understanding of how such relationships develop and operate (Colley et al., 2003). Endeavours to more clearly demonstrate and theorise the workings and impact of mentoring in coaching can thus not only advance the academic field, but also facilitate powerful learning opportunities grounded in contextualised social practice.

Elsewhere, a few attempts to purposefully set up communities of practice (CoPs) have achieved mixed results, with communities disbanding over following seasons (Culver & Trudel, 2008; Culver, Trudel & Werthner, 2009). Recently, Jones and colleagues (2012) applied tenets of CoP and action research to coaching pedagogy. Students were introduced to eight separate theoretical positions and asked to implement each in the following week's coaching practice, producing a written reflective log and engaging in subsequent structured discussion groups exploring their experiences. At the end of the unit, students indicated that the module helped them re-order, theorise and recognise the limitations of their own knowledge and practice. The socially driven learning experience seemed to generate its own momentum, suggesting an enhanced shared knowledge and understanding (c.f. Lave & Wenger, 1991).

Stories and ethno-dramas could also usefully complement reflection, PBL and CoPs (Gilbert, 2008). Initial research suggests narratives can facilitate coaches' reflection and critical thinking, while performances of ethno-drama stimulated changes in student coaches' perspectives through reflective deconstruction of relevant issues (Morgan et al., 2012). These more 'innovative' learning approaches

provide intuitively appealing, potentially fruitful avenues for coach education, nevertheless they remain speculative suggestions as their value has not been evaluated. Remedies such as “requiring attendance at a minimum number of community of practice gatherings” (Vella et al., 2013, p.428) have been thrown at formal education provision without evidence-based appreciation of either the underlying issues or the proposed ‘fix’. Research assessing their function in wider professional learning has often lacked rigour and consistency (e.g. Sambunjak, Straus, & Marusic, 2006), while the handful of studies in coaching have described their use on a small-scale, exploratory basis, more often than not relying on post-course participant reflections. Therefore, it is unclear whether learning or skill development actually takes place as a result of these methods (Gilbert, 2008). Research that explicitly considers and offers useable suggestions on how to operationalise, integrate and critically apply ideas into coaching practice and development is imperative (Abraham & Collins, 2011).

This section has considered the literature relating to informal learning. Results indicated that research on coaches’ learning in informal situations generally examines and often extols the virtue of only one method of learning, but in a fragmented ‘piecemeal’ fashion. Crucially, the literature lacks links to any outcomes. This means that assessing the actual impact of reflection, mentoring and communities of practice has not been carried out in a systematic fashion and the effects on coaching practice remain unclear.

## **2.4 Coaches’ learning as a whole - combining learning situations**

It is clear that coaches engage with several learning sources in a complex, idiosyncratic blend; therefore the coach learning research landscape needs to adopt a view that can integrate multiple learning experiences ranging in formality. Yet the current coach learning literature has often treated different ‘categories’ of learning situations as standalone concepts, investigating the chosen source or situation in isolation, without reference to other ways of learning or the coach’s development as a whole. Although the formal-informal, acquisition-participation and mediated-unmediated frameworks are used to delineate the various learning situations coaches utilise, these multiple sources are interconnected modes of learning rather than discrete entities (Nelson et al., 2006). Each situation a coach encounters

comprises a blend of more than one mode of learning existing simultaneously, and it is this blending rather than separation that is key to learning overall (Colley et al., 2003). This suggests that any one learning situation or type of learning cannot be understood in isolation.

Without matched comparison groups of coaches, separating the impact of one type of learning situation from that of other, simultaneously occurring experiences, is also problematic. Research designs that look at a small group of coaches taking part in one learning situation cannot distinguish whether changes in coaches' knowledge or behaviour have been a result of that particular learning experience; they are limited in their assessments of what works, why, and for whom (Cushion & Nelson, 2013). Methodologies like Gilbert and Trudel's (1999) would benefit from expansion and wider application to gain a more complete understanding of learning in different contexts, and comparisons with equivalent coaches not undertaking formal education. This could be achieved with influence from CPD evaluation frameworks, which provide a way of integrating the influence of antecedents and moderating factors, such as previous or simultaneous learning outside formal education, on multiple learning outcomes. Investigating the broader learning, rather than just the education, of coaches acknowledges that learning is a comprehensive process and permits a view of the coach's development far beyond formal training programs (Cushion et al., 2010; Nelson et al., 2006). Such an extensive approach, utilising multiple longitudinal measures of learning with different groups of coaches, could allow previously impossible conclusions about how and why various learning sources combine to create expertise and influence coaches' philosophies, beliefs, perceptions and behaviours. Moreover, it could clarify whether there is a particularly effective blend or sequence of experiences.

Overall, the literature pertaining to coach learning covers broadly dispersed clusters of recollections and descriptions (e.g. Nash & Sproule, 2011), yet to provide evidence of any impact on coaches. The predominant cross-sectional self-reports have not so far delivered information on how all aspects of practitioners' learning become integrated (McCullick et al., 2009). Meanwhile, approaches that acknowledge coaches' learning in a wider sense are limited to descriptive learning

profiles of restricted groups of coaches. Specific details on how the overall learning 'blend' occurs and the processes involved are therefore scarce.

Certainly, coaches' development is idiosyncratic, with individuals encountering and using different situations and sources of information in complex and diverse ways (Cushion et al., 2003; Werthner & Trudel, 2009). It appears that coaches take advantage of a multitude of learning opportunities in a non-systematic manner; they develop "through serendipitous methods...[they] are magpies not filing cabinets" (Abraham, Collins & Martindale, 2006; p.560). As Werthner and Trudel explain,

The identification of these sources of information, such as coaching courses, mentoring and interacting with other coaches, is certainly an important step in our effort to understand how coaches learn to coach. However, this information is of little use if we do not extend our search to explain the variations or idiosyncrasies that seem to prevail in the coaches' learning paths within different coaching contexts. (2009, p.436)

With these methodological and conceptual points in mind, the focus of this review turns towards a more theoretical approach, addressing the specifics and underlying mechanisms of coach learning to explain why and how it occurs.

## **2.5 The processes of coaches' learning**

Research suggests that idiosyncrasies in coaches' learning originate with each individual's past experiences and networks of existing knowledge, beliefs and emotions (Leduc et al., 2012; Werthner & Trudel, 2009). Biography, the sum of an individual's experiences, guides what they choose to notice and learn (Jarvis, 2006; Moon, 2004; Trudel et al., 2010). For example, Werthner and Trudel (2009) built case studies of coaches' idiosyncratic learning paths, from in-depth retrospective interviews with 15 Olympic coaches. They found that one, without experience as an athlete, claimed to have learned his trade from observing and working with others, while another valued formal courses and assignments due to his foreign background and resulting need to understand the new culture and systems (Werthner & Trudel, 2009). Coaches' knowledge and experiential foundations act like a filter through which new situations will pass, exerting a continuing influence over the way they see

and interpret them, and thus their learning and behaviour (Cushion et al., 2003). Therefore, the same learning opportunity will have a different impact on the individual coaches that experience it, depending on their unique starting points and approaches to the situation (Griffiths & Armour, 2013; Leduc et al., 2012; Trudel et al., 2013). This implies that commonly adopted research designs that simply investigate what a coach learns at one time point, from one learning situation such as a course or mentoring relationship, create an inadequate picture to judge why and how they have developed. The view of learning as a process of building on existing knowledge and experience to alter individual conceptions and structures of knowledge stems from cognitive psychology. Learning theories like cognitivism can function as a helpful tool to elucidate the nuances and processes of learning.

Nevertheless, explanation is complicated by the variety of different ways of understanding learning, all of which are informed by underlying philosophical assumptions about the person, the nature of reality and the nature of knowledge (Brockbank & McGill, 2007; Cushion et al., 2010). Since these values, and the theories they give rise to, can be contested and incompatible, there is no one comprehensive theory of learning upon which to base research and practice in coaching (Cushion et al., 2010). Theories of learning can be typified in different ways, however the most significant originate from psychology and are often designated into one of three 'camps'; behaviourism, cognitivism, and constructivism (Brockbank & McGill, 2007; Tusting & Barton, 2003). They are presented here as conceptually distinct to clarify their characteristics and highlight the diversity of scholarship in learning (Tusting & Barton, 2003). At the same time, given that 'blending' is central to coaches' overall development, all theories of learning may have potential relevance to any particular situation (Colley et al., 2003).

The earliest theories were developed from Thorndike, Pavlov and Skinner's experiments with animals in the 1920s to 1970s, within the field of behaviourism. These models see learning only as the observable outcomes of a stimulus, and avoid social meaning and internal thought (Tusting & Barton, 2003). Put simply, theorists within this tradition state that two stimuli are associated together to produce a new learned or conditioned response. Actions that are followed by reinforcing consequences are more likely to re-occur, while those followed by unpleasant



consequences are less likely to be repeated (Bentham, 2002). Behaviourist approaches 'train' changes in behaviour by breaking down tasks into smaller progressive parts, building up step-by-step, and using repetition and reinforcement (Schunk, 2009). Formed as a reaction to behaviourism's limited external stimulus-response focus, cognitivism relates to internal information processing, mental structures and Gestalt psychology (Tusting & Barton, 2003). Learning is seen as individual internal reorganisation of mental structures or changes in thinking. Increased knowledge in a certain domain leads to more sophisticated and efficient mental structures, also referred to as cognitive structures, representations, mental models or schemata (Mason, 2007). These constructs can be 'acquired' to become one's own (Sfard, 1998), and generally applied or transferred to other situations (Mason, 2007). Relating new information to pre-existing knowledge structures and 'learning how to learn' by imparting strategies for problem solving and self-regulation are advocated by cognitive approaches to learning (Schunk, 2009). Different forms of cognitivism distinguish the roles of the learner and the environment in different ways; purely cognitivist models frame learning as assimilating 'objective' knowledge acquired from the environment, while social cognitivists and cognitive constructivists acknowledge learners' interaction with the environment and other people (Brockback & McGill, 2007; Tusting & Barton, 2003). Indeed, constructivist approaches in general view learners as playing an active role in constructing understanding, knowledge, meanings and action through such interactions. Through participation in social and cultural contexts, people, actions and the world are connected in shared knowing and learning (Lave & Wenger, 1991). This situative perspective views learning as reflected in the various processes of participation in the community of discourse, practice and thinking, and knowledge as belonging and communicating. The cognitive notion of individually possessed mental structures is abandoned in favour of a view of knowledge as located *between* minds, inseparable from the social practices, artefacts and situations through which they are learned (Mason, 2007). Constructivist understandings of learning promote engagement in real world, authentic social practice, the use of mediational tools, and structuring the environment to support learning (e.g. Vygotsky, 1978).

Scholarship seeking to overcome the ambiguity surrounding the processes underlying coach learning has predominantly drawn on the notions and philosophies

of cognitive behavioural standpoints. In line with the origins of coaching science, within a dominant psychological discourse (Cushion, 2010), research has taken influence from more established approaches in expertise and teacher development. Early endeavours concentrated on describing 'effective' coaching behaviours, defining excellent coaches based on observable outcomes or competencies (e.g. Côté, Young, North & Duffy, 2007) and contrasting observable differences between 'experts' and 'novices' (Gilbert & Trudel, 2004). Building on these initial themes, recent years have seen a shift towards acknowledging the origins of the coaching process through linking practice to cognitive perspectives (Abraham & Collins, 1998; Ford et al., 2009; Jones, Housner & Kornspan, 1997; Lyle & Cushion, 2010; Nash & Collins, 2006). Coaching has been conceptualised as a cognitive, decision making activity (Abraham & Collins, 2011); the 'art' of coaching, using intuition to perform detailed technical analyses, recognise patterns of play, plan and orchestrate 'structured improvisation' in various unique contexts, and take multiple pressurised decisions, appears instinctive yet suggests the use of tacit knowledge and cognitive expertise (Cushion & Lyle, 2010; Abraham & Collins, 1998; Lyle, 2002; Nash & Collins, 2006). Understanding the development of these qualities *in situ* provides a useful avenue for enhancing coaches' performance and learning (Ford et al., 2009).

From a cognitive perspective, learning is thought to build up more organised, efficient and interconnected structures of knowledge. Evidence gained from cognitive mapping, scenarios, retrospective recall and other methods in coaching and PE teaching suggests that the outcomes of this learning include enhanced recognition, analysis, planning, decision making and communication skills in coaching situations (e.g. Abraham & Collins, 1998; Côté et al., 1995; Dodds, 1994; Housner & Griffey, 1985; Lyle, 2010; Nash & Collins, 2006; Schempp, McCullick, & Sannen Mason, 2006; Vergeer & Lyle, 2010). Although there is no agreed definition or conceptualisation of knowledge in its different guises, the coaching and education literature often distinguishes between declarative (knowing what to do) and procedural (how to do it) knowledge (Ford et al., 2009). Routine, readily available, verbalisable declarative knowledge about concepts and elements of subjects is coupled with tacit, typically non-conscious procedural knowledge, which details steps or activities required to guide successful actions in particular situations (Anderson, 1982; Nash & Collins, 2006). Coaches need to draw on a blend of declarative and

procedural knowledge across three areas identified by Côté and Gilbert (2009). Côté and Gilbert (2009) outline a series of different 'knowledges' underlying effective coaching these include professional knowledge of the subject, procedures and pedagogy that should be accompanied by interpersonal knowledge of athletes, relationships and communities; and an intrapersonal understanding of oneself, reflection, and ethics. Although this, alongside a number of other studies in coaching (e.g. Abraham et al., 2006; Côté et al., 1995) gives us some idea of the knowledge required for 'effective' coaching, no studies have empirically determined changes in coaching knowledge over time as an outcome of learning. Likewise, the processes that drive this development are currently subject to speculation.

In attempts to explain this process Abraham and colleagues take influence from learning theorists Entwistle, Skinner, Entwistle and Orr (2000) in suggesting that coaches initially encounter knowledge as concepts, for example through formal education. These have a shared rather than personal meaning (Entwistle & Peterson, 2004), characterised by specific procedural knowledge, and underpinned by associated declarative knowledge (Abraham et al., 2006). Concepts become internalised as practitioners apply them to a particular meaningful context. Thus they become conceptions, generally organised around beliefs about how the knowledge can be implemented in the field (Entwistle et al., 2000). This process forms the basis of meaningful new knowledge in memory; idiosyncratic and applicable only to the type of context it was learned. When recognising a similar situation later on, the associated conceptions are likely to be brought to mind (Entwistle & Peterson, 2004). Although appealing, cognitive research into coaches' knowledge organisation is not yet a coherent field (Gilbert & Trudel, 2004; Nash et al., 2012); and as yet, these ideas have no empirical basis in coaching. Nevertheless, assessing the advancement and operation of cognitive structures is a promising avenue for research and the facilitation of coaches' learning (Côté et al., 1995). As enhanced knowledge content and organisation are thought to be a key outcome of learning, moving on from speculation to empirically investigate the processes involved is a relevant way to explore impact and advance the field of coach learning.

In line with anecdotal evidence from 'legendary' coaches (Tharp & Gallimore, 1976) and 'expert' validation (Abraham et al., 2006), coaching scholars have claimed

that adaptive conceptions or structures of different types of knowledge combine to shape and direct ensuing decision making and behaviours (Côté et al., 2005; 2007; Abraham & Collins, 1998; Schempp et al., 2006). Thus 'what coaches do' (Cushion et al., 2012) demonstrates how they implement their changing knowledge, as an outcome of learning. Indeed, CPD evaluation models identify behaviour - the implementation of knowledge and skills - as the single direct connection to the final outcomes, or the overall impact of education (Coldwell & Simkins, 2011; Guskey, 2000). Assessing coaching practice can therefore be highly valuable in evaluating learning.

The investigation of coaches' behaviour in practice settings has constituted over 30 years of research in coaching science (Gilbert & Trudel, 2004). Such studies have identified essential functional information about what coaches do in basic terms, a mix of instruction and positive verbalisations with periods of silence (Cushion et al., 2012). This behaviour pattern is usefully recognisable as 'coaching', with minor differences existing as a function of the age and skill level of the players coached, or the type of practice activity employed (Partington & Cushion, 2011). Nevertheless, the coaching process is more complex than a stable, mechanistic behavioural strategy (Cushion, 2010); it is dynamic and constantly subject to a myriad of situational, contextual and social factors (Jones et al., 2010). Repeated recommendations have been made to combine observational techniques with qualitative interpretations of the individual knowledge and strategies that underpin and guide coaches' actions, and the processes by which these influences occur (e.g. Potrac et al., 2002; Smith & Cushion, 2006; Partington & Cushion, 2012). A recent study by Partington and Cushion (2013) adopted this approach with 12 English professional youth football coaches. Systematic observation was conducted using the Coach Analysis Intervention System (CAIS) (Cushion, Harvey, Muir & Nelson, 2012b), which allows multi-level recording of participants' behaviour, over a total of 28 competitive games. This quantitative data indicated that concurrent instruction made up the largest amount of coaches' in-game behaviour (25%), accompanied by 21% silence and only 9% giving feedback. Interpretive interviews indicated that much of this behaviour was a 'performance' linked to traditional perceptions of what football coaching should look like (Partington & Cushion, 2013). This result provides only a snapshot over a five-month period, yet powerfully demonstrates that social

and contextual factors are significant in the study of 'what coaches do'. Isolated, cross-sectional behavioural research is unable to provide the detail necessary for meaningful conclusions to be drawn about the activity's inherent complexity, and indeed, the complexity of learning. As the majority of existing coach behaviour studies have followed such a design (Partington & Cushion, 2011), relatively little is known about how coaching behaviours evolve or change over time, let alone how these alter alongside coaches' learning and developing knowledge. Therefore, to further an understanding of the behavioural outcomes of coach learning, these gaps in the literature need to be addressed.

Although the idea that any coach can learn expert knowledge, behaviours and practices based on interconnected, efficient cognitive structures is appealing, these suppositions remain untested and unfounded in the coaching literature (Cushion et al., 2010). A major limitation of cognitive and expertise-based perspectives is the impersonal assumption of learning as decontextualised, easily transferable and linear knowledge acquisition, along with a rather narrow individual focus (Trudel & Gilbert, 2006; Tusting & Barton, 2003; Lave, 2009). Behaviourist and cognitive approaches to learning tend to overlook more social and situated forms of learning, as well as the importance of context in resulting practices. Yet as this review has demonstrated it is clear that coaches develop in a complex combination of ways, including through observation, apprenticeships and mentoring, with other individuals or groups, in their own specific club contexts. Arguably approaches informed by more constructivist assumptions are better able to account for and explain these learning situations, viewing learning as occurring through interaction with the environment and others. This perspective proposes that learning is a continuous process which engages and changes the whole person (Colley et al., 2003), with each episodic learning experience another step in the constant learning journey; an idea that better reflects the more holistic view of learning previously advocated.

To this end, the perspectives on learning and pedagogy of Jarvis (2006) and Moon (2001) have been adopted in coaching as a useful fusion of constructivism with a cognitive process focus (e.g., Trudel et al., 2013). While offering 'meta-theories' of learning, both scholars place emphasis on the active influence of the learner's biography; their knowledge, values, attitudes and beliefs at any one point in

time. Biography guides and is also altered by new learning (Leduc et al., 2012); its interaction with and filtering of the external world results in that individual's particular perception of a learning experience. The learning experience may be 'disjunctive' when a gap or cognitive dissonance occurs between the learner's previous knowledge, experience and beliefs, and the new material (Jarvis, 2006; Moon, 2004). Disjuncture presents a moment of potential for learning as the individual seeks to re-establish harmony between the situation and their biography (Jarvis, 2006). This can be achieved through surface level non-reflective learning, or deeper reflective learning. The former involves taking in and memorising new material without questioning or intending to understand how it fits with prior knowledge, resulting in minimal change to biography, while the latter involves reflection on the disjunctive learning experience, relating it to previous knowledge and understandings (Jarvis, 2006; Moon, 2001). This more coherent type of learning involves transforming new experiences via reflection so they can be integrated into biography. Therefore, previous understandings or cognitive structures are changed to overcome disjuncture, and practice may also be impacted (Moon, 2001).

Leduc et al. (2012) used these theoretical tenets to explain the differential impact of the same formal coach education modules on individual coaches. Eleven development level coaches from ten different sports were interviewed after attending the two short modules, which were also observed. While course observational data was not reported, interview data revealed that seven of the participants reported changing their practice when they had cognitively, emotively and practically transformed their biography due to the educational experience. Six validated their original coaching practice and therefore did not report any changes, while four experienced disjuncture but lacked confidence to change their coaching. Although Deek et al. (2013) make an initial attempt to use a cognitive constructivist framework to situate the impact of formal coach education within coaches' wider learning, these theories have not yet been used to explain the impact of more informal or unmediated learning experiences on coaches' biography and observed practice.

Despite the emphasis on learning as (re)constructing individuals' existing knowledge, experiences and beliefs to change the whole person, Jarvis' and Moon's work divorces the individual from others, social interaction and cultural context.

Vygotsky's (1978) social development theory places great importance on shared understanding, language and socio-cultural processes, viewing the learner as an apprentice helped by more knowledgeable others (Bentham, 2002). The zone of proximal development (ZPD) is a central concept in Vygotsky's theory, referring to the gap between what an individual can achieve independently, and what they can do with guidance from a skilled helper. The ZPD occurs above the learner's initial level of knowledge or capability, and like disjuncture, is an area of potential for learning. Rather than transformation and reflection, however, social learning theory sees development taking place through 'scaffolding', whereby via language and other culturally determined tools, a more capable other supports the learner to reach a higher level of functioning (Bentham, 2002). Through collaboration and a shared understanding of the task and new concepts, therefore, the individual develops a new level of knowledge and skill that can be applied without help in the future (Vygotsky, 1978). Vygotsky's ideas are reformulated and embedded in particular contexts and activities by situated learning theory (Lave, 2009). Situated learning stresses the importance of ubiquitous engagement in everyday tasks in authentic, contextualised situations with other social participants. Knowledge is therefore situated, a product of the activity, context and culture in which it was developed and used, and cannot be transferred to other situations. Moreover, the learning mind and the lived-in world are encompassed together rather than separated as in cognitive theories (Lave, 2009).

Despite the power of these perspectives to facilitate understanding of how coaches holistically learn from a multitude of socio-cultural experiences within particular contexts, coaching research has thus far neglected to exploit them and make explicit the nature and nuances involved (Cushion et al, 2010). Applying theory to educational research would compel researchers to think more carefully about findings, their meanings, and taken-for-granted values (Adams, Cochrane & Dunne, 2012).

## **2.6 Summary and conclusions**

The various learning theories discussed here offer valuable process-focused ideas for coach learning, yet like research in coaching, the limitations of each approach mean parts of the full picture are missing (Abraham & Collins, 2011). Learning, like

coaching and learning to coach, needs to be seen as involving many interrelated contexts, purposes and practices (Tusting & Barton, 2003). The contrasting philosophies and assumptions of behaviourism, cognitivism and constructivism reflect the richness and complexity of learning, and rather than accepting them as right or wrong, associated models can be appreciated as contributing to one another, adding to a general understanding of the different ways of learning (Tusting & Barton, 2003). Since coaching itself involves multiple, dynamic types of knowledge and skills, and each coach learns in their own idiosyncratic way, scholars would benefit from recognising that there are various types of learning. Therefore theoretical eclecticism, directed towards developing specific 'coach learning' theory, is preferable to choosing just one model or approach as 'the only' way (Cushion et al., 2010; Tusting & Barton, 2003). At the same time, research in coach learning needs to be more explicit about the assumptions informing it, and their relation to an understanding of how people learn (Cushion et al., 2010). There is currently no research that provides theory-linked evidence of exactly how coaches' knowledge and cognitive structures change with different learning experiences, alongside clear links to resulting skills, behaviours and practice.

Overall, coaching research currently fails to provide adequate evidence elucidating how various interconnected learning situations combine to develop coaches' practice and cognitions in the form of knowledge, mental models, decision making, and problem solving. Several years of disjointed enquiry, from initial descriptive behavioural studies to more recent identification of learning sources and indicators of expertise, have resulted in a piecemeal, at times "sterile" (Mallett et al., 2009) body of literature that leaves many gaps in our understanding of how coaches learn to become successful practitioners. Rather than providing substantive insights into impact or effectiveness, research on formal coach education is equivocal and largely insufficiently co-ordinated with programming (Abraham & Collins, 1998), while the absence of multiple longitudinal measures of learning and theory driven enquiry means it is unclear how much or what coaches actually learn in these or more situated, everyday situations. It seems that coaches actively construct knowledge through various different sources and situations, building on their existing declarative and procedural knowledge to create more complex and interrelated cognitive structures that govern processing, perceptual, planning and decision making skills



(Abraham & Collins, 1998; Nash & Collins, 2006). These ideas are yet to be evidenced in coaching, however, something that requires longitudinal designs utilising an integrated mixture of methods, rather than a continuation of more of the same limited approaches that currently prevail. New perspectives on coach learning can build on the strengths of more established CPD evaluation frameworks, expertise-based methods and holistic constructivist understandings, to take coaches' wider learning into account, and for the first time explore patterns and links between different influences on cognition and behaviour, answering pragmatic questions around what works, how, why, and for whom (Coldwell & Simkins, 2011; Cushion et al., 2010). The resulting, theoretically eclectic, understanding of coaches' learning processes can and should be applied directly to create and implement better, more conceptually informed learning opportunities, facilitating better coaching.

## **Chapter 3: Methodology**

### **Introduction**

This chapter details the methodology employed and the thinking that underpinned decisions made throughout the research process from conceptual beginnings to write-up. First, a background to the research in terms of the paradigm, assumptions and methodological approach will be presented, followed by an outline of the ensuing methods and design employed in the collection of data. Details of the participants involved in the various stages of the research and how they were recruited are then discussed, followed by details of the procedures of data collection and analysis. Finally, considerations of the quality of the research, as well as reflections on the research process, conclude the section. Although these topics are organised in chronological sections, in practice the research process was interconnected and messy, as necessitated by the real world context. Acknowledging my active role and position within the research, I present myself in the text to address the phenomenon of the 'missing researcher' (Sparkes & Smith, 2014).

### **3.1 Paradigm**

Researchers' selection of both the questions they study and the methods they use to study them are influenced by fundamental systems of beliefs known as paradigms (Morgan, 2007). Philosophical issues around how to approach and conduct research – 'the paradigms debate' - are therefore central to methodology and method. Since researchers need to engage with such philosophical and methodological debate to enhance the quality of research (Weed, 2010), it is necessary to consider the paradigm that guides the present study.

The beliefs of a paradigm pose fundamental questions to which researchers of different paradigmatic persuasions will respond in different ways. Specifically, these centre on the linked issues of ontology (what is the nature of reality?), epistemology (what is the relationship between the researcher and the known?), and methodology (how do we gain knowledge of the social world?) (Sparkes & Smith, 2014). It is often argued that there are central paradigmatic positions that encompass contrasting, yet at times overlapping answers to these questions.

Research in sport and educational settings, like wider knowledge and enquiry, has been guided by the frameworks of positivism and constructivism/interpretivism, among other nuanced positions such as critical theory and postmodernism (Armour & Macdonald, 2012; Nelson et al., 2014). The positivist research position, of the empirical analytical sciences, begins with the assumption that there is a real world existing 'out there'. The objective reality of the social world is thought to be closely related to carefully captured 'observables', and therefore positivism relies on empirical, quantitative data and controlling confounding variables to discover underlying causation (Denzin & Lincoln, 2011). The interpretive sciences paradigm, usually presented in direct contrast, rejects positivism's views of causal relationships and universal laws (Coldwell & Simkins, 2011) on the grounds of there being multiple social realities. This paradigm assumes that the world is constructed by the actors engaged within it, and hence the research process should try to uncover the different meanings that individuals ascribe to stimuli; typically through qualitative means (Armour & Macdonald, 2012; Denzin & Lincoln, 2011; Weed, 2009). Due to these underpinning characteristics, different research paradigms are often thought to produce 'incommensurable' kinds of knowledge, with the acceptance of one requiring the rejection of all others (Morgan, 2007). Such assertiveness to the exclusion of others leads to prescriptive requirements for particular research methods, as well as re-articulation of phenomena and theories (Feilzer, 2010) and major communication barriers between knowledges produced through each paradigm (Morgan, 2007).

Morgan (2007) sees this as problematic in a world where there are no "clearly defined boundaries that separate paradigms into airtight categories" (p. 62). Moreover, with respect to evaluations of education and learning, Coldwell and Simkins (2011) suggest that some positivist and constructivist positions are "extreme" (p. 152) so restrictive for the purposes of this particular setting. For example, since constructivist approaches see that the differing perspectives of individuals generate multiple, local, co-constructed and continually changing social worlds (Sale, Lohfeld & Brazil, 2002), there is "no possibility in generating knowledge about a programme beyond that which is subjective, specific to particular instances and negotiated" (Coldwell & Simkins, 2011; p. 152). The authors present another family of approaches which retain the critical realist ontology of reality existing independently

of individuals' perceptions. Epistemologically though, such approaches acknowledge that a level of interpretation of meaning is needed to construct a necessarily partial knowledge of reality (Bhaskar, 1998; Weed, 2009), showing some overlap with post-positivism (Denzin & Lincoln, 2011). This position enables attention towards the mechanisms through which 'regularities' in learning are achieved, and their operation within social structures and specific contexts (Coldwell & Simkins, 2011). Therefore the realist researcher can learn about the programme they study, place it in context and, insofar as this is possible, generate understanding that can be extended beyond the case at hand (see also p.83). The broadly realist and post-positivist frameworks discussed illustrate Morgan's (2007) point that there are considerable areas of overlap, and permeable boundaries between paradigms. Regardless of paradigmatic orientation, all research in the social sciences seeks to provide warranted assertions about, and advance understanding of human beings (Johnson & Onwuegbuzie, 2004; Sale et al., 2002). Accordingly, incommensurability between paradigms can be understood as more a lack of communication between proponents of different camps than a sacrosanct incompatibility (Morgan, 2007). Generally, a commitment to the uncertain, relative nature of knowledge and a rejection of the dualistic positivist-interpretivist divide, to focus more on problems in the social world, is characteristic of a pragmatic approach (Sale et al., 2002). "A powerful third paradigm choice" (Johnson, Onwuegbuzie & Turner, 2007, p.129), pragmatism offers a flexible alternative to shed light on how research approaches can be combined to best produce consensually useful knowledge (Feilzer, 2010).

The purpose of the research in this project aligns well with the possibilities outlined above. It can be argued, therefore, that adopting scientific realism and pragmatism as the ontological and epistemological foundation, as opposed to logical positivism or strong interpretivism (Chatterji, 2004; House, 1994; Johnson & Onwuegbuzie, 2004), is appropriate for this research. Although I recognise that some level of interpretation of meaning is constructed by individuals, including through interaction with the researcher as part of the research process, I also feel that attempts can be made to imperfectly capture as much knowledge as possible about a 'real' world to which these constructions pertain (Lincoln, Lynham & Guba, 2011). That is, a post-positivist approach, directed towards processes, mechanisms, and the way things work in practice, was adopted as beneficial in this context (Lyle,

2007b). This paradigm allowed me to look beyond surface descriptions and encompass cognitive approaches within the research questions, at the same time recognising the social and situational influences inherent in the subject of coaching. I felt that this ‘processes in practice’ focus would be most beneficial in moving understanding forward, especially in the context of providing substantively useful outcomes to inform coach learning opportunities. In unifying and accommodating these aims, I deemed a pragmatic paradigm as most appropriate. Indeed, the impact evaluation models I took influence from in my approach were developed from an “essentially pragmatic” standpoint (Coldwell & Simkins, 2011, p.150).

Accordingly, questions and purpose governed the choice of methods, which I aimed to use in combination to uncover patterns and deeper understanding of relationships (Chatterji, 2004); in line with the need to balance personal philosophies with research that makes sense to practitioners and feeds into practice (Abraham & Collins, 2011). Rather than seeking to ‘prove’ impossible causal links in this complex real-world setting (Guskey, 2002), my efforts became focused on collecting good quality evidence and improving coaches’ learning experiences; finding out ‘what works’, why and how, within wider social structures and contexts (Coldwell & Simkins, 2011). Research founded in this way overcomes researchers asking questions driven by research agendas rather than practical issues, and addresses the minimal influence existing research has had on coach development (Trudel & Gilbert, 2006).

In line with my epistemological standpoint that each individual has their own co-constructed interpretation of the world, the coach and their own learning became central to my methodology. Thus, rather than adhere to the tendency of previous studies to focus on particular learning sources with participants on the periphery (e.g. formal coach education – McCullick et al., 2002), a distinctive aspect of this research was that the coach and their learning was centrally positioned and acted as the unit of investigation and analysis. Adopting the notion of methodology as ‘bricolage’, whereby the choice of its practice is pragmatic, strategic and self-reflexive (Denzin & Lincoln, 2011); I went about selecting the methods I felt were most appropriate to the focus on individuals’ coaching and learning, for answering the specific research questions, and suitable for the research context (Gorard & Makopoulou, 2012; Patton, 1990). This began with considering the project in terms of my initial experiences of coaching, and of messy applied research projects (see also

Reflexivity, p.85). As well as these personal influences, the limitations of existing scholarship in coach learning were a significant driver in my methodological choices. It became apparent that positivism's paper-and-pencil 'opinionnaires' (Cushion et al., 2010) or laboratory tasks would not do justice to the day-to-day development of contextualised coaching craft, or to the why and how questions I sought to address. Therefore within my pragmatic standpoint, I went about selecting methods that would complement and align with the problematic, naturalistic settings that house coaches' practice and learning.

Specifically, I felt that several methods in combination would be the best way to allow for the multiple complexities of learning in situ. I employed a mixed methods approach, combining field-based behavioural and observational measures such as systematic observations of coaching and structured formal course observations, with multi-dimensional descriptive qualitative data. The methodology was eventually shaped to expand on Gilbert and Trudel's (1999) test of an evaluation strategy for formal coach education (see Literature Review, p.25), tracking various coaches and taking influence from more holistic models of professional development evaluation which argue for consideration of various levels of antecedents, situational variables and outcomes in evaluating the full impact of learning (Coldwell & Simkins, 2001; Pressley, Graham & Harris, 2006). This research approach was chosen to allow linkages and integration of the evidence sources, providing a more complete view of coaches' learning and course delivery; a pragmatic methodology "that often will provide the most informative, complete, balanced, and useful research results" (Burke Johnson et al., 2007, p.129). Ideally, mixed methods research aims to constitute more than the sum of its parts (Bryman, 2008), transcending the forced dichotomy of quantitative and qualitative methods and data (Feilzer, 2010). At the same time, some mixed methods researchers struggle with true integration, presenting findings and discussions derived through different methods separately (Bryman, 2008; Feilzer, 2010). While quantitative methodologies have prevailed in coaching research (Gilbert & Trudel, 2004), qualitative methods are thought to be valuable in relatively new areas like coach learning where little is known (Patton, 2002, Sparkes, 1992), and indeed their use is growing in today's sport pedagogy research (Gorard & Makopoulou, 2012). Although qualitative methods have been recommended to complement and enhance behavioural observation techniques

(Potrac et al., 2002; Smith & Cushion, 2006), mixed methods approaches are still relatively rare in sport education research (Gorard & Makopoulou, 2012). Therefore, the methods employed in this research were selected to complement each other and work collectively. Interviews were used in combination with observations to more fully capture the complexity of coaching and learning processes and the underlying cognitive, experiential, social and contextual dynamics, providing the opportunity to generate theory that is true to these complex realities (Côté, et al., 1995; Potrac et al., 2002). In line with this approach and focus on learning processes, I organised, integrated and analysed the data using the principles and techniques of grounded theory (Strauss & Corbin, 1998; see p.75 for more detail on analysis).

The preceding discussion has alluded to the long running, circular and unproductive 'paradigm debate' attempting to resolve the differences between forms of inquiry in social science (Johnson & Onwegbuzie, 2004; Denzin & Lincoln, 2011). While acknowledging the importance of philosophical issues in the conduct of research (Morgan, 2007), pragmatism can represent a practical and outcome-oriented way to 'get research done' (Johnson & Onwegbuzie, 2004). Moreover, adopting a pragmatic paradigm leaves room to focus on processes in context and employ a combination of whatever methods are most suitable to answer socially useful research questions. These considerations informed my methodological approach and choice of methods; aspects of the research which are now explained in more detail.

### **3.2 Participants**

A total of 28 coaches and coach educators were involved in the study at different levels of data collection (see Design, p.60). Within this, the main participants were 25 English youth soccer coaches (M age = 31.6 years, 22 male and 3 female). They had been coaching for an average of 8.5 years (range 2 to 22 years) in a mixture of settings from youth academies<sup>1</sup>, centres of excellence, girls' player development centres<sup>2</sup> and colleges, to grassroots and community football teams or groups of

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<sup>1</sup> Professional men's football clubs in England and Wales each have a centre for developing youth players, known as Academies or Centres of Excellence. Players are contracted to an Academy typically from the age of 9 and train part-time. At the age of 16 boys are offered full-time 'scholarships' that lead, for successful players, to full-time adult professional contracts (Cushion & Jones, 2012; The FA Premier League Ltd, 2011).

<sup>2</sup> FA Player Development Centres are run by the various English County Football Associations. They provide extra support for talented girls who play in grassroots clubs and show potential for the future (The FA, 2012).

individuals. The ages of the athletes they were working with ranged from 3 to 19, and although all were youth coaches, 5 reported coaching adult teams as well. Two were voluntary coaches, while a further 13 worked part-time as coaches and the remaining 10 worked full time in football, typically combining coaching with football development. These 25 key participants made up 'education' and 'comparison' groups (see Design, p.60), summarised in Table 3.1.

In line with the research context outlined on p.6, twenty of the participants were purposively sampled from the English Football Association (The FA)'s candidate lists for 4 separate Youth Award Module 3 (YAM3) education courses. The sampling was theoretically driven, to ensure that the data, concepts and theory generated fitted the research questions and phenomena under study (Groom, Cushion & Nelson, 2011; Strauss & Corbin, 1998). Participants were selected due to their particular characteristics of relevance to the research (Hastie & Hay, 2012); they were guaranteed to undertake a period of formal learning alongside regular coaching practice, which would also enable evaluation of the operation and impact of the YAM3. The course is one of 3 modules in a new national governing body (FA)-designed age-appropriate coaching award. The award, which runs alongside a 'main strand' adult coaching course pathway, is aimed specifically at coaches who work with young players and endeavours to focus as much upon the development of the child as on football practice design and implementation (The FA, 2010). It claims to package football in a way that fits the child rather than the other way round, marking "a progressive change in coaching philosophy, creating a truly player centred approach to the coaching and development of our young players" (The FA, 2010, p.1). The course is offered nationally and also regionally by the FA, staffed by 2 FA tutors with a maximum of 24 candidates in each cohort. In order to be eligible to register on the YAM3, coaches are required to be currently working with youth players, have completed youth modules 1 and 2, and hold at least a United Kingdom Coaching Certificate (UKCC) level 2 in coaching football.

Due to data protection laws, however, the FA could not release contact details of the course candidates before the course began, and I therefore had to make contact indirectly. I felt the easiest way of getting my message across in my own words was through an open e-mail, via the FA. As soon as possible before course commencement, the e-mail was sent to all candidates enrolled on the courses, to



invite them to participate in the research (see Appendix A). On receiving responses, I was then in direct e-mail contact with interested candidates and was able to ask them to provide some background information (i.e. location, club, and whether they were currently actively coaching), to aid with practical considerations of data collection, as well as sending them a more detailed information sheet (Appendix B).

Five further participants were purposively selected to act as a comparison to the 'education' groups (see Design, p.60). This comparison group were characterised and selected according to their similar levels of experience (M = 7.9 years), qualifications (UEFA 'B' License and FA Youth Award Modules 1 & 2), and coaching domains (e.g. academy, girls' player development centre - player age range 9 to 18 years; community - player age range 6 to 13 years) to the sample of YAM3 candidates. The comparison coaches were all eligible to complete the YAM3 but at the time of data collection were not undertaking the qualification. These participants were selected through my own contacts and the contacts of an FA regional coach development manager. The latter I met in his capacity as a tutor on the June and September Module 3 courses. Due to the proximity of his working location and enthusiasm about my research and its potential benefits, I asked if he could suggest any coaches in his network that could act as a suitable comparison to the YAM3 candidates. Of the 4 potential participants he put me in contact with, 2 responded and agreed to take part in the study. Although recruitment through personal contacts may be considered a potential point of bias (Groom, Cushion & Nelson, 2011), I saw it as necessary to guarantee evenly matched coaches, based in geographically manageable locations and likely to comply with the longitudinal nature of the data collection.

In addition to the central 25 coaches, I recruited three FA tutors (M age = 47.5 years) on attending the YAM3 courses. They were selected through theoretical sampling (Strauss & Corbin, 1998), due to their central role in the design and delivery of the courses; in combination they were present on the staff for all four YAM3 courses. Including the tutors enabled a more expansive view of the course operation, with a view towards evaluation and quality improvement. They had been working as FA tutors for a mean of 18.8 years, and their details can be seen in Table 3.1. The 'information rich' purposive sample of coaches and tutors of certain characteristics used in this study facilitates development and testing of theory and

explanation (Patton, 2002), as the participants had the knowledge and experience required, and were able to articulate, reflect, and willingly give up the time required (Morse, 1994).

**3.2.1 Ethical considerations.** In line with the Loughborough University Ethical Advisory Committee clearance granted for this study (Appendix A), ethical approval was obtained from all coaches, tutors and course candidates involved in the research. Each participant was provided with an information sheet relevant to the particular method of data collection (Appendices C & D), including details of the purpose of the study, assurances of confidentiality and the option of withdrawal at any stage. All participants then signed an informed consent form before taking part in data collection.

**Table 3.1. Participants.**

Key: SS Int = Semi-structured Interview, Syst Obs = Systematic Observation, SR Int = Stimulated Recall Interview

Participant	Group	Age at first contact	Number of years coaching	Coaching Domain	Baseline (Minutes)			Follow-up (Minutes)		
					SS Int	Syst Obs	SR Int	SS Int	Syst Obs	SR Int
M1	Education (May course)	32.9	10	Own business	43			50		
M2		42.1	14	Grassroots – voluntary	60			201		
M3		23.6	6	Girls' Player Development Centre	65			221		
M4		22.4	2	Centre of Excellence	22			15		
M5		30.6	8.5	FE College	53			14		
M6		34.9		Academy				46		
M7		39.1		Girls' Centre of Excellence				32		
J1	Education (June course)	43.7	4.5	Girls' Centre of Excellence	74			36		
J2		37.9	5	Grassroots – voluntary	52			40		
J3		41.9	12	FE College	44					
J4		38.1	22	Academy	48					
J5		39.7		Centre of Excellence	54			27		

Participant	Group	Age	Years coaching	Coaching Domain	Baseline (Minutes)			Follow-up (Minutes)		
					SS Int	S Obs	SR Int	SS Int	S Obs	SR Int
A1	Education (August course)	27.9	10.8	Centre of Excellence / FE College		180	207		186	174
A2		26.3	5.5	Academy		148	1382		135	843
A3		35.4	10	Academy / University				65		
S1	Education (September course)	35.3	9.75	Centre of Excellence		170	93		183	85
S2		24.0	7	Centre of Excellence		161	61		64	50
S3		26.5	3.8	Centre of Excellence		153			109	55
S4		25.1		Academy	19					
S5		30.6		Academy	15					
C1	Comparison	23.7	8	Girls' Player Development Centre		156	138		1403	125
C2		27.1	12	Grassroots / community		1803	141		180	129
C3		24.1	2	Girls' Player Development Centre		45	45	35		
C4		24.8	6	Academy		180	52		180	53
C5		32.3	11.3	Centre of Excellence	30					

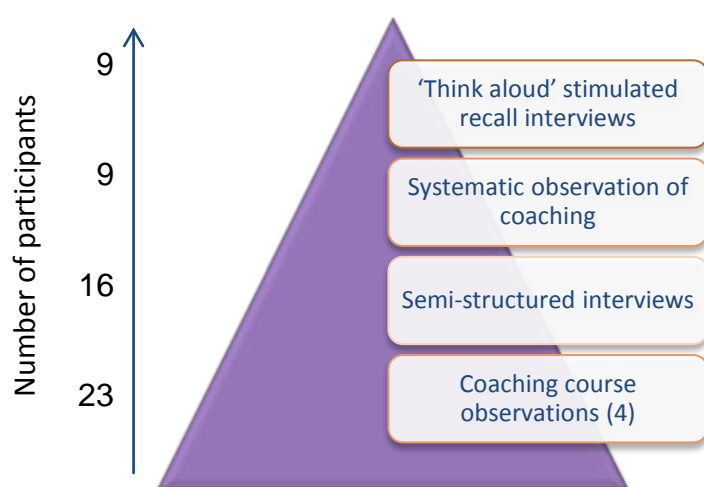
Participant	Group	Age	No. of years FA Tutoring	Data collection
T1	Coach Educators (Tutors)	59.2	31	Tutors were interviewed informally and observed during the YAM3 course (Total Interview Minutes = 91)
T2		48.3	13.3	
T3		35	12	

### 3.3 Design

Taking influence from Gilbert and Trudel's (1999) evaluation strategy, I collected data longitudinally in three phases: baseline, intervention (YAM3 course, or normal coaching practice in the case of comparison coaches), and post-intervention. Baseline data collection took place in the month prior to coaches' course attendance, with follow up 4 to 6 months post-intervention, allowing time for any 'learning' to take place (Goodall et al., 2005). Different participants underwent increasingly detailed levels of data collection, allowing me to build up case studies with a small number of coaches, based on proximity and time available for observations and interviews. The methodology is represented diagrammatically in figure 3.1, and the design summarised in table 3.2, below.

In an extension of previous evaluations of coach education and learning (e.g. Gilbert & Trudel, 1999), a comparison group was built into the design. This feature, inspired by quasi-experimental research, was included to help isolate the effects of the educational intervention (Pressley et al. 2006). For example, pre-post comparisons with an 'education' group alone cannot simply explain any changes as due to the effect of the course. By comparing the learning of YAM3 recipients with those otherwise similar, but not receiving the formal education, learning due to attending the course can to some extent be separated out from wider learning in other informal situations (Pressley et al., 2006).

**Figure 3.1. Diagram of methodology showing instruments used and number of participants involved in each**



**Table 3.2. Design including sample sizes and methods used for each group of participants**

<b>Course / group</b>	<b>Pre-</b>	<b>During</b>	<b>Post-</b>	<b>N</b>
<i>YAM3 May (National)</i>	<ul style="list-style-type: none"> <li>5 candidates interviewed</li> </ul>	<ul style="list-style-type: none"> <li>Interviewed 2 Tutors &amp; 2 further candidates</li> <li>Observed full course</li> </ul>	<ul style="list-style-type: none"> <li>5 x Follow up interview</li> </ul>	9
<i>YAM3 June (National)</i>	<ul style="list-style-type: none"> <li>5 candidates interviewed</li> </ul>	<ul style="list-style-type: none"> <li>Weekend 2 observed</li> </ul>	<ul style="list-style-type: none"> <li>3 x Follow up interview</li> </ul>	5
<i>YAM3 August (Regional)</i>	<ul style="list-style-type: none"> <li>2 candidates observed x 3 coaching sessions &amp; stimulated recall interviews</li> </ul>	<ul style="list-style-type: none"> <li>Observed full course</li> <li>Interviewed 1 Tutor</li> </ul>	<ul style="list-style-type: none"> <li>2 candidates follow up observed x 3 sessions &amp; SR interviews</li> <li>1 x follow up interview</li> </ul>	4
<i>YAM3 September (National)</i>	<ul style="list-style-type: none"> <li>3 candidates observed 3 x coaching sessions</li> <li>2 of the above completed 2 x SR interviews</li> <li>2 interviewed</li> </ul>	<ul style="list-style-type: none"> <li>Observed full course</li> </ul>	<ul style="list-style-type: none"> <li>3 candidates follow up observed x 2 sessions &amp; SR interviews</li> </ul>	5
<i>Comparison</i>	<ul style="list-style-type: none"> <li>2 participants observed 3 x coaching sessions &amp; SR interviews</li> <li>1 participant observed 2 x coaching sessions &amp; 1 SR interview</li> <li>1 participant observed 1 x coaching session &amp; 1 SR</li> <li>1 participant interviewed</li> </ul>	<ul style="list-style-type: none"> <li>2 participants follow up observed 3 x coaching sessions &amp; SR interviews</li> <li>1 participant follow up observed 2 x coaching sessions &amp; 1 SR interview</li> <li>1 participant follow up interviewed x1</li> </ul>		5
<b>Total N:</b>				<b>28</b>

### 3.4 Instrumentation

**3.4.1 Semi-structured interviews.** As previously discussed, interviewing was considered a valuable inclusion to the methodology because this method can yield rich insights and an in-depth understanding of unobservable themes that other methods cannot reach (Wellington, 2000). Discussions of interviewing often distinguish between degrees of structure involved, ranging on a continuum from highly systematised 'face-to-face questionnaires', to open conversations with no set lists of questions or order (Wellington, 2000). In line with the pragmatic paradigm and subjectivist epistemology underpinning this study, I considered the 'middle ground' of semi-structured interviews to be most appropriate for the purposes of the research objectives. Although use of semi-structured interviews is widespread, they can take various forms (Langdridge, 2004; Wellington, 2000). As a relative newcomer to qualitative research, the format I chose did not rely heavily on a high level of interviewer expertise, while at the same time overcame the inflexibility of too much structure. Specifying a framework of questions meant that I would be able to keep myself and the interviewees 'on track' with the objectives of the research and allow comparison across interviews, while retaining freedom to probe for clarification and further depth along different avenues as they arose.

Semi-structured interviews were therefore employed in order to gain an appreciation of participants' learning and coaching backgrounds and experiences. Firstly, I created a background interview guide (Appendix D) for use on initial contact with participants, to explore their demographic information, coaching experiences, formal education, beliefs, motivations, wider learning and coaching practice. A post-course follow up interview (see Appendix E) was then used with coaches who completed the YAM3, to find out about their reactions and perceptions of the course as well as subsequent experiences and practice. I also took the follow up interview as a chance to revisit and explore topics arising from the initial interview and my observations of the candidates and tutors on the courses. I created both interview guides by developing areas of interest and relevant issues in line with the research questions and existing literature, which I then grouped into broad categories, and converted into clear and understandable main and additional questions (Patton, 2002). For example, coaches were asked to imagine they had a training session



that evening and describe how they would go about planning and running the session, while the follow-up interview involved a question about whether, and in what way, the course had changed the way they think about coaching (see Appendices D & E). While both interview guides contained a systematic series of open-ended questions, I left the sequencing and depth afforded to different topics flexible to each participant's responses and interaction with me, in part by including optional probes.

The drawbacks of using semi-structured interviews with coaches have been touched upon in the Literature Review (p.23). Mainly, they rely on coaches' self-awareness and understanding of their own practice, which has been demonstrated to be lacking (e.g. Partington & Cushion, 2011). Talking about knowledge and practice over the telephone is rather different to actually negotiating the 'swampy lowlands' (Schön, 1987) of day-to-day coaching. For example, coaches rarely mentioned the deeper hidden curricula and micro-political issues that often impinge on football coaching (e.g. Cushion & Jones, 2006; 2012; Potrac & Jones, 2009; Potrac et al., 2012). These issues did begin to arise with respect to their experiences on the YAM3, after meeting participants face-to-face in the course setting, in social situations during breaks and meal times, and during follow-up interviews. This may have been due to coaches feeling more able to openly and critically evaluate the course and The FA than their own working environment and colleagues, upon which they depend to keep their jobs (Potrac et al., 2012). The development of rapport and interviewer skill as time went on also influenced this (see also Reflexivity, p.85). Underlying issues relevant to the complex realities of situated practice and learning became more apparent when coaches were faced with visual evidence of their own situated actions, and asked to comment on their reasoning, in stimulated recall interviews (see p.67). Where possible, the impact of possibly inaccurate self-reports of practice were aligned with observational data from the course and day-to-day practice, building up a picture of each coach based on as much data as possible.

**3.4.2 Systematic observation.** Following the research questions, it was important to link coaches' learning to the 'outcome' of their behaviours in practice. As coaches have low self-awareness about their actual behaviour (Partington & Cushion, 2011), I decided to use systematic observation as a way of measuring change. This observational strategy placed me as almost completely separate from the setting of

study, as a spectator (Patton, 1990), yet fits within a pragmatic paradigm of using whatever methods are most appropriate to answer the research questions. Systematic observation involves using a set of guidelines to observe, record and analyse coaching events and behaviours (Franks, Hodges & More, 2001). The instrument used to collect behavioural data was a specially adapted version of the Coach Analysis and Intervention System (CAIS; Cushion, Harvey, Muir & Nelson, 2012), a computerised systematic observation tool. The CAIS is a multi-dimensional instrument that aims to provide more detailed and contextualised behavioural data than previous simplistic observation systems (Cushion et al., 2012). I identified six of the instrument's 23 primary behaviours, in combination with secondary detail and information on performance states, as key behavioural markers for analysis. These particular markers were selected as behavioural indicators of the YAM3 learning outcomes, as outlined in Table 3.3. In other words, I measured coaches' specific feedback (positive or negative), general feedback (positive or negative), corrective feedback and questioning behaviours, with each of these primary behaviours linked to further levels of secondary behaviour detail relating to performance states, recipient, timing, content and type of questioning (for a complete hierarchical list of the behaviours coded with definitions, see Appendix F). I used a video camera connected to a wireless microphone worn by the coach to record participants at locations and sessions of their choice.

Despite the long tradition of systematic observation research in coaching (Dodge & Hastie, 1993; Gilbert & Trudel, 2004), there are some drawbacks associated with this method of data collection, mainly linked to its reductionist nature and inability to fully capture the entirety of the coaching process (Cushion, 2010) (see Literature Review, p.42). One particular issue relevant to this research was the chance of participants, and indeed their athletes, 'playing up' to the video camera. One coach, for instance, indicated how the method interfered with his normal tacit coaching practice:

I think like the first time you came up to video was, well, off-putting, because we've never had anything like that before. It makes you obviously conscious of even just speaking in general because you know when you coach or when you're doing anything you've no idea what you're saying sometimes. (S3,P1)

As a result, coaches may have acted differently than if they were not being observed, more deliberately acting and implementing their learning in some form of Hawthorne Effect (Chiesa & Hobbs, 2006). One way this could have been manifested was through coaches choosing to manage impressions of themselves and perform 'safer' practices that conform to what coaching in football should look like (Partington & Cushion, 2013). Evidence suggests that the observation of participants was not however as important an influence on practice as their working context:

The camera doesn't tend to bother me, but you're always conscious of your own peers or other coaches who are around watching (A2,2).

While the information sheet (Appendix C) made it clear that the quality of participants' coaching was not being assessed, participants fairly quickly became accustomed to the method and often indicated they forgot they were being observed. For example, in his second observed session, coach S2 "forgot the mic's on" (S1,2), while fifteen minutes into his first session, A1 had "totally forgotten that you [researcher] were there by this stage. It wasn't on my conscience at all." (A1,1). Nevertheless, a number of strategies were implemented to gauge and minimise the influence of these issues. Where possible, the overall amount of observation time was maximised to gain an accurate idea of individuals' 'normal' practice, and facilitate their familiarisation. Each observed participant was asked to feed back on the method and what it was like to take part, and stimulated recall interviews (see p.67) also attempted to address the reasoning and context behind their actions.

**Table 3.3. Outline of YAM3 learning outcomes in relation to corresponding CAIS behaviour classifications used for analysing coaches' behaviours.**

<b>FA Youth Award Module 3 Learning Outcome</b> (FA Learning, 2010: p12)	<b>Corresponding CAIS Primary Behaviours</b> (Cushion et al., 2012)	<b>Corresponding CAIS Secondary Behaviour Details</b> (Cushion et al., 2012)
Demonstrate an understanding of how to design player learning activities based on individual, unit or group needs		Performance states Recipient
Demonstrate an understanding of communication skills and different coach/player interactions including the positive management of player mistakes	Specific feedback (positive) Specific feedback (negative) General feedback (positive) General feedback (negative) Corrective feedback Question	Recipient Timing Type of questioning
Demonstrate effective feedback techniques – including questioning – which help the player develop and improve	Specific feedback (positive) Specific feedback (negative) General feedback (positive) General feedback (negative) Corrective feedback Question	Recipient Timing Content Type of questioning

**3.4.3 Stimulated recall interviews.** It has been recommended in the coaching literature that interpretation of practice behaviours must occur alongside qualitative data that explains the reasons for coaches' performance (Potrac et al., 2002; Smith & Cushion, 2006; Ford, Yates & Williams, 2010). Indeed, I felt behavioural analysis alone would merely provide an indication of what coaches do, and what had changed, rather than explaining how this process and the underlying learning had happened. Some method of investigating participants' thoughts, knowledge, decision making and learning was needed. One that fitted well with the use of videotaped coaching sessions was 'think aloud' stimulated recall (SR) interviews, a type of introspective research procedure which invites participants to recall, aided by video clips of their behaviour, their concurrent cognitive activity during that event (Lyle, 2003). Moving beyond video-based behavioural analysis, employing video to access the cognitive aspects of coaching has been referred to as the fourth and most advanced evolution of video research, that focuses on active 'participants' rather than passive 'subjects' (Trudel, Gilbert & Tochon, 2001). SR protocol has been advocated for studying cognitive strategies and learning processes in complex, uncertain and interactive contexts (Lyle, 2003). Variations of the procedure have been used for many years in teaching research (Housner & Griffey, 1985; O'Brien, 1993) and to a lesser extent coaching (Trudel, Haughian & Gilbert, 1996; Wilcox & Trudel, 1998). In this study, I designed questions to reflect a focus on cognitions, knowledge and learning, for example asking 'what did you notice?', 'why did you do that as opposed to anything else?', and importantly, 'where did you learn to do this?' (see appendix G).

Participants initially found this method of data collection trying, due to the direct, intense nature of watching and hearing themselves in action, and being immediately asked to comment. This was exemplified by coach S1 who said, "honestly, at times it's been uncomfortable" (S1,1), and A1, who reflected that "there's nowhere to hide" (A1,P4). Despite the exhaustive nature of the method, there is still some doubt as to its ability to access and represent tacit knowledge, which typically cannot be verbalised (Lyle, 2003). Moreover, the quality of the data can depend on the individual participant's memory and capacity to report introspective reasoning (Lyle, 2003). The selection, ordering and appropriate use of 'clips' to structure questioning and discussion was another issue with stimulated

recall interviews, addressed on p.70. Nevertheless, the direct link to situated practice afforded by SR interviews was necessary to overcome a number of limitations with other methodologies commonly adopted in coaching, as discussed in the Literature Review (e.g., p.23). Lyle (2003) states that all techniques have some limitations as to whether they elicit accurate accounts of cognitive output, and in the absence of further evidence or viable alternatives, SR interviews do appear to reflect some level of tacit knowledge. Furthermore, the use of this method initiated important discussion of “a lot of outside influences that perhaps isn’t evident when you’re watching it” (A2,2). Overall, by the end of the study, participants appreciated the benefits of the protocol more than its drawbacks (see Chapter 7, p.204).

#### **3.4.4 Participant observation – coaching course observation inventory.**

Naturalistic observation of the coaching courses was included as a method of data collection to help gain a more complete view of participants’ learning experiences, as well as the design, delivery and context of the course (Patton, 1990). The nature of observation has been widely discussed, particularly in the context of ethnographic research (Hammersley & Atkinson, 2007). The role of the researcher is often conceptualised as lying on a spectrum from completely immersed participant to completely separated observer, with the more variable ‘participant as observer’ and ‘observer as participant’ in between (Patton, 1990; Wellington, 2000). In this case, since each episode of observation was relatively short (each observation period lasted two days at a time), the role I assumed is most accurately characterised as ‘observer as participant’. I was not enrolled on the courses as a candidate, so during classroom sessions I did not take part in tasks, yet I sat with candidates and participated in practical sessions and social aspects of the courses. It was clear to the candidates that I was present for the purposes of my research rather than being there in any other role salient to them (Langdridge, 2004). Rather than taking fully comprehensive, unstructured field notes often associated with complete participant observation (Hammersley & Atkinson, 2007) therefore, I felt that using a broad framework would fit better with the origins of the study and my observer role. Similar to my decision making around the type of interviews to use, I felt that some sense of structure would aid my data collection by maintaining focus on the research area of coaches’ learning.

Accordingly, I examined previous studies on coach education and evaluation 'toolkits' (e.g. Gilbert & Trudel, 1999; Lyle, 2010; McCullick, et al., 2002) to combine and modify elements from their data collection approaches in specially developing an observation inventory (Appendix H). This was piloted on the first day of the first Youth Award Module 3 course with two other researchers, who met at regular intervals to discuss our thoughts on and experiences of using the inventory. The three sets of observation notes were then combined and compared. An example of a completed inventory, integrating observations from two observers, as well as notes on timings, running order and conversations with course candidates, can be seen in Appendix H. In a procedure similar to Nelson and Cushion (2006), I supplemented observations with course schedules and materials, acquired from the FA. These materials were utilised to complete the 'formal learning' picture and gain a wider understanding of the intended structure, delivery and aims of the course. They comprised an FA Youth Award folder including pre-course reading, learner resource packs, logbooks, and 4 DVDs containing videos used on the course in addition to example practices, game footage and presentations on learning.

Inevitably, the naturalistic, flexible nature of course observations create a risk that the views of the most outspoken candidates, or those with negative opinions, had undue influence on the data collected. Contacting all candidates via e-mail before the course and taking part in practical sessions may have helped make less forthright coaches aware of the purpose of my attendance, and more willing to approach me (see also Reflexivity, p.85). Indeed, the participants who contacted me before the course indicating a willingness to take part were sometimes amongst the most unobtrusive in the YAM3 setting. I made an effort to speak to a wide selection of candidates on each of the courses, supported by the other researchers who could disperse amongst different groups. Observing four cohorts of the same course also helped me to gain an appreciation of the main issues that consistently arose.

### **3.5 Procedure**

**3.5.1 Piloting.** After gaining ethical approval from the University, I piloted the background interview and stimulated recall interview procedure with a coach of similar qualification level and background to the expected participants (FA Level 2 qualified, 5 years' experience coaching with 1 year at a youth centre of excellence,

sport science student). The participant gave good feedback regarding the stimulated recall procedure, for example finding the questions clear and understandable, the use of video clips beneficial for fuelling discussion, and overall a useful process in terms of watching herself and thinking about her own coaching and development. The whole process gave me a better appreciation of the most effective questioning techniques, typical answers to expect, technical and recording considerations, and beneficial camera positioning for video sessions.

**3.5.2 Semi-structured Interviews.** I invited respondents from the May and June courses to take part in a background interview either face to face, on the phone or on Skype™. Conducting face to face interviews with the two geographically closest respondents, I spoke to the 8 further respondents via Skype or phone, with interviews lasting for 30 to 60 minutes. At the beginning of each interview, I sought permission to record the conversation, and reminded participants of anonymity and confidentiality. I went on to explain the research background, the purpose of the interview, and what responses would be used for, typically beginning with closed demographic issues. The main body of the interviews involved open-ended questioning, keeping coaches' perceptions and perspectives central to the interview process (Potrac et al., 2002), ending with questions from the participants and a request to keep in touch for further participation if needed. Interviews were audio recorded and transcribed verbatim in order to ensure an accurate and complete record of the data. I was not able to videotape participants from the May and June course cohorts delivering coaching sessions due to time constraints of access being secured only a week before the course commencement.

**3.5.3 Video observations & stimulated recall interviews.** The same recruitment process took place for candidates enrolled on module 3 courses in August and September, who were contacted with more notice before course commencement and were also closer in proximity to Loughborough. I therefore selected these candidates to take part in video sessions, with 5 participating, all of whom I interviewed using the 'stimulated recall' technique (see participant information, Appendix C).

Despite the recordings focusing on the coach rather than the players, all coaches independently gained additional consent for filming from their clubs or



parents of the players involved. I observed each coach for a total of 6 training sessions of between 60 and 90 minutes, across the baseline and post-intervention time points. Therefore each coach was observed for a total of 180 to 270 minutes at each time point, in line with previous systematic observation studies (e.g. Ford et al., 2010; Horton, Baker & Deakin, 2005; Partington & Cushion, 2011; Potrac et al., 2002; Smith & Cushion, 2006). This led to a combined 2520 minutes of video footage, with the intention of providing a picture of each coach's behaviour patterns. Data were coded and quantified for each of the categories outlined on p.66. A second trained coder was used to carry out inter-observer reliability on 10% of the data (250 minutes of randomly selected footage), while I re-coded a further 10% 6 months after initial coding to gauge intra-reliability (van der Mars, 1989). The average inter-observer agreement for coding instances of behaviour and practice states was 85.3% (SD = 3.4) and the intra-observer agreement was 87.4% (SD = 4.8), reaching the accepted level of 85% or above to provide suitable reliability (van der Mars, 1989).

I filmed training sessions from the corner of the playing area, diagonally behind the coach, which allowed me to capture action anywhere in the area while recording what the coach was doing and seeing. I felt that observing practice situations, which typically included small sided game sections, was 'data rich' and relevant to the study objectives. The YAM3, for instance, aims to develop planning, delivery, evaluation and adaptation of coaching sessions rather than aspects of competition. Training sessions are the mechanisms through which coaches bring the various elements of their skill-set and craft together (Nash, Sproule & Horton, 2011), engaging in more instruction and interaction with the athletes compared to competitive situations (Kahan, 1999). Certain behavioural categories also register differently under practice versus game conditions, which may present less "teachable moments" (Smith & Cushion, 2006; Trudel et al., 1996).

In line with stimulated recall interview protocol outlined by Calderhead (1981), Trudel, Haughian and Gilbert (1996), Lyle (2003), and Wilcox and Trudel (1998), I asked participants after each coaching session if there were any incidents or things that stood out as important or that they might discuss in the forthcoming interview. Most either gave a general response about the topic of their session or did not suggest anything. Immediately following the sessions I would import video tapes onto a Macbook laptop computer and 'clip' them into a number of incidents, or

sometimes general activity, using SportsCode™ Pro performance analysis software. Incidents included coach interventions, interactions with athletes, decisions, passages of play, demonstrations or practice set-ups. Each hour of footage typically generated around 10 clips varying from a few seconds to a couple of minutes long each. I then created interview guides in line with the research questions to correspond with the numbered clips. An example of a SR interview guide can be found in Appendix G.

SR interviews took place using the laptop computer at a familiar location of the participants' choice, typically in a quiet room or social area at their club or place of work. Since participants were given control over location, day and time of observations and interviews, the coaches were at ease. Nevertheless, in their club setting they may have been influenced by the power relationships and politics inherent in football (e.g. Potrac & Jones, 2009). The context may have influenced full honesty and disclosure for fear of other coaches, managers, players or parents overhearing, however all interviews took place either in a private room or social area before the arrival of other staff or players. Semi-structured interviews, which took place in public settings or over the phone, so that participants were away from football clubs or at home, did seem to elicit stronger opinions. This may be partly because of the setting, but probably more due to the topics and questions in the guide itself, and a less tangible link to coaches' visible practice behaviours. The influence of context on coaches' practice behaviours is widely accepted (Cushion et al., 2003; Jones, 2007; Jones et al., 2002) constituting data in its own right, and it was hoped that SR interviews would uncover some of these issues.

With regards to interviewing technique and the role of the researcher, being a true "active listener" (Wolcott, 1995) and working past surface level answers to access more abstract ideas, fundamental attitudes and values remained a difficult skill to master. I felt more able to do this with some of the more reflective participants, however listening, challenging, and rapport-building skills can always be built upon to enhance the data yielded. Over time, post-intervention and SR interviews sometimes became more conversational, with some exchange of ideas. This may be due to participants finding the process in itself useful for their coaching development, as they were able to think about the origins of their knowledge and practice, and see their own behaviours on video. Therefore during the analysis of

this data I aimed to take any additional levels of reflection into account, making sure I separated reflections from thoughts at the time at the open coding stage. The flexible nature of SR interviews, reliant on each participant's practice, and choice of coaching incidents, meant that achieving consistency was another challenge. I attempted to standardise the 'structured' aspect of each interview by basing all questions around the consistent list of probes detailed in Appendix G. Moreover, all repeat interviews began with the same question; "was there anything in the session that stood out that you would like to talk about?"

SR interviews typically took place a week after the session was videotaped, and just before the next coaching session to be recorded. My aim was to review the session as soon as possible after it had taken place, to minimise memory deterioration and confusion with intervening sessions (Lyle, 2003). However, practical considerations such as coach availability, my travelling distance, and the time I needed to upload and code videos impinged on the gap between sessions and their associated interview. Nevertheless, participants were still able to recall and comment on sessions, and we discussed other clips or incidents if they did not remember specific ones. Interviews lasted between 30 and 90 minutes, but were typically around 50 minutes long, and audio recordings were transcribed verbatim.

After an introduction to the process, I asked participants to generally describe the session in question, then we reviewed each section of the session chronologically, with me each time asking the coach to 'think aloud', reporting which things they had noticed during the session, what they were thinking about and why. If the participant mentioned something contained in one of the pre-prepared clips, I explored this further using the clip as a cue to either confirm initial ideas or prompt further discussion. Otherwise, I would describe the incidents in the clips to invite dialogue, showing the video once the coach had remembered and discussed the situation in question. Although the video clips were pre-prepared, therefore, the interviews tended to take a flexible, almost semi-structured format, as often the clips were selected according to issues raised independently by the participant. I always showed video clips after participants had already recalled each incident to prevent coaches reporting an additional layer of reflections on reviewing the video, avoiding alteration of the cognitive processes being employed at the time of the event (Lyle, 2003). If the participants were suspected of 'straying' into retrospective reflections

triggered by viewing themselves on video, I would query whether this was the case and provide a reminder to think as they did at the time, therefore helping to minimise further confusion in the interviews and transcripts. After participants had discussed the thoughts, knowledge and any other issues relating to each incident, I asked them to try and trace the origins of, and learning behind these cognitions and behaviours.

**3.5.4 Participant Observations – YAM3 Course.** I attended the YAM3 course as part of a team of 3 researchers, which was repeated on 4 occasions, with 4 separate candidate cohorts. Three ‘national’ residential courses were held at the same hotel location, while the remaining course took place regionally at a further education college. As a research team, each of us attended the classroom sessions and sat within different candidate groups, but did not participate, taking notes on occurrences and timings. We also attended practical sessions, using a dictaphone to record any discussions and feedback, and interacted with the course candidates during break and social periods. At the end of each day, the collected data were written up into the structured inventory sheet. I also interviewed three of the YAM3 tutors (coach educators) at the course to supplement the observational data, bringing the total number of participants in the study to 28. Tutor interviews covered similar topics as the initial interview guide (Appendix D), and also took influence from initial themes identified from baseline candidate interviews; however I did not follow a set structure and instead remained more flexible to the situational and time constraints as well as the answers given. Questions centred on educators’ views on coaches’ and players’ learning, for example “do you think that coaches learn in the same way that players learn?”, “what do you think is the best way for coaches to learn?”, “how do you know that will assist their learning?”. I conducted these interviews whenever an appropriate time arose, either at the end of the day’s work or during a lunch break. Besides observations, I collected course materials (a ‘participant pack’) and audio recordings of classroom activities. This data enhanced my understanding of the intended pedagogical principles and learning assumptions underpinning delivery of the YAM3. It enabled the possibility of comparisons to be drawn with coaching course observations and tutor interviews, linking tutors’ delivery with their FA training.

### 3.6 Analysis

**3.6.1 Qualitative data.** Data from the semi-structured, stimulated recall, and informal interview transcripts, as well as course observations, were organised and analysed using techniques and principles of grounded theory (Strauss & Corbin, 1998). Although scholars have at times assumed the role of ‘methods police’ in emphasising the importance of ontological and epistemological divisions between grounded theory variants, and discouraging a “pick and mix” approach to using their methodologies (e.g. Holt & Tamminen, 2010; Weed, 2009), Strauss and Corbin (1998) advocated methodological flexibility and sensitivity to the particular research interests. As such, it is not claimed that this study presents a full, purist grounded theory, rather that the techniques of grounded theory methodology are used as a set of flexible analytical guidelines and strategies (Charmaz, 2006). It was anticipated that by identifying a methodologically coherent philosophical perspective and explaining how the analysis took shape as transparently as possible, the analysis met guidelines of ‘quality’ (Holt & Tamminen, 2010). I chose to adopt a broadly ‘Straussian’ approach, then, to fit with the ontological viewpoint that my interaction with the data leads to the construction of a theory, rather than the underlying ‘true’ theory ‘emerging’ from the data to be discovered (Holt, Knight & Tamminen, 2012; Weed, 2009). This variant of grounded theory methodology has been characterised by a pragmatic position that sits between post-positivism and constructivism (Weed, 2009), which I deemed to be congruent within the research paradigm previously outlined (see p.48).

I selected the grounded theory approach due to the appeal of moving beyond description to develop theoretical and conceptual understanding of the studied phenomenon from the data. In addition, grounded theories are based on concurrent collection and analysis of several types of data, and can aid in understanding of processes involving interactions between participants and their larger social context (Holt et al., 2012), qualities which matched well with the focus of this project. These approaches are also particularly useful when there is no pre-existing theory available or theory is underdeveloped for particular populations (Holt et al., 2012); in this case coach learners. The analysis therefore aimed to identify learning processes apparent within the data and develop a theoretical framework to specify their ‘causes,

conditions, and consequences' (Charmaz & Mitchell, 2001, p.160). As data collection progressed, I developed concepts of a theory to examine coaches' experiences of learning and practicing in formal and informal situations, from interplay between induction and deduction. Semi-structured, stimulated recall (SR) and informal interviews became flexible to questions deriving from the themes in the data. For example, early course observations and interviews with candidates indicated the presence of contradictory messages from different learning sources, a theme which I then explored further when it arose in follow-up SR interviews. I probed participants on how they decided which messages to take on and use in their practice, which to reject, and why.

It should be noted that during the analysis I did not adopt a 'delayed literature review' as a way to approach the data with an 'empty mind' (Glaser & Strauss, 1967). Although I agree that the researcher should aim to avoid imposing their own expectations and theories onto the data, I felt it realistically impossible to approach analysis without pre-existing ideas. Indeed, I was not a 'blank slate' due to previous coaching experiences and engagement in formal and informal learning situations. Knowledge of previous research and theory was deemed necessary to develop and refine the research questions and methodology as a whole.

The coding process involved moving from basic description to analysing the data at increasingly abstract levels (Holt et al., 2012). As the interviews were transcribed, I read the resulting documents thoroughly and began to apply a process of labelling or coding ideas in the text. This comparative open coding process (Strauss & Corbin, 1998) involved identifying concepts related specifically to the research questions, and dividing the transcripts into appropriate pieces of information related to participants' learning and development or changes. Specifically, raw data extracts relating to learning, knowledge, antecedents and moderating factors were highlighted and labelled within the transcripts, then pasted into groups together with other extracts sharing common characteristics. New concepts were created when extracts were found that did not fit into the existing groupings (Chesterfield, Potrac & Jones, 2010; Groom et al., 2011). To provide an

example, the following excerpts were both labelled ‘try out to see what works’ during open coding of the learning process<sup>3</sup>:

I tried out the style of coaching we did on the module and obviously filled out the logbook, and was really positive about it actually; the players responded really well to that sort of style of questioning, that kind of stuff, with some good results to be honest; it did work really well. (M5,P)

It’s almost an experiment to see does it actually work if I coach it this way? (C1,P1)

As the open coding process went on, I found numerous examples that alluded to what works in coaches’ practice. The following quotation also related to the concept of ‘what works’ but was labelled ‘seeing is believing’ as I deemed the reported learning process to represent a different concept:

I’ve seen those sorts of style work when I’ve been in New Zealand, having been coached like it, in that way, and I’ve also seen other people coach. (C1,P1)

This process of open coding was interconnected with the next, more abstract level of coding. Axial coding involved relating concepts identified during open coding to each other, creating linkages, categories and subcategories, and the formation of more precise explanations of the phenomena in question (Côté et al., 1995; Holt et al., 2012). For example, the two concepts above were related to each other by looking for and referring back to connections in the data, with particular attention to causes, conditions and consequences. The following excerpt indicated that once a coach identified ‘what works by seeing is believing’, he went on to ‘try out to see what works’:

If I can see – someone comes to me with an idea and I can see it working and it being relevant for the player and enjoyable, I can get my head round that and think right well let’s give that a go and see if it works. (A1,2)

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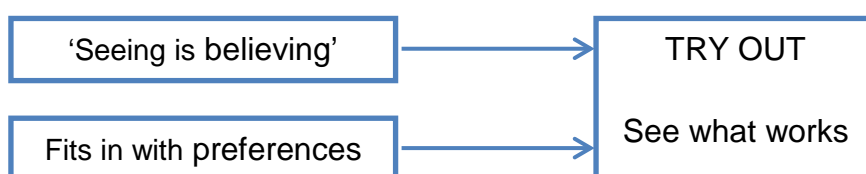
<sup>3</sup> Throughout, data excerpts are identified by participant group and number code, and interview number with ‘P’ indicating ‘post-intervention’ or follow-up.

Meanwhile, another quotation demonstrates how content that fits in with preferences was tried out to see what works:

Because it makes, I just find it quite logical how the Level 2 is set out and structured, so I stick to that because having tried it, it seems to work (C3,1)

Therefore the concepts of 'seeing is believing' and 'content fits in with preferences' were linked to the subsequent category of 'try out to see what works', as depicted in the initial section of the overall scheme in Figure 3.2.

**Figure 3.2. Initial scheme of linked concepts and categories**



Finally, the analysis proceeded to a higher level of abstraction during theoretical integration. Linked categories were integrated together and refined to form a larger theoretical scheme, whereby a holistic, interconnected model of the participants' learning was created; the final model can be seen in chapter 7 (p.189). During the axial coding and theoretical integration processes, I employed a number of strategies to ask conceptual questions of the data, its relationships to other data (Strauss & Corbin, 1998) and to help group the concepts and categories. For instance, drawing diagrams (Buckley & Waring, 2013; see Appendix I for an example), helped me try out different links and combinations between categories, causes and consequences, and visualise how the concepts connected to each other. These diagrams were gradually adapted as theoretical integration progressed to develop the final substantive grounded theory (Chapter 7, p.189). Another strategy I used to aid the process of abstraction was through referring to 'analytical memos' (see table 3.4), and generating statements denoting how categories related to their subcategories. I also engaged in conversations with an outsider 'critical friend' who had no previous knowledge of the coaching or coach learning literature, as I wanted to ensure that someone unfamiliar with the area could follow the research process and facilitate clarity in my analysis. The former two strategies were used throughout to make



preliminary connections to theoretical concepts that were thought to potentially explain the key issues in the data (Buckley & Waring, 2013; Chesterfield et al., 2010). An example memo relating to three codes from coach A1's stimulated recall interviews is shown in Table 3.4 as follows.

**Table 3.4. Memo associated with 3 open codes**

<b>MEMO - 10/9/12</b>	
Open coding, coach A1. Post-intervention stimulated recall interview 2	
<b>Codes:</b> Player input, Ownership, thinking players, knowledge of learning	
<p>A1 emphasises 'player input' to a great extent in his practice, and it seems that for him, this means 'ownership' and 'thinking players'. He assumes that players learn through having ownership and thinking for themselves (i.e. having input). Player input also serves a dual purpose as confirmation for the coach that the players are taking things on board and understanding.</p> <p>A1 emphasised this 'player centred' value in his coaching pre- and post- YAM3 course.</p>	<p><b>Ideas</b></p> <p>How did the YAM3 impact on this value – expanded?</p> <p>Approached YAM3 with pre-existing 'player centred' values as a lens (cognitive structures) – how did this impact on his learning?</p>

**3.6.2 Quantitative data.** After coding, the behavioural data were calculated in the form of rate per minute (RPM) behaviours and percentage time spent in different performance states. These were analysed using statistical techniques, which are explained in more detail in chapter 6 (p.157). To summarise, two-way mixed analysis of variance (ANOVA) and robust mixed ANOVA (Field, 2013) were performed on average RPM scores for each of the primary CAIS behaviours and average practice state percentages, to compare differences in coaching behaviours over time and between groups. The independent variables, intervention and group, each had two levels; pre and post, and education and comparison respectively. Moreover, descriptive statistics were calculated for secondary CAIS behaviour detail (i.e. recipient, timing, content and question type), with exploratory mixed ANOVAs conducted on those that warranted formal analysis, as a follow-up to the primary behavioural and qualitative analyses (see Chapter 6, p.159).

### **3.7 Research Quality**

In the social sciences, a ‘holy trinity’ of criteria are often used to judge the quality of research; namely generalisability, reliability and validity (Sparkes & Smith, 2014). While these measures are accepted in quantitative forms of inquiry, it has been argued that these positivistic constructs are incongruent with the assumptions underpinning qualitative methods (Sparkes & Smith, 2009). The work of Lincoln and Guba (1985) therefore formed a separate yet parallel ‘gold standard’ approach to more appropriately judge trustworthiness in qualitative research. In addition, researchers have shown a preference for using a combination of different criteria for the components of mixed methods research, despite a paucity of discussion concerning how best to apply quality criteria in mixed methods designs (Bryman, Becker & Sempik, 2008). Generally, there are multiple standards for evaluating research, all of which carry with them views of and values about what that research is (Sparkes & Smith, 2009). Such values for quality are ever changing and situated within contexts and current shared understandings (Tracy, 2010).

In terms of addressing the ‘holy trinity’ for qualitative research in particular, debate has challenged traditional foundational approaches that have often been non-reflectively adhered to (e.g. Lincoln & Guba, 1985). Consequently, rather than subscribing to a single ‘right’ set of standards, quality judgements have become

subject to increasingly fluid, relational criteria that focus on the research as a whole, rather than solely methodology (Sparkes & Smith, 2009). Recent approaches have suggested that different criteria can be approached in different combinations depending on the specific researcher, context, project, and theoretical affiliation (Tracy, 2010). This does not mean that ‘anything goes’ when conducting research and assessing the quality of an inquiry (Sparkes & Smith, 2009). Willig (2008) argues that epistemology plays a role in judgements of quality, as researchers need to be clear about what they wanted to find out and what kind of knowledge they were trying to generate, to allow readers to evaluate their study. She classifies realist versions of grounded theory and case study research as able to be evaluated in terms of the extent to which they capture what is really ‘going on’. Triangulation along the lines of inter-rater coding and multiple observers could provide evidence towards this, as the point at which different perspectives converge represents ‘reality’ (Willig, 2008). Moving along the epistemological continuum towards relativism, issues of reflexivity need to be addressed to acknowledge and demonstrate how the researcher’s perspective and position shape the research. Researchers taking a relativist stance could discuss what one might do, conceptualising criteria as the way researchers seem to be conducting that particular kind of inquiry at the moment, rather than mandating what one must do across all contexts and in all occasions (Sparkes & Smith, 2014). Bearing in mind this debate, I have aimed to take a reflective stance on the problems involved in using criteria, and construct my own informed position on which criteria are most useful in this particular project. Given the pragmatic underpinnings, I am ultimately motivated to address the following question:

Are these findings sufficiently authentic...that I [and research participants] may trust myself in acting on their implications? (Guba & Lincoln, 2005, p.205)

The following points, formed from the bricolage of several approaches, are my suggestions of factors that will allow me to consider this question and the reader to form an assessment of the quality of this research (Sparkes & Smith, 2014).

**3.7.1 Consistency.** Firstly, explicitness, transparency and coherence in procedures and research decision making processes are commonly understood to be important in allowing judgements of both quantitative and qualitative research

(Bryman et al., 2008; Sparkes & Smith, 2014; Tracy, 2010). I subscribe to the conventional idea that research of a high quality clearly states the selected design, methods, procedures and their application, and “hangs together well” (Tracy, 2010, p.848). Studies can make sense as a consistent whole by coherently interconnecting their paradigms, theoretical frameworks and procedures (Tracy, 2010). Hence, I have attempted to be as clear and comprehensive as possible with the systematic ‘audit trail’ laid out in this methodology section, to aid the reader in their assessment of quality (see Paradigm p.48, Procedure p.69, and Analysis p.75). I employed methodologies based on their fit to the pragmatic aims and setting, and selected particular analytic strategies and grounded theory concepts in line with my ontological and epistemological standpoints. Moreover, I have placed emphasis on shaping the project to operate as an integrated, comprehensive whole research endeavour, rather than a collection of separate multi-method studies based on potentially incompatible research philosophies (Bryman, 2008). Finally, the conclusions and implications are discussed in relation to reviewed literature and contemporary debates to substantiate the importance of the study in its academic and practical landscape.

**3.7.2 Credibility.** Given the realist, post-positivist aspects of the pragmatic approach and the version of grounded theory methodology adopted, I deemed discussion of the ‘fit’, and trustworthiness of my interpretations appropriate. In grounded theory research, this relates to how closely the concepts and theory generated (see Chapter 7, p.189) fit the incidents and phenomena they represent (Weed, 2009). In the words of Corbin and Strauss (2008, p.302),

‘Credibility’ indicates that findings are trustworthy and believable in that they reflect participants’, researchers’, and readers’ experiences with a phenomenon but at the same time the explanation is only one of many ‘plausible’ interpretations possible from data.

I used several strategies to as closely as possible align my claims about knowledge and learning with the participants’ constructions of reality. Collecting multiple types of data and seeing participants in a number of different settings, over a prolonged period of a year and a half aided understanding of participants’ meanings and descriptions in context (Patton, 2002). The use of different, mixed

forms of data collection was seen as a way of exploring different facets of the phenomenon of coaches' learning to open up a more complex and credible understanding (Tracy, 2010). I used follow-up interviews to initiate member-reflections around ideas of possible themes and gauge their representativeness of the participants' shared experiences (e.g. Holt & Dunn, 2004). These situations involved dialoguing with participants about my ideas and findings, which then in turn yielded new data and deeper re-interpretations (Tracy, 2010). Engaging in reflection after each interview also contributed to the reflexive account included in section 3.7.4. I intended to address how my background and experiences lead to the forming of my research questions, methodological choices, interpretations and assumptions; the things I bring to the research that will influence the quality of findings (Corbin & Strauss, 2008). Combined with the use of constant comparison in my analyses, these strategies were intended to enhance the credibility of the data and the conclusions I drew (Guba & Lincoln, 2005).

**3.7.3 Generalisability.** 'Quality' research makes clear statements about the specific context of the data generation and the transferability of the findings beyond this context (Willig, 2008). It has been argued that in education, context-specific factors will always hinder the process of generalisation (Berliner, 2002). Indeed, the specific sample was investigated in an 'in-depth' rather than 'expansive' approach, and findings were certainly not intended to accurately represent the learning, knowledge and behaviour of the 1.2 million regularly practicing coaches in the UK (Townend & North, 2007). Rather than statistical generalisation, therefore, the overall aim was to create substantive (topic-focused) theory applicable to a particular group, in this case UK youth football coaches of a similar experience and formal qualification level (i.e. UKCC Levels 2 and 3). Such theory is process bound and does not automatically extend generally beyond the scope of the learning phenomenon under study (Holt et al., 2012). Thus, although individuals each operate in their own complex coaching and learning environment, and each has their own differing interpretations of this reality, to suggest that every situation is entirely unique would overlook the shared reality or 'sameness' present (Rink, 1993).

While the data and findings of this study cannot be considered as representative, they can still be transferable to other contexts and other participants experiencing similar phenomena (Holt et al., 2012). The findings are primarily

intended to be useful for coaches, coach educators and NGBs in comparable settings to the current area of study. A number of steps were adopted to allow aspects of particular cases to be seen as instances of a broader recognisable set of features (Armour & Yelling, 2007). The use of purposive sampling (see Participants, p.53) and detailed presentation of the data using relevant, concrete examples are intended to provide opportunities to judge the transferability, fittingness or generalisability of this study (Guba & Lincoln, 2005). I have included data extracts to substantiate the findings yet also allow readers to establish whether intuitive connections can be made to their own experiences and other similar contexts (Tracy, 2010). It is hoped that the initial substantive theory can provide the basis to move towards generation of a more general, formal theory of coach learning (Glaser & Strauss, 1967). To use quality criteria specific to grounded theory, the model produced is 'modifiable', in that it is open to future development to accommodate new insights provided by further empirical research in diverse settings (Weed, 2009).

In addition, a theory is said to 'work' if it is able to offer analytical explanations for problems and processes in the context to which it seeks to refer, while its 'relevance' relates to the extent to which it deals with the everyday concerns of those involved in such processes (Weed, 2009). From the influencing standpoints of pragmatism and cognitive-behavioural psychology, this research certainly adopts a strong focus on processes within a specific context, and the findings have clear practical value within this and comparable coach education settings. The individual research participants, too, gained and stand to gain a great deal from the research process, as well as its outputs, in terms of their coaching development. The inquiry itself meets the sometimes cited judgement criteria of 'change' - the ability to prompt action on the part of the participants (Sparkes & Smith, 2014). Taking part in coaching observations and stimulated recall interviews over an extended time period, in several cases, empowered the coaches involved to create change in their knowledge and practice. The reader is directed to chapter 7 on Impact (p.204) and Implications on p.221, for evidence in support of this claim.

**3.7.4 Reflexivity.** Finally, rather than ineffectively attempting to achieve objectivity, being reflexive about the work I produced, the methods I used, how my interpretations of my experiences in the field came about, and my role in the research, is another step in the process intended to contribute to judgements of quality (Sparkes & Smith, 2014; Willig, 2008). Since it is acknowledged that the background, thoughts and actions of the researcher have an impact on the research process, conceptualised as a social act which involves co-constructing meanings with participants, a process of self-examination can serve to explicate the role of the researcher as the 'instrument' of research (Patton, 2002). In other words, reflections on the practice of research, the unique experiences I encountered, and 'how I came to know', not just 'what I know' (Sparkes & Smith, 2014), are included here to enable the reader to more fully understand the conditions influencing the research process.

Having studied psychology as a biological science at undergraduate level, with my first experiences of research there as a volunteer research assistant, I arrived into postgraduate study a product of a 'traditional' department, familiar with the classic experimental and largely positivist approaches of differential psychology and cognitive neuroscience. By my final year I began to struggle with the idea of psychology being either 'common sense' or a 'science' and felt unsettled with some of the absolute teaching of topics like personality traits and their apparent causes. Although I had no conscious understanding of this at the time, to borrow from Entwistle and Peterson's (2004) work, my epistemological beliefs had moved from a dualistic acceptance that knowledge is right or wrong and to be reproduced as evidence of learning. I was approaching the 'pivotal position', becoming aware that knowledge can be provisional; and on the verge of appreciating relativism. Amongst my surroundings in the psychology laboratories of an A-listed Georgian building, I had likewise started to appreciate my own preference for real world studies and all the challenges that accompany them; I took it upon myself to carry out my final research project in the cold, wet and windy evenings on the university sports facility. It turns out my experience of trying to keep a video camera functioning and capturing useful data despite the elements in the middle of a freezing football training ground would come in useful several years later.

Given this past and my resulting knowledge structure of how research is done, I approached my PhD proposal with ideas around randomised controlled trials,

expert-novice continuums and experimental methods. At this point, I had heard of ontology and epistemology in MSc qualitative research methods classes but dismissed them as something I was not going to be using and therefore not worth fully engaging with. I saw the debate around the nature of reality and truth as superfluous to getting things done and verging on pretentious. As I reached the interview stage for my PhD selection, I was asked how I personally learned to coach. I ended up responding in a rant about my perception of sexism in my experience of coach education provision and the limitations of the practice opportunities I had experienced. Then, engaging with the coaching literature and considering it in terms of these experiences, it became apparent that clearly defined, easily measurable systematic observation and eye-tracking studies in the lab were not going to 'cut it' and could not do justice to practitioners' realities. My reading around learning theories and discussions with the students around me forced my engagement with conceptions of reality and knowledge and what this meant for my research. Through these processes I realised that approaching the issue through a purely positivist lens would be epistemologically discordant with the subject matter and my new awareness of different ideas of knowledge and truth. Nevertheless, I have retained some 'black and white' type viewpoints, according to the people who know me best; I take this to mean that I have a preference for specificity, logical processes, and being useful or helpful. I am still of the opinion that excessive deliberations around the nature of truth, reality and how we can come to 'know' something are not conducive to research that makes a difference to people's lives. So it came to be that I located myself within a pragmatic, post-positivist/realist approach. I became appreciative that different people construct understanding of situations in their own ways and therefore 'truth' is the prevailing consensus at a particular time; however I assume that these interpretations relate to the same 'reality' and it is my aim to understand participants' interpretations of this as fully as possible (Lincoln et al., 2011).

Taking this approach into the field, my background in using quantitative, experimental methodologies meant that the use of video recording technology and a logical longitudinal design with different groups of participants was relatively straightforward, yet other techniques presented a more challenging learning process. Preparing for and conducting most of the data collection required additional reading



and many informal discussions with more experienced qualitative researchers, as well as continued reflection and refinement, and coming to terms with the 'messy' spread of different levels of data collected from different participants and sources. The latter was a novel challenge for me in clarifying the best way to organise, analyse, integrate and present the data in a way that makes the most of a potentially powerful range of information. As touched on before, I already had an appreciation of the unique challenges of conducting research in situ; factors such as the social and political context, weather, time of season, last-minute cancellations, charged batteries and other technological issues were inevitable issues that had to be overcome through flexibility. The use of SportsCode was also extremely challenging due to a lack of knowledge and experience of the software, or a support network, leading to several long, frustrating delays.

The research context of football also presents its own unique cultures, customs and norms (e.g. Cushion & Jones, 2006). Having played junior football and at senior club level for more than a decade, and having coached and taken part in a number of introductory coaching education courses before, I had some pre-conceived ideas of what to expect. Being a young female academic immediately set me apart from most others in this context. Each FA course touched on some humour or innuendo at the expense of females and one included nicknames such as 'doc'. However, I generally chose to take humour involving me as some level of acceptance and rapport with the coaches (Ronglan & Aggerholm, 2013), as well as an indication of the enduring hegemonic masculinity of 'football culture' (Fielding-Lloyd & Meân, 2011). Rapport is an important issue in qualitative research, which, tantamount to trust, forms the basis of full participant disclosure (Glesne & Pashkin, 1992). Trust and distrust in coaching have been touched on mainly by research guided by theories of power and interaction, underlining the idea that both are important in developing, maintaining and advancing effective working relationships (Purdy et al., 2013). With regard to establishing rapport, being a football player and FA Level 2 coach, and therefore having knowledge and experience of football and working in football environments, was a crucial advantage for understanding the particular jargon, customs, norms and politics at work. My football-specific knowledge allowed me to understand and sustain conversations about techniques, tactics and ways of operating using the accepted language. Being able to take part

in practical playing sessions on courses 'won over' some candidates and tutors to a degree, resulting in a noticeable increase in dialogue and trust. In club settings, full inclusion was less likely due to being less involved, for a shorter time, with a lack of experience in male elite football and 'buy-in' to the values it endorses. However, a good relationship was built with each of the research participants over time. Perhaps due to gender inequalities in social status in football (Fielding-Lloyd & Meân, 2011), my presence within the clubs may also have been perceived as less threatening and therefore engendering less suspicion than someone with different characteristics, for example an older male with more respected football credentials. Often, coaches showed great interest in my research and its purpose, leading to some questions at the end of interviews about my background, coaching, playing and studies, as well as my thoughts about FA courses, who else was taking part, and, commonly, where they stood in relation to other participants. Keeping in mind Wellington's (2000) suggestion that this role reversal is an indication of a true rapport, I was happy to disclose and discuss my background and experiences, however remained cautious of revealing too much in line with confidentiality, anonymity and leading participants towards certain opinions or standpoints. Coaches' curiosity was likely an attempt to work out my role and standing within the wider context.

The rapport I developed over time with coaches who took part in stimulated recall interviewing afforded not only more in-depth data collection, but also led to some unexpected research outcomes. As was the case for Trudel, Gilbert and Tochon (2001), it became clear on later analysis and reflection that while these coaches were answering my questions and thinking about their practice, "they were also learning about themselves and how to coach" (Trudel et al., 2001, p.103; see also p. 205). The resulting partnership between myself and each of these coaches became a context for shared reflection for change and knowledge development, and perhaps even an intervention in its own right. On reflection then it seems that this altered the envisaged groupings of coaches' learning situations outlined in table 3.1 (p.57). In effect, the stimulated recall interview method created three learning groups rather than two: formal education; formal education with guided reflection; and comparison (no formal education) with guided reflection. Given the evidence of impact in chapter 7 (p.206), these unexpected groups potentially exaggerated the unevenness of learning demonstrated by coaches on the YAM3, and closed the gap

between the education and comparison coaches. Importantly, some of the learning reported by the education with guided reflection (stimulated recall interview) coaches would have been due to their participation in the method rather than in the YAM3. The SR protocol of asking coaches to trace where they got their knowledge from, as well as the inclusion of the 'comparison with guided reflection' group can mitigate against this becoming an issue to some extent, however future analyses of the differences in learning between the two formal education groups would be enlightening in understanding and delineating the full impact of this unexpected research effect.

### **3.8 Summary**

This chapter has outlined and explained the methodology adopted in this study, and the conduct of the research overall. Situated within a pragmatic approach, the research period of a year and a half involved a total of 25 coaches at various points across two nine month football seasons. A mixture of increasingly in-depth data collection procedures including semi-structured interviews, systematic observations and stimulated recall interviews aimed to understand coaches' practice and knowledge in context, as well as the learning origins of these qualities. For 20 of these participants, the research period encompassed their time on an FA formal coach education course, the YAM3, whereby course observations and informal tutor interviews were employed to evaluate the learning situation. The data were analysed using the processes of Grounded Theory Method. Aspects of the resulting substantive theory framework are presented in the chapters that follow. Looking back to Lincoln and Guba's (2005) quoted question on 'authenticity' and taking into account the reflections above with my suggested indicators of quality, I believe that these findings can be acted on with confidence for pragmatic outcomes.

## **Chapter 4: Intervention Delivery and Participant Reactions**

### **Introduction**

This chapter, and the chapters that follow, synthesise the research findings to elucidate coaches' learning from a number of angles. Initially, the 'intervention' stage of the study is addressed; while subsequent chapters will go on to link and evaluate outcomes of this 'input' in terms of coaches' behaviour and knowledge, impact, and overall learning. Accordingly, levels of abstraction and layers of explanation will deepen, culminating with Chapter 7 on impact (p.186), which highlights complex interactions and presents important mediating factors. In this way, the following four chapters aim to tackle the overall purpose of this research; to generate an empirically informed, integrated understanding of football coaches' learning over a particular period of time.

This period of time, the 'intervention stage', sat between the two phases of data collection, capturing a duration of learning and practice for all participants (see Design, p.60). For 20 of the coaches involved, this encompassed their participation in a formal coach education course, The FA Youth Award Module 3 (YAM3), while the remaining five coaches' intervention period constituted 'experiential learning', through continued coaching practice. The current chapter functions predominantly to set out the nature of the intervention period that the 'formal education group' and 'comparison group' of coaches experienced, looking in particular at the design and delivery of the YAM3. Comparisons between the intended and actual delivery of the course will be made. Subsequently, the reception of the YAM3, or the reactions of the coaches who took part, will be discussed. The latter comprise the first level of 'outcome' in evaluating learning (Coldwell & Simkins, 2011). The analysis, results and discussion relate to the research question of 'what works' in coach learning; how does participants' learning relate to the design, delivery and perceptions of a formal learning course? Throughout this and other chapters, data excerpts are identified by participant group and number code, and interview number with 'P' indicating 'post-intervention' or follow-up.

## **4.1 Intervention: Formal Education Group**

As outlined in Chapter 3 (see p.54), the ‘formal education group’ (N=20) took part in a coach education course during the intervention period. Specifically, four cohorts of coaches took part in data collection before, during and after their attendance on The FA Youth Award, Module 3. The following results are based on course observations and candidate and tutor interview data in combination with course materials, as outlined in chapter 3. These data were organised using the overall framework of grounded theory (see Chapter 3 p.75), and here, concepts relating specifically to the course delivery are identified and addressed.

**4.1.1 YAM3 intended delivery.** The Youth Award is an age-appropriate formal coach education programme consisting of 3 modules, designed and run by the English Football Association (The FA). In line with The FA’s espoused coaching philosophy, the course is specifically targeted towards coaches who work with young football players and is provided alongside a more established ‘core’ pathway of coaching qualifications, as shown in figure 4.1. The associated course materials claim to package coaching in a way that fits the child, marking “a progressive change in coaching philosophy, creating a truly player centred approach to the coaching and development of our young players” (FA Learning, 2010, p.1). The third module, highlighted in the box in figure 4.1, is entitled “developing the player” and is structured over 2 weekends with a 4 week gap in between, to allow completion of practical ‘logbook’ tasks. The taught aspects of the course are scheduled to last 27 hours in total, beginning with a “re-cap” of the first two modules, tutor session demonstrations and a group planning workshop on the first day. The day 2 schedule consists of candidates delivering group coaching sessions, and the final two days comprise individual sessions, alongside a two-way ‘peer feedback’ process as well as tutor feedback.

Figure 4.1. FA coach education provision pathway (FA Learning, 2013; p.53)



After attending the taught parts of the YAM3, candidates were required to complete a log-book of their subsequent coaching planning, practice and evaluations, and submit it to the FA to finish the course. Candidates then had the option of being summatively assessed by interview on their logbook and practical coaching session to achieve the overall FA Youth Award qualification (FA Learning, 2010). The logbook was intended to “demonstrate development and not to list ‘perfect’ session plans” (FA Learning, 2010: p26); coupled with the absence of assessment on the taught aspect of the course, this left room for experimenting, adapting and learning from self-evaluations (FA Learning, 2010: p 33).

The 'espoused' theory, or what the course says it will do (Argyris & Schön, 1974), permits and promotes a constructivist-themed interpretation of 'learner centred' practices through two broad messages. These are (a) learning through trial and error, using challenges and associated questioning in more contextualised (i.e. game related) practices; and (b) acknowledging differences in individual learners, linking new ideas to their existing knowledge. The course tutor reflected these key messages in his expectations of coaches' learning, drawing parallels between his assumptions about coaches' and athletes' learning:

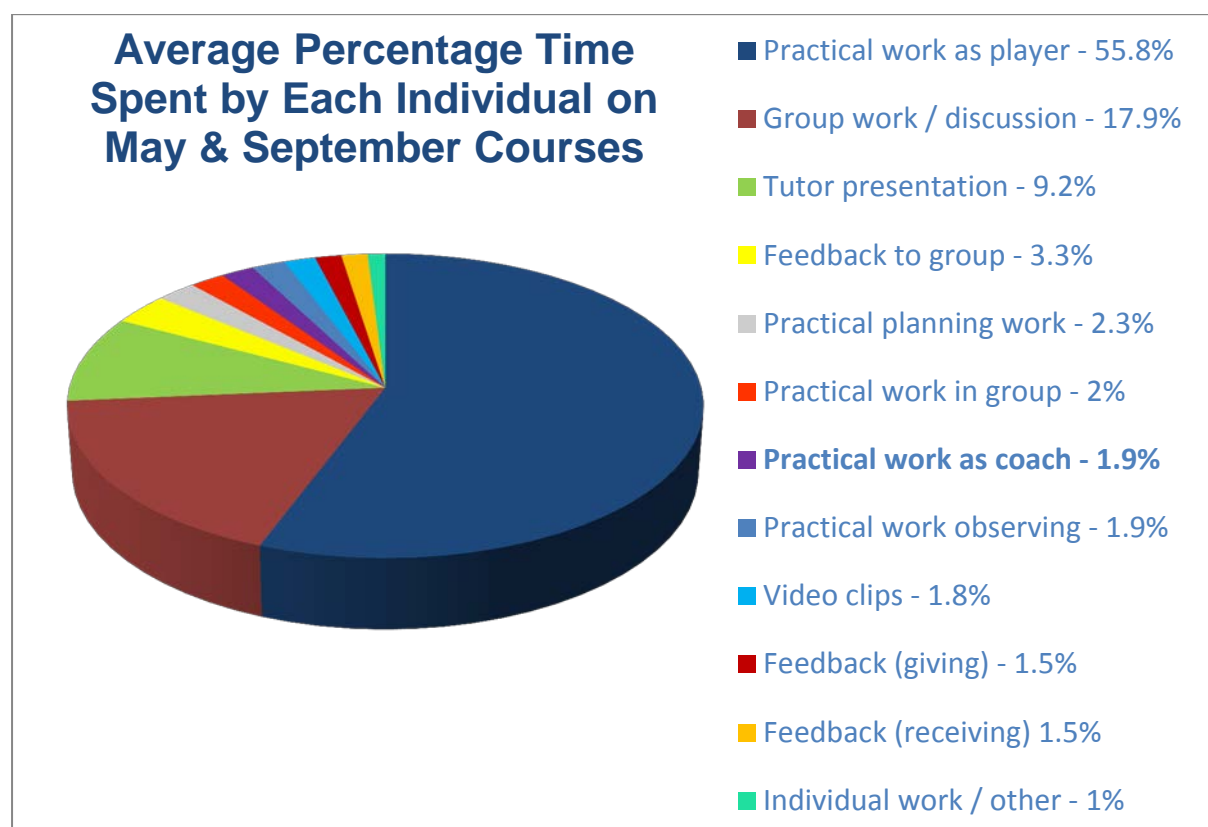
Learning over a period of time through trial and error and having a go at stuff, what we need to give them are tools to allow them to have a go at stuff. They're no different to the players, they're all individuals, they're all at individual stages and I think, the more we can recognise that the more we can work with that. (Tutor 3)

The espoused course delivery therefore mirrored and modelled the 'learner centred' coaching that candidates were expected to learn and use as a result of attending the course. The learning culture espoused by the YAM3 has been framed as an 'open circle' style by Piggott (2012). The lack of formal assessment is a significant aspect of this openness, purportedly in contrast with a closed circle culture whereby learners pursue a central dogma of core knowledge, behaving in accordance with that knowledge (Munz, 1985). A closed core is impermeable to criticism and therefore privileged knowledge and practice is transmitted and reproduced, in a process not unlike the way coaches outwardly mimic core knowledge and practices of coach education to meet certification criteria (Chesterfield et al., 2010). Piggott's (2012) research identified the core knowledge circle of the Youth Award to be permeable and therefore 'learnable' through education rather than transferred through indoctrination. The results from this research, however, diverge from these findings.

**4.1.2 YAM3 delivery.** In contrast to espoused theory, what people believe in and what they actually do have been termed their 'theory-in-use' by Argyris and Schön (1974). Practitioners operate with a model of learning based on an implicit theory-in-use, which does not always duplicate their espoused theory of learning (Brockbank & McGill, 2007). Observation and interview data, recorded on four separate YAM3

courses, highlighted a number of conflicts with the 'open circle' intentions or the espoused theory of the course. As well as a shortfall between the recommended contact time of 27.5 hours and the total of 24.1 hours allotted in practice on both the May and September courses, a mixture of teaching methods informed by a variety of contrasting implicit learning theories, were employed on the course. Figure 4.2 shows the average percentage of time each individual candidate spent on different types of learning activity during the May and September courses. Despite the espoused theory of learning by doing and trial and error, and course candidates' agreement that practical coaching and resulting feedback sessions were most valuable for their understanding (see p.114), timings showed that each individual coach spent an average of 1.9% of the total contact time coaching.

**Figure 4.2. Chart of time each individual spent during different activities during the YAM3 – Average of May and September courses**



The remaining majority of the course, on average 55.8%, was spent as a player in other coaches' practical sessions or observing, with a further 17.9% of the course spent in group work. The latter involved classroom work within groups of 4 or 5 in response to set problems or video tasks, and feeding back to the class with discussion points from the tutors. This predominantly active, practical involvement



demonstrates an intended move away from classroom based, didactic, educator-centred teaching. The focus on 'active learning opportunities' appears to align well with coaching practitioners' preferences for greater opportunities to be involved, interact and share ideas with other coaches (Nelson et al., 2012). Candidates enjoyed and engaged with the practical nature of the course, which allowed them to see things from a player's point of view and was useful in surface level understanding of "what worked" (M9), "how technical points are brought in" (M11) and "making practices 'stick' in the mind" (M7).

On closer inspection, however, some limitations regarding the actual delivery of these learning activities become apparent. Coaches received a mixture of learning practices underpinned by a miscellany of implicit learning theories, rather than activities reflecting the situational, constructivist trial and error learning theory discussed earlier. Activities relying on learning by group and peer interaction, receiving and giving feedback (as outlined in figure 4.2), tutor demonstrations of sessions using candidates as players, and multiple analogies of "chunking" and using "stabilisers" akin to scaffolding, were reflective of a range of underpinning learning theories including social constructivist, behaviourist, and cognitivist models of learning (Colley et al., 2003). Observations indicated tutors' "mixed use of theories, ideas on learning not based on anything" (May, Days 3&4); implicit 'folk pedagogies' rooted in strong views about what is good and best for people in their learning (Bruner, 1999).

Furthermore, the use of 'gold standard' tutor coaching demonstrations (Abraham & Collins, 1998) showing a correct way of doing things that candidates were encouraged to emulate, illustrated a behaviourist, dualistic approach to pedagogy and a linear view of learning with coaches the passive receivers or acquirers of information (Entwistle et al., 2004; Trudel & Gilbert, 2006). Candidates were expected to learn by modelling the required coaching behaviours, 'having a go' and receiving reinforcing negative and positive feedback, characteristics of a pedagogy informed by behaviourism (Schunk, 2009). Indeed, observations noted the feedback process at times involved tutors telling candidates what they wanted to see in a didactic fashion, for example, "try and work in a logical order...you deal with the passing last." (Tutor 1, June, Day 4). As coach M1 explains, this type of delivery contrasts with the espoused constructivist-informed learning theory of the course:

...the philosophy there, they're sort of saying is that children learn through doing stuff and that seems to be what they've been saying throughout the youth modules, but I just felt that, from all of the FA courses I've been on and each module's, it's kind of like they're, they don't really follow that philosophy in the way they're teaching the adult coaches on the course, it's much more of a kind of, this is how we want you to do it, here's a demonstration, you go and do it, if you don't do it quite how they've done it, then it's like, no we don't want you to do it like that, we want you to do it like this (M1,P).

A conflict or 'epistemological gap' (Light, 2008) was therefore created between the espoused theory and the theory-in-use observed during the course delivery. Although the course was geared towards practical experiences, candidates typically spent over half of their time acting as players in these sessions, creating an emphasis on participation as a player, rather than as a coach. Coach J5 emphasised this distinction with his view that the course was "very good for getting better at football but not so good at getting better at coaching football". The tension between participation-as-player pedagogy and the need to learn as a coach was also felt by tutor 1, who struggled to strike a balance between 'showcasing' exemplary coaching sessions while at the same time educating the candidates as coaches:

...well I have got to show you as a player but now I have got to go back and say what you'd do as a coach and stuff like that. For me that is really hard...I find it very, very difficult to do that. (T1)

The delivery approach of using candidates as players meant that practical sessions involved coaching other adults rather than youth athletes, distancing the course context from coaches' normal practice contexts. This created a conflict with the advocated use of contextualised practices and potentially limited coaches' learning (e.g. Armour, 2010; Lave, 2009). For example, issues and reactions specific to coaching young players were less likely to surface, making it less clear why and when the type of coaching advocated on the course should be used, hindering potential transfer to practice. Instead of a primary coaching experience that helped candidates to connect 'knowing how' with 'being able to', the practical involvement on the YAM3 constituted a secondary learning experience (Jarvis, 2009) with an extra level of abstraction from coaching praxis. Furthermore, a reliance on

playing turned the focus towards candidates' abilities in this area rather than their coaching and learning, which had subtle ramifications for equality, inclusion, and the forming of social structures. As M1 put it,

Why don't we have children on the course to coach?...that would really emphasise why these questions, why is a certain style necessary, and you'd get actual proper reaction from real children there. If you had children there then all of a sudden your sort of status in that course is how well you can look after the children and your actual coaching skill, not your playing skill or your playing background, or how noisy you are on a footie pitch. It then becomes actually, oh right oh god, he can really coach, or she can really coach rather than anything else. (M1,P)

**4.1.2.1 Group work.** Social issues also had a role to play in group work and discussions, the second-most used teaching strategy which made up around one fifth of individual candidates' time on the YAM3 (Figure 4.2). Observations indicated that group work typically consisted of the tutor setting a question or issue to explore, candidates discussing in their groups then writing some solution or ideas down and presenting to the class, sometimes followed by further comments from the tutor. The set-up of tables around the room created ready-made groups for such tasks. Therefore each group was made up of four or five coaches, based on whom candidates had chosen to sit near at the start of the course:

Coaches attending with any colleagues from their club arrive together, wear matching club tracksuits, and sit together in the classroom. Candidates appear to choose where to sit according to where there is space on arrival; resulting in a mixture of professional (in club groups) and non-professional club coaches (typically individuals) across the tables. Coaches return to the same seats for each classroom session. (September, Day 1).

Since candidates did not change seats, individuals' opportunity to share ideas and focused discussion with other practitioners, often cited as a valuable learning source by coaches (e.g. Nelson et al., 2012) was limited to a small cluster of the same people within the wider group. It was apparent that most groups featured some dominant individuals and others were less engaged in the task, while tutors did

not regulate or facilitate the work, missing valuable chances to engage with and challenge individual candidates. For instance, field notes from the May YAM3 noted,

Despite intending to include everyone via group tasks, some did not participate as much as others, a number of candidates did not contribute to class discussions, and one in each group did not coach. Tutors invited everyone to 'join in' and posed questions to candidates, but there were no probes or follow-ups to explore and enter meaningful discussions. No input or facilitation for groups, or individual teaching; opportunities in classroom were missed. (May, Day 2)

To use Vygotsky's terminology, while candidates may have developed their individual-level understanding by making sense of and communicating their thoughts, experiences and practices with others at an 'inter-mental' social level, the tutors did not provide additional levels of 'scaffolding' for these discussions to enhance and extend learning within 'zones of proximal development' (Vygotsky, 1978). Moreover, coaches' views and experiences were not critically examined or analysed to enrich understanding.

**4.1.2.2 Individualisation.** In a similar vein, observation and interview data regarding candidates' actual course experience reveals limited individualised delivery. A number of conflicts were evident with the second espoused learner centred practice of identifying and catering for individual differences and pre-existing knowledge. Coach S1, for example, points out the contrast between the reliance on a participation-as-player delivery method, the lack of concern for individual learning preferences, and the espoused theory put across on the course:

I can pick a lot up from playing. I suppose that'd be quite a personal thing though because going back to what I learned on the modules about different people learning in different ways, some people might find it easier to stand on the sidelines and watch everyone else do it and learn that way. (S1,P2)

This standardised delivery went some way to creating a 'one-size-fits-all' experience for candidates (Nelson & Cushion, 2006), discussed further in the next section on participant reactions (see p.118). Nevertheless, after the 'benchmark' tutor-led coaching sessions were demonstrated to all candidates, the course did

become more individualised with each coach eventually receiving feedback on their own delivered session. However, the characteristics and content of this feedback was not standardised, naturally depending on the candidates' coaching but also depended on which tutor happened to be delivering comments. An exchange from A1's coaching session feedback highlights the open questioning approach taken by one tutor, modelling the youth module delivery style, versus the more directive delivery of another:

T3: So the practice design is, what do I want my players to do, based on the focus? What's the best thing I can ask them to do? How do we start to think about designing my practice and formulating the challenges through it?

T1: No, that's fine. It's just working in a logical order, so what T3 says is right. Try and get them to do it without telling them what to do.

This disparity in feedback and tutor styles betrays misaligned assumptions about learning, with T1 framing coaching as a rational, generic behaviour to be copied, while T3's constructive questioning approach better reflects the course outcomes and suggests a broader, active process requiring different types of knowledge and understanding (Jones & Wallace, 2006). Feedback therefore created a varying, even paradoxical experience for different course candidates, and their perceptions of this are explored on p.114. Although each coach received varying individualised delivery on the course, at a deeper level the acknowledgement of their existing knowledge, beliefs and practice did not constitute critical exploration, analysis and challenge (e.g. Chesterfield et al., 2010; Cushion et al., 2003). Observations indicated that a number of learning practices, established by T3 leading the August cohort, attempted to work with candidates' previous learning and varying levels of knowledge. These included interactive exercises where candidates identified the following aspects of the YAM3:

...three areas where you've had something confirmed, something's been a challenge for you, or whether you've collected something new; and then any questions that you have at all, let's put them up there and let's deal with those issues. (T3, August, day 3)

Some of these points were picked out by the tutor and discussed with the group, but conversations never moved past surface level knowledge towards deconstruction and explanation of coaches' previously formed assumptions, values and beliefs. In other words, learning practices on the YAM3 attempted to link new concepts with existing knowledge but did not go far enough to resemble a progressive dialogue, utilising evidence to challenge the interaction with deep-seated 'common sense' knowledge established outside formal coach education (Chesterfield et al., 2010). The significance of this for coaches' subsequent coaching knowledge and practice will become clear in chapters 5 and 6 which present evidence of impact, and 7 which looks at integration of knowledge.

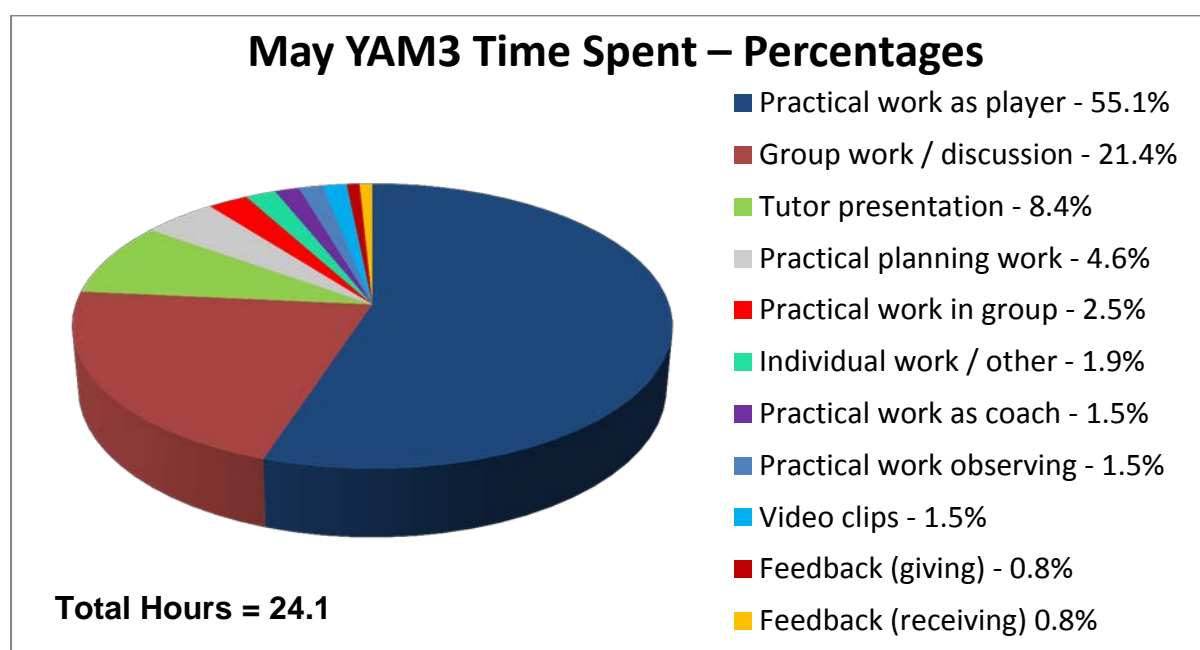
**4.1.2.3 Consistency.** 'Linking' learning practices like the one above were instigated by Tutor 3 as he led the August YAM3, but not by other tutors, creating a dissimilar learning experience for each course cohort. Furthermore, August candidates spent a reduced proportion of time participating as a player, as T3 arranged for a group of centre of excellence U16 players to be brought in on day three. Candidates received more chances to "utilise the opportunity to observe the other coaches' work" (T3) than on other cohorts, benefitting from the greater realism and challenge of the set-up:

"I tell you what, it's been powerful bringing the players in today, because they knacker you up, they give you different problems...if you don't get your challenges right, you miss stuff and you just end up butterfly coaching which is what some of them have done this morning" (T3)

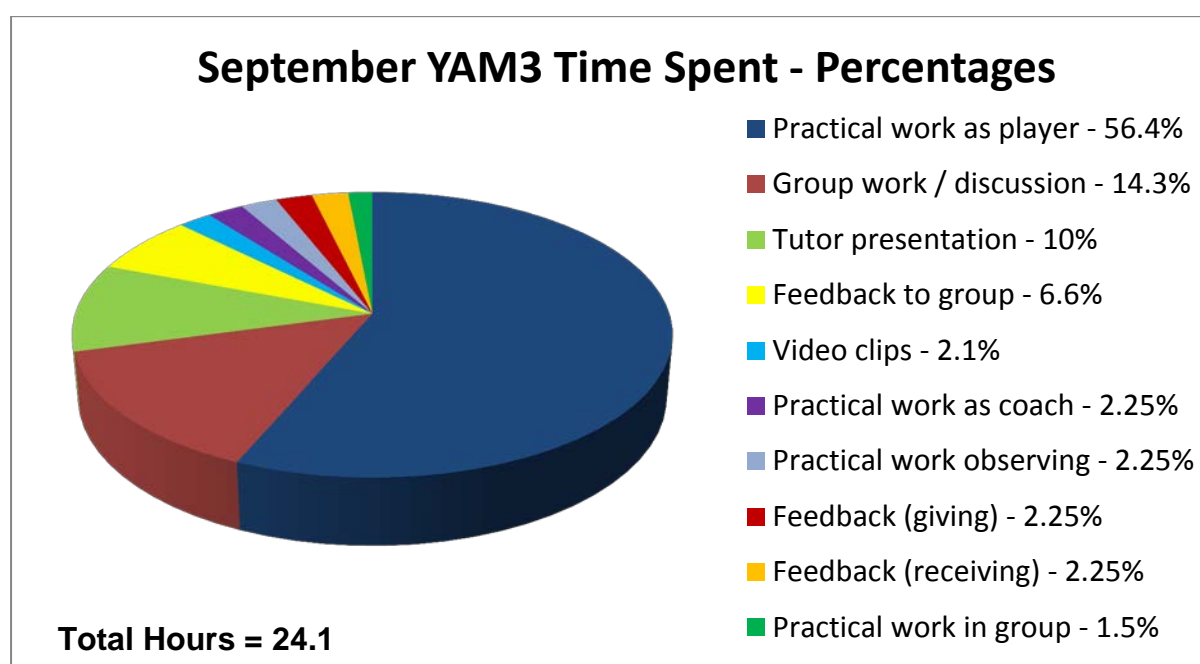
Tutors, both individually and in combined staffing teams, therefore played a pivotal role in shaping the learning environment, a point emphasised by Hodgkinson et al. in their study of higher education learning cultures (2007). Rather than tutor variation facilitating an individually tailored learning experience for candidates, it served to create inconsistencies and inequalities across the cohorts. For example, a comparison of the time spent on different learning activities between the May (Figure 4.3) and September (Figure 4.4) YAM3 courses, indicates inconsistent delivery by the different teams of tutors. Although practical and group work constituted the largest proportion of both courses, May candidates spent 4.6% of their time planning, whereas September candidates instead spent 6.6% of their time receiving group

feedback. Perhaps most importantly, tutors on the September course allowed candidates a higher proportion of time coaching and receiving individual feedback than on the May course. The respective percentages correspond to 20 minutes coaching and 10 minutes of feedback on the May YAM3, versus 30 minutes of both coaching and feedback in September. Nevertheless, the latter still accounts for only 2.25% of the total course time spent coaching as an individual.

**Figure 4.3. Chart of percentage time spent on different activities during Youth Module 3 (May) from the perspective of individual candidates**



**Figure 4.4. Chart of percentage time spent on different activities during Youth Module 3 (September) from the perspective of individual candidates**



The data suggests that rather than the espoused 'open circle', 'learner centred' culture, learning practices on the YAM3 constituted a 'rhetorical open circle', with some degree of experimentation, questioning and individualised feedback and an absence of direct assessment (Piggott, 2012), yet alongside an inconsistent miscellany of theories-in-use, coaches were still expected to pursue and behave in accordance with demonstrated 'YAM3 knowledge'. Despite the intended focus on individual coaches' learning and development rather than certification, the delivery of the course left individual candidates varying in the extent to which they experimented or took the 'safe' option of outwardly mimicking the gold standard coaching style (Chesterfield et al., 2010). Coach M6, for example, attended the YAM3 to achieve Premier League Academy regulations for coaches' certification<sup>4</sup>, as "the club said in the academy coaches' award, this was the next one" and therefore he felt that "I have to accept that I've got to coach the way they want me to coach to pass, to get through." The factors that influence individual coaches' willingness to experiment with new ideas in their learning will be further explored in chapter 7 on 'impact' (p.200). Coach A1, meanwhile, perceptively summarises the balance of openness on the course and his resulting approach to learning:

It got me between a phase of feeling like I was vulnerable 'cause I was trying something that I wasn't 100% in, and also needing to impress a coach educator, 'cause that's what you've got to do on the course.

Therefore, it seems that attempts to transmit newer learner centred values and develop pedagogically informed, dynamic youth coaches, in a setting more used to 'old' coach training and indoctrination traditions, informed by behaviourist assumptions and views of the coach as a mechanistic technician (Cushion & Nelson, 2013; Denison, Mills & Jones, 2013), resulted in various conflicts. As a result, the YAM3 landed somewhere in between the 'open' and 'closed-circle' traditions. The remainder of the chapter will go on to report candidates' perceptions of and reactions to this situation.

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<sup>4</sup> The Premier League uses an Elite Player Performance Plan (EPPP) to set out the processes and criteria necessary for Academies' youth development. The FA Youth Award is identified by the EPPP as the basis of Youth Academy coaches' licence to coach (The Premier League, 2011).



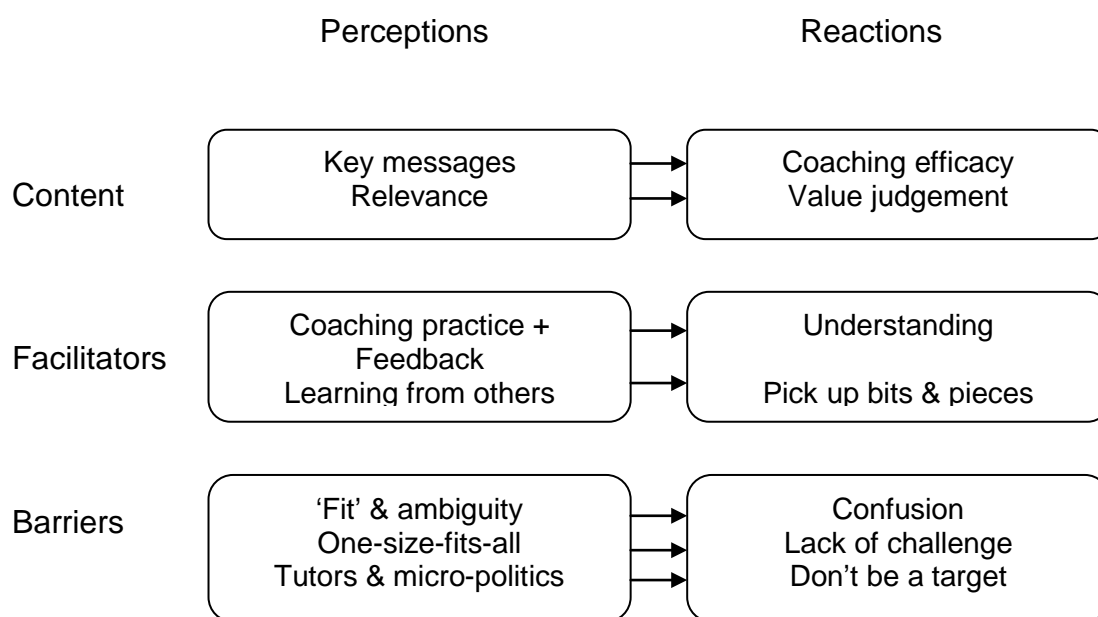
## **4.2 Comparison Group**

To act as a comparison to the formal learning undertaken by the YAM3 coaches, a group of five coaches were investigated and followed up after their usual coaching practice over the course of a season. This 'intervention period' was viewed as a phase of experiential learning, whereby the comparison coaches continued regular, day-to-day coaching within their club and player development centre settings. They reported engaging in learning situations ranging in formality from watching other coaches (C3) and individual and group reflection (C4) to preparing for The FA's core education pathway UEFA 'B' licence assessment (C1 and C2). The influence of these learning experiences will be discussed and employed to compare and elucidate the impact of the YAM3 in chapters 5 and 6.

## **4.3 Intervention Outcomes: Education Group Perceptions & Reactions**

Having outlined the nature of the formal education intervention in terms of intended and actual delivery, this chapter now moves on to report the first level of outcome in coaches' learning; their reactions (Coldwell & Simkins, 2011). This is an important level to consider as the participants in a course often construct their own versions of the 'design model', or intended course design and delivery, set out in section 4.1 (Coldwell & Simkins, 2011). CPD evaluation models have advocated investigating 'reactions', while coach education researchers use the term 'perceptions' (e.g. Falcão et al., 2012; Hammond & Perry, 2005; McCullick et al., 2005; Turner & Nelson, 2009), without adequate definition. This section draws from both traditions to cover both candidates' perceptions, understood as the way they think about the course itself, and their reactions; the way they feel or act in response to these perceived situations (Merriam-Webster's dictionary online, 2013). The results represent the opinions of all interviewed course candidates who took part in the FA YAM3 (N = 20), and are presented using contextualised verbatim text to demonstrate concepts and the relationships between them. Results indicated three main categories of perceptions relating to the course: those regarding course content, learning facilitators and learning barriers (Figure 4.5). These categories are described and explained using the underlying concepts of perceptions and associated reactions, and where appropriate linked to course tutors' viewpoints and observational data to further illustrate the points.

**Figure 4.5. Diagram of categories and concepts relating to candidate perceptions of, and reactions to the FA Youth Award Module 3.**



**4.3.1 Course content.** The first category of perceptions encompassed candidates' thoughts on the content of the course. Concepts included the perceived key messages, relevance, and resulting reactions of coaching efficacy and judgements of the course's value.

**4.3.1.1 Key messages.** Candidates perceived a number of central outcomes to the YAM3. They reported learning about coaching methodology, intervention style, practice structure, and the 'plan-do-review' process. The course, as part of the Youth Award pathway as a whole, was seen as a way to learn about coaching methodology or gain pedagogical knowledge, while sport-specific technical knowledge was thought to come more from the FA's mainstream education. In the words of J3,

I think it's more about methods, how we can improve players, rather than my game understanding. I think my understanding of how I can improve people has improved, it's got better. In terms of game understanding I don't really think the course was set up for that. That would be more of the strand of the A licence and pro licence route.

Some candidates suggested disadvantages to this compartmentalised distinction in technical and pedagogical outcomes between the pathways. M3, for example, points out that “A lot of people don’t want to do their A licence, or can’t afford it or whatever the reason is, so why should they not be given knowledge about the game?” This division of knowledge types betrays linear, dualistic assumptions about coaching and could add to the difficulties coaches encounter attempting to fit their understanding of the youth and mainstream strands together. Rather than being taught as a whole process, the complex, dynamic ‘art’ of coaching is split into two discrete disciplines and taught in a rather disconnected fashion on separate courses, occasions and locations, hindering the integrated use of multiple knowledge types for holistic decision making in practice.

Intervention style was one prominent area of coaching methodology candidates took from the YAM3. Planning and delivering “appropriate coach interventions” is one of the intended YAM3 outcomes, while a “positive learning environment” is a major aspect of the overall Youth Award practical assessment criteria (FA Learning, 2010: p12). Few candidates specifically identified “positive interventions” (J3) as a key message, however. They focused more on the particular skills comprising this intervention style, such as setting challenges for players and using associated questioning. J1 summarises the idea of challenges used as positive interventions:

Rather than the emphasis being on asking them to do something if they get it wrong, sort of step in and try and help them to get it right, the emphasis is on setting them a challenge and really letting them experiment.

These challenges were linked to further strategies such as “using questions, Q&A, little group work and discussion to help the children find their way to improvement” (M1). Such strategies could be created and used for individual players rather than intervening with the whole group, in line with principles of differentiation. Candidates perceived a change in the way they thought about and used questioning in their coaching, as described by M5:

Structuring it with questions and the order of questions, the style of questioning, is probably the biggest thing. I thought the wording of questions was also useful ... It made me use more questioning rather than directed

learning so definitely made me think about more guided discovery stuff in the way that I coach.

As the quotations above demonstrate, the delivery approach was based on the premise of allowing players more freedom to “learn and figure it out themselves” (M3) from trial and error. Although candidates picked up the idea of reducing interventions that relied on directive corrections of players’ faults, they did not specifically describe “positive management of mistakes”, as a key course outcome in line with intentions (FA Learning, 2010: p12). The challenging and open questioning interventions were characteristic of the particular ‘positive delivery’ style of language and communication advocated on the course, which constituted another important message for the candidates. J2 says “I think that was the big thing really, the way I sort of speak to my children when I’m coaching them”, while S4 gives the example of receiving “feedback to use ‘try to’ instead of ‘can you’” in her interactions. These archetypal phrases were easily picked up as a way to model tutors’ rhetoric, yet further analysis in chapter 6 (p.146) will uncover whether candidates gained a deeper level of learning about the overall coaching and learning philosophy underpinning their use.

Also reported as a dominant message was the use of game related practice structures. Candidates saw the value of simplifying their coaching sessions to use more small sided game-centred practices, rather than decontextualised or unopposed drills. Coaching more within the game seemed to fit with their existing experience and belief systems and therefore was easily adopted and ‘bought into’. As J3 says, “a lot of things in it rang true with me, in terms of playing more games, playing the game and simplifying it. Coaching within the game”. M7 found that the course “has given me the tools now to really analyse; is the practice game related? And if it’s not, get rid of it.” In particular, candidates emphasised structuring their practice around a whole-part-whole approach as a major idea put forward on the YAM3. They found that this structure was positively received by their players. Although they liked and understood the principle of the idea, as M6 put it, “it could’ve been explained a bit better”, a reaction backed up by observations. Whole-part-whole practice structure is based on cognitive and in particular Gestalt psychology, as a reaction to behaviouristic learning models (Swanson & Law, 1993). It involves preparing learners for new content by providing mental scaffolding or schemata

around the basic concepts, using instruction to develop components of the whole, then linking these parts back together to form a complete understanding that is greater than the sum of its parts (Swanson & Law, 1993). More broadly, Game Centred Approaches, which focus on learning through game appreciation and decision making in meaningful physical and social contexts, with empowerment of learners, are based on 'constructivist' assumptions (Cushion, 2013). However on some courses the nuances of, and pedagogical reasoning behind this approach were not explained to candidates, leading them to have a superficial and rather behaviouristic understanding of the approach, as an ordered sequence of distinct practices. Indeed, during the course, candidates were only permitted to attempt delivery of a standalone 'whole' or 'part' practice:

You won't have to show whole-part-whole. You're not going to have long enough. You just have to show one piece of around about 20 minutes, because that's probably how long the session is before you'd move onto something else, so that's why we're picking that timeframe. (T1, September, Day 2)

Therefore candidates were denied the most powerful method of learning about the whole-part-whole structure; through practice and feedback of the entire process. Observations also suggested that tutors failed to display a thorough understanding of the method. In their 'gold standard' sessions, the three practices were linked loosely using only the content of interventions:

The design, and the challenges have to link from one to the other, so; did the challenges travel from the beginning, through the whole, into the part, back to the whole again? (T1, September, Day 1 demonstration session)

Another example from T5's showcase session debrief shows linkages between the three practices but reveals an underlying implicit behaviourist view of player learning, relying on 'implanting' and reinforcing ideas, and repetition:

Was there a difference between the first game whole, and the second game whole? Did you see more examples? So it might be that we've embedded some ideas in that middle area [part practice], because they've had more of a repetition of the focus. (T5, September, Day 1 demonstration session)

Given these limitations to the delivery, which divided and routinised high level practice, it is perhaps unsurprising that some candidates experienced a 'downgrading of skill levels' (Macdonald & Tinning, 1995) and "didn't quite understand the whole part whole" (S1,P1).

The plan-do-review coaching process was the final perceived message of the YAM3 content. This framework encouraged constant reviewing on the part of the coach through detailed planning of each session, running it and evaluating along the lines of three criteria; "what went well? Even better if? And "changes for next session" (FA Learning, 2010: p 33). This was also in relation to reviewing previous learning with athletes in "set the scene" practices at the start of sessions, and asking players to review their own performance mid-session as a guide for their thinking around improvement. In the opinion of M6, "its made me think more about the planning", while J2 said "the evaluation of my sessions, the module 3's helped". The plan-do-review process presented a useful opportunity to encourage candidates to cyclically engage in reflection-in and on-action (Gilbert & Trudel, 2001), thus providing a vital link between generic aspects of the formal course to personalised learning from coaches' own contextualised "swamp of important problems" (Schön, 1987, p.3; Knowles et al., 2005). Plan-do-review was also a potentially valuable tool to enable deep learning in candidates, which Moon (2004) suggests can occur through structured reflection that 1) develops awareness of current coaching practice, 2) clarifies the new learning and how it relates to current understanding, 3) integrates new learning and current practice, and 4) anticipates or imagines the nature of improved practice. Nevertheless, candidates were not specific about using the framework in their practice; M1, for instance, was "not sure that happens very often and I'm not really sure how useful it is". The review was more a surface level self, session and player evaluation, generating ideas of how to change practices or what content to work on, as opposed to an in-depth reflective process that facilitated coaches' individually contextualised deep learning and development. Meaningful reflection is a complex process which coaches find challenging and do not naturally implement in tandem with formal learning experiences (Knowles et al., 2001). Nonetheless, like the six NGB coach education programmes in Knowles and colleagues' (2005) study, the YAM3 focus was on skills to manage a single coaching session rather than issues of value and belief about coaching; in other words,

technical and practical, but not critical reflection (Van Manen, 1977). In contrast with Schön's (1987) and Gilbert and Trudel's (2001) characterisations of professional learning through a repeating spiral of reflective conversation which generates new discoveries, experimentation and further levels of reflection, there was no feedback loop linking to subsequent plan-do-review cycles. For example, J2 talked about his evaluation comprising "coming away and thinking how can I improve that, 'what went well today?'" without reference to any deeper analysis in the midst of activity or linkage to future planning and implementation. The YAM3's presentation, and candidates' (limited) adoption, of the plan-do-review framework therefore promoted a systematic, linear, process-product view of coaching. Splitting the coaching process into three ordered, somewhat distinct parts reflects the positivistic principle of reductionism, where the whole is understood through its individual aspects (Cushion, 2007). Such a mechanistic conceptualisation assumes coaching can be planned, implemented and reviewed in a standardised and unproblematic manner, and does not leave room for its operational, dynamic or social aspects (Cushion, 2007). The generic plan-do-review process therefore seems problematic, considering Saury and Durand's (1998) point that the novelty of each situation means the 'structured improvisation' (Cushion et al., 2003) of coaching practice and expertise has limited roots in either planning or reason. These points could explain YAM3 candidates' reportedly limited implementation of the process. Coach A1, for example, explains how outside of the logbook requirements, he favoured a more adaptive approach, based on experience and knowledge-in-action (Schön 1987):

I've also found if I haven't got my plan too tight I'm more reactive and I can react to what I see rather than what I think I want them to do. So I think there is an argument for doing less planning from what I do for myself (A1,P3).

Related to the candidates' understanding of the key YAM3 messages was a consequential increase in coaching efficacy. Specifically, the course reinforced and legitimised candidates' beliefs, values and practice to enhance their situation-specific confidence. Certain aspects of the course "rang true" (J3) with candidates and supported what they believed to be good practice, which "helped me to be happier with where I'm at" (J3) and "more confident in what I'm doing" (J1). These reactions correspond to six out of eleven of the coaches in Leduc et al.'s (2012) study who found formal education validated and confirmed their coaching practice. The authors

claimed that such coaches were engaged in 'working with meaning' (Moon, 2001); a type of deep learning that involves reflecting on what is already known and making the implicit explicit, without substantial changes to understanding (Leduc et al., 2012). Although coaches in this study clearly connected the course content with what they already knew, they did not report a conscious, critically reflective process, as explained further in chapter 7 (p.190). They appeared to use reflection as rationalisation of existing knowledge and practice, content with an acceptance that their knowledge matched the "assumed correctness" of the course (Piggott, 2012, p.15). This implies a closed technocratic rationality to the YAM3, whereby reified knowledge is distributed, reinforced and reproduced in a manner that maintains yet conceals The FA's power and control (Hussein, 2007; Piggott, 2012). On a more positive note, A1's statement that "I went in confident with this group that I could make this group better because I had the Mod 3 behind me" fits well with conceptualisations of coaching efficacy, defined as the coach's belief in their capacity to affect their athletes' learning and performance (Feltz et al., 1999). Feltz and colleagues' model was linked to a Coaching Efficacy Scale (CES) which has since been used to suggest that coaches with higher coaching efficacy use more praise and encouragement, are more committed, and engender more satisfaction and motivation in their athletes than coaches of lower efficacy (Chase & Martin, 2013). Although the literature has so far failed to provide evidence of a direct impact of formal education on coaches' knowledge and practice, a handful of studies have used the CES scale as a simple measure of change following education. It seems that like the candidates in this study, coaches perceive benefits to coaching-specific confidence through participation in formal coach education, at least over the short term (Campbell & Sullivan, 2005; Lauer & Dieffenbach, 2013). Furthermore, candidates' opinions on efficacy aligned well with the intended overarching aim of the course, which was "to improve [candidates'] knowledge and confidence in coaching the 5-21 year age group" (FA Learning, 2010: p12). According to Jarvis (2006), self-confidence and comfort with applying new material is pivotal in learners connecting their knowledge change into altered behaviours; therefore candidates' reactions of feeling more self-efficacious following the YAM3 may enhance the likelihood of changing other aspects of their coaching practice.

**4.3.1.2 Relevance.** Nevertheless, after several months of trying out the course



material, there was general uncertainty about the relevance of the YAM3 to real life coaching contexts. A perceived lack of detail about the use of the approach with different types of groups meant that some candidates, such as J3, felt it was comprehensively useful for players of various ages and abilities: “I coach 12 year olds up to 19 year olds and I’ve been doing the same with all age groups, and it does work”, whereas others like M5 saw it as suiting “kids” and not his group of 18 to 19 year olds playing in an adult league. In a similar vein, the coaching domain of most relevance to the YAM3 was also debatable. J2, working in a centre of excellence, thought that “definitely module 3 is for grassroots” domains, while M1, operating in a non-elite domain, reasoned that “maybe if I’m coaching at an academy and I’m coaching the same group week after week, day after day kind of thing it might’ve been more useful”. Others reported some difficulty implementing the YAM3 approaches in their coaching due to particular contextual discordances. One cited the demands of facilitating players’ performance within a time pressured, results focused environment:

I’m under a bit of pressure from my boss to win matches and things like that, so my coaching style reverted back, not completely, but more so being a bit more instructional rather than guided discovery for the players really. (M5)

Other candidates felt some points raised on the course were not relevant to their athletes’ current learning needs, and some pointed to a perceived lack of appropriate space and facilities to implement the games-based coaching. M4 provides one example:

We’ve tried to do different things but its hard where we, at [United] because we’ve got 5 teams on one Astroturf pitch for an hour and a half, so you can’t, its not as if you can try things because you’ve got the space or the area.

This quotation parallels the misguided beliefs of soccer coaches in Partington and Cushion’s study, who explained lack of space was a limiting factor in their use of ‘playing form’ activities, which can actually be implemented in as small a space as 6 x 6 metres (Partington & Cushion, 2011). The authors suggest this betrays deficiencies in understanding of game centred approaches, implying that coaches’ perceptions of the relevance of the YAM3 may be linked more generally to their understanding and even the delivery of the course.

Therefore, candidates struggled to match the decontextualised learning on the course to their everyday coaching contexts and their own learning needs, a criticism that is commonly lodged against formal coach education (e.g. Chesterfield et al., 2010; Cushion et al., 2003; Nelson et al., 2012). Previous research in football suggests that this lack of perceived fit between the content and methods that coaches are exposed to, and their practical needs, weakens the impact of courses (Chesterfield et al., 2010). Giving candidates a chance to coach young players on the course could have alleviated some of this misalignment as it might have become more apparent which groups to use the approach with, how and why. Nelson and colleagues (2012) argue that coaches would be more likely to see the relevance of and therefore adopt course material if educators can provide 'live' context specific evidence of how the approaches they promote can be applied to benefit athletes. More detailed evidence around the impact of this on the process of coaches' learning and subsequent practice will be discussed in chapter 7.

With their perceptions of relevance in mind, candidates made judgements of the value of the YAM3. Although candidates generally perceived the course as a whole, the venue and facilities as "great and I enjoyed it" (A1), and thought "it's worth doing" (M2), some voiced doubts about the level of content they received for the course fee:

Well I heard one or two coaches sort of say, look I've spent all this money and all I've got is just a few questions and there was once or twice when I did feel like that and thought, this is an expensive time because I'm having to - well for various reasons, it's expensive and then you think, well what are we getting here is just question and answer, a few questions. (M1)

Supporting factors like cost, funding and venue are an important consideration for coaches in judging the effectiveness of educational provision (Nelson et al., 2012). Candidates raised issues around football coaching as a career and developing profession, needing recognised qualifications and up to date coaching licences, and trying to balance these demands with "how much it costs to take these courses relative to what you get paid as a coach. So this Youth Module 3, I think it's about six hundred pounds" (J1). While some coaches employed in professional clubs

received funding to attend, others paid for themselves; therefore it was perhaps unsurprising that accountability and value for money became a pertinent issue.

In the absence of clear assessment-based consequences or evidence of learning, one way candidates judged the YAM3 was in comparison with the previous modules, 1 and 2. J1 was typical in saying “I didn’t think the first weekend was as valuable as some of the other youth module courses.” Candidates were highly positive about the first two courses and spoke of this adding to their motivation to undertake the YAM3, as well as its status as the final component to complete the set of three. After gaining “really really interesting” (J5) ideas and “exciting” (J1) and “inspiring” (M6) changes to their outlook on coaching from modules 1 and 2, they had high expectations of similar revelations on the final module; “hopefully it’s going to be an eye opener for me” (J5). As M4 perceives, however, the final module was mainly useful from a pragmatic, certification focused point of view as opposed to any learning benefits:

The module 1, for me is still the best course I’ve been on. Regarding helping you understand coaching for children. The module 2 wasn’t as informative but still beneficial, and then the module 3 for me was the least beneficial. Just speaking to the other lad, [Joe] as well, he said the same. I wouldn’t rush on to it if there wasn’t an assessment. It wasn’t as good as 1 and 2; you do it just so you can get assessed.

Despite these reactions around limited value, candidates remained positive about the course in the overall context of the FA’s coach education provision and recent shifts towards more player centred approaches to coaching. They perceived that “times are changing” (M7) and the youth modules are an important part of this desire to “push things in a different direction” (S1), as these excerpts exemplify,

I still think they’re a step in the right direction and anything that gets away from those old level 2 and 3 has got to be a positive thing... I think it needs to be sort of seen that the youth modules as part of a process of getting somewhere else, I don’t know if the FA see it like that, but that’s how I’d view it in a positive way. (M1)

With the youth awards and everything the FA are doing it is moving forward at quite a fast pace, which is good to see. (J2)

**4.3.2 Facilitators to learning.** The course candidates described what it was like to take part in the course and the perceived learning environment. Specifically, their learning was facilitated by coaching practice and feedback, and learning from others.

**4.3.2.1 Coaching practice and feedback.** Candidates explained that often, their understanding was enhanced towards the end of the course as the result of being given the chance to coach a session and undergo a tutor and peer feedback process. Although these aspects accounted for an average of only 4.6% of the time spent on the YAM3, many emphasised this process as the most valuable part of the YAM3:

After the second weekend, it was just the people on the course coaching, I sort of came away with the feeling that I hadn't really understood it properly in the first weekend and I was, I thought it was absolutely fantastic. After we all coached, it suddenly, during the course of that weekend it really sort of clicked with me (J1)

Best thing was you get to do a session and they feed back on it. That for me is the most useful thing. (M3)

It is evident from this and the coach learning literature that coaches value learning from doing, through practical coaching experiences (e.g. Erickson et al., 2008; Schempp et al., 1998), and educational experiences that transfer as explicitly as possible to their actual coaching practice (Nelson et al., 2012); therefore effective learning arises when the mode of learning aligns with the activity being learned (Cushion et al., 2010). The coaching literature has largely discussed experiential learning in terms of informal, unmediated settings, using frameworks such as reflection to explain development (e.g. Gilbert & Trudel, 2001; Moon, 2004). Here, though, specific feedback was seen as particularly important within the experiential learning process. The role of mediated feedback on learning is less well understood in coaching, although in adult learning more generally it is accepted to be facilitative to learning and performance through increased motivation and reflection (Price, Handley, Millar & O'Donovan, 2010). Feedback has a strongly relational element

(Price et al., 2010) and therefore is tied to social interaction, politics and control between tutors and candidates. Indeed, candidates expressed the importance of the tutors in this aspect of the course and their overall experience, and these issues will be explored later in section 4.3.3.3 (p.120). Conceptualised as reinforcement, feedback is a central concern of behaviourist learning theories (Tusting & Barton, 2003), deliberate practice in the development of expertise (Ericsson & Towne, 2010), and the idea of ‘training’ learners to respond in a certain, correct, way. Such an approach has traditionally devoted modest attention to learners’ developing understandings or autonomy (Tusting & Barton, 2003), however in this case candidates perceived the feedback process as valuable in terms of clarity.

**4.3.2.2 Learn from others.** The candidates highlighted the opportunity to network and learn from other coaches on the course, describing learning characterised by picking up “little bits and pieces” (M5) in the form of new ideas, technical information and delivery styles. Although the course emphasised a number of formalised group discussion, planning, delivery and peer evaluation tasks, candidates particularly valued “watching other coaches” (J1) and as J5 emphasised, more general discussions in social settings: “just to sit round and talk to other people and listen, and their experiences and their players and their styles and their... it's brilliant, I love it.” Therefore, it seems that the more informal, social aspects of the formal course were valued as candidates could seek out and pick up ideas they were interested in or valued for their own practice, without imposed assessment frameworks. This lends support to previous research that places learning from interaction with peers at the top of coaches’ list of preferences for learning (e.g. Abraham et al., 2006; Erickson et al., 2008; Schempp et al., 1998). The data aligns with social constructivist views of learning that emphasise development through observing and engaging in social practice (Lave, 2009; Schunk, 2009), and adult learning principles indicating that coaches fit learning into their own purposes linked to their ‘real life’ practices, and relate new ideas to their existing knowledge and experience (Tusting & Barton, 2003). Taken together, the factors coaches perceived to have facilitated their learning provide evidence to support the idea that the learning experiences with most individual relevance and links to actual coaching practice are the most valuable in terms of advancing understanding and gaining useful knowledge. This corresponds closely to the preferences of Nelson et al.’s

(2012) practitioners, who described effective education as having relevance to their individual needs, providing opportunities to influence content, and incorporating space to share ideas and experience with other coaches.

**4.3.3 Barriers to learning.** In contrast to the concepts that enhanced candidates' course experience, there were a number of perceived barriers to their learning. These included ambiguity and problems 'fitting' the new material with their existing knowledge and practice, the 'one-size-fits-all' delivery, and the tutors and micropolitics on the course.

**4.3.3.1 Ambiguity and 'fit'.** Candidates expressed a sense of confusion resulting from ambiguity around course messages and what was expected of them. There was a perceived lack of clarity on what was expected of the participants by the tutors and the aims of the course as a whole. S1 was typical in his statement that "I generally did come away thinking, well you know, what exactly are they looking for?" They experienced difficulty integrating their learning with existing knowledge, specifically in reconciling the messages of the YAM3 with other formal education courses they had undertaken with the FA. The course did not seem to 'fit' easily within the trilogy of modules that make up the Youth Award, as shown by the following interview excerpts and passage from a peer feedback session:

But it didn't seem to fit in with the previous youth modules, that was the really weird thing about it, and I think that's why the first weekend I didn't really understand what was going on. (J1)

Peer: Set up the session yourself, why let them set the cones out; do it yourself.

A1: Ah right, is that what [the tutors] said, is it?

Peer: Yeah, a little bit, yeah. And then players behind, they were just sitting down.

A1: See the reason I asked them to set the areas up is because I wanted them to set up something that's gonna be challenging for them, and I was thinking that's quite a Module 1-type thing.

Peer: I said that to [T3], I said that, it's the Module 1 game, 'find a friend'. He said, 'no it's just a practice, it's any practice'.

A1: So we're kind of ditching that now, are we, or?

Peer: I don't know.

As M7 exemplifies, coaches perceived that "this module 3 contradicts almost everything that's preceded it, and I think that's confusing". As well as this confusion around how the course related to the previous modules, the candidates were unsure how and when to incorporate the type of coaching interventions introduced with the seemingly contradictory 'traditional' styles advocated on the FA's other 'mainstream' core coaching qualifications. Two youth Centre of Excellence coaches describe their resulting reactions of confusion:

You're caught between, do I do it like that, or do it like this. The old and new yeah, going back into the 'stop stand still' and it was a quite a lot of that today, I think. It was just me, I might have just found it confusing. (M6)

Some of it's become mixed messages because some of the staff delivering it were saying: This is the way you do it, this is how it's done. Let the game – they teach you to, you know, let them make mistakes. And then on the flip side you go down a week later, two weeks later, and you've a different coach: No, no if there's a problem you just need to go in and sort it out. And then that's caused a lot of confusion, the coach is worried, what they really should have said at the start was this is just another tool to what you've got and there's appropriate times when to use it, and maybe appropriate things about not to use it. But don't dismiss everything that you've learned and experienced; just add this to that knowledge. (S3)

In fact, during the classroom based introduction of the particular course that S3 attended, the tutors did verbally emphasise how knowledge from the mainstream awards can be used within the YAM3 approach as the basis for questioning, and used a group discussion task to draw links with the previous modules. Despite this, candidates still experienced a feeling of confusion when 'adding' the new 'tool' to their existing knowledge structures, highlighting a mismatch between what was delivered and what the candidates perceived.

Jarvis (2006) has termed the uncomfortable feeling arising from conflict between new material and an individual's existing biography as 'disjuncture'. This situation presents a critical moment of potential for learning; through reflective learning, people can adapt their cognitive structures to re-establish accordance with the learning experience. Engaging in a critically reflective process, perhaps incorporating dialogical reasoning by participating freely in informed continuing discourse (Mezirow, 2009), is crucial in carefully considering and relating new material to personal knowledge and assumptions. This enables existing knowledge to be adapted, and new knowledge to be transformed and used in practice (Moon, 2004). Thus transformative learning, that changes the whole person, their ways of knowing or 'frames of reference', and their biography, becomes possible (Mezirow, 2009; Jarvis, 2009). The participants in this study, however, reported disjuncture without reflection or dialogical reasoning, impeding the opportunity for expansive transformations in how, rather than simply what they know (Kegan, 2009).

Similarly, as the coaches above imply, there was a lack of clarity on how to integrate knowledge in practice, in terms of when or when not to use different approaches. This left candidates unsupported in developing their own procedural knowledge and decision making on the boundary between new and existing knowledge. Like the coaches in Leduc and colleagues' (2012) coach education study, the candidates showed disjuncture in terms of their knowledge but did not feel confident enough or supported to use this to extend their learning and then implement it within their coaching practice. Cognitive theories of learning emphasise the importance of fitting new information with learners' existing cognitive structures to permit meaningful learning (e.g. Ausubel, 1963). The course even utilised key ideas from such theories in its advocated approach to coaching. As T1 explained in the introductory session: "It's about how you link stuff together. How you work with the players, and how you chunk bits up". However taking candidates' perceptions into account, it seems that the course failed to achieve this approach to learning itself.

**4.3.3.2 One-size-fits-all delivery.** One particular aspect of the way the course was delivered appears to link closely to candidates' difficulties transforming and integrating the new YAM3 knowledge. As discussed earlier, the majority of the course was spent learning as a player, which misses the point of coach education and may be too generic to be effective. Candidates saw the more bespoke, specific,



and practically pertinent coaching and feedback process as most valuable. This corresponds with previous research which found the more formulaic and 'by the book' a course curriculum was, the less useful coaches perceived the course to be (Piggott, 2012). As M7 points out, a perceived lack of focus on the learners as individuals had consequences in terms of constraining individual candidates' learning:

...there's such a variety of coaches here even. There's grassroots coaches, academy coaches, bottom end to top end, you know and we've all got different problems and people don't always appreciate that I don't think; it's not, it can't be one size fits all, and that's how it's put across to you sometimes.

In teaching, Kelchtermans (2005) suggests the person cannot easily be separated from the 'craft' and as such, practitioners' self identity is especially important to their work and development. His definition of the self-identity as professional values, beliefs and representations, intrinsic parts of the 'self' that develop over time and operate as the lens through which teachers perceive their professional situation, fits well with Mezriow's (2009) 'frames of reference' and Jarvis' (2009) 'biography' mentioned above. Kelchtermans says "technocratic educationalists...would benefit from acknowledging these fundamental complexities" in being a practitioner (2005, p.1005). Indeed, a key problem related to the predominantly 'one-size-fits-all', 'participation-as-player' YAM3 learning environment was that the course tutors had only a cursory awareness of candidates' pre-existing values, knowledge, and coaching ability. Although as tutor 1 acknowledges, "what we try and do with this course is add on to bits that they have learned already"; "half the problem is I have no idea about these people" and "we don't know what they have learnt before". The tutors were therefore left to assume candidates' existing knowledge based on the course pre-requisites: "the five coaching pillars, the other four, they should have had already, if they are Level 2 coaches or B licence coaches" (T1); "the whole-part-whole and technique-skill-game, that debate should have been had extensively at module 2" (T2). As a requirement for enrolling on the YAM3, candidates had all reached a minimum level of coaching qualifications, however some arrived on the course through different pathways and others had achieved higher levels in 'mainstream' courses. Moreover, the candidates each completed their previous formal education in different regions with different tutors, at varying instances in time. One candidate, for example, described being pushed through his

pre-requisite 'mainstream' qualification as a professional player with minimal learning: "we got given a Level 2 coaching badge. We didn't do a lot of ... we basically just got signed off and given a certificate" (M4). It can be seen, therefore, that the reliance on an assumed "idea of where they are at" (Tutor 2) is a flawed pedagogical approach based on traditional behaviourist, technocratic attitudes of simplistically measurable coach competence and certification (Macdonald & Tinning, 1995; Taylor & Garratt, 2013). As a result of this lack of appreciation of individuals' development needs, some candidates felt the course was pitched too low for meaningful learning; "I think the view of a lot of people was 'well I didn't learn much that I didn't know before'" (M5). J3 sums up neatly that, "You need to spend more time coaching and they need to know what your capabilities are to be able to help you." Linking this to section 4.3.1.2 (p.110) on relevance and value, and Piggott's (2012) work, more adaptable individualised pedagogical strategies may have led to the YAM3 being perceived as more useful to candidates due to increased relevance to practitioners' messy realities and practical needs (Cushion et al., 2003). Indeed, 'proper' coach education and certification requires a close match to the nuanced, flexible task demands of coaching (Saury & Durand, 1998).

**4.3.3.3 Tutors and micro-politics.** Clearly, the course tutors were instrumental in influencing the specificity of the course to individual learners. As participants stressed before the course, "the tutor is fundamentally really important." (J2) After attending, they remarked positively on the value of the tutors' coaching experience and input, for example J3's opinion that "[T1] was superb and a lot of stuff what he said, he talked common sense really". Although observations noted that tutors seemed generally well conducted, relaxed and approachable, verbally "encouraging questions" (August, Days 3&4), some candidates felt unable to ask for clarification on particular issues they were struggling to understand, and there were doubts about tutors' actual approval of debate and challenging, as M7 explained:

I wasn't sure at first, especially on the first weekend, whether [T1] was very open to being questioned on some statements that were put out there. Just his, the way he responded to the challenges or the questions, I think he was very cutting and direct and it felt like he didn't have time for it; nah, this is how it is, what you on about, it's no good doing this - you know, and you felt a little bit belittled, and nobody likes that.

Likewise, observations suggested that tutors were open to questions and discussions on their terms but were less welcoming when awkward debates or challenges to the material or messages arose:

Open to challenging but not encouraging it. Any challenges are quickly dealt with or not entered into. Killed awkward debate e.g. around whether candidate should have intervened with his negative coaching point after a play that had worked. (Observation Notes - May, Days 3&4)

Some of these more challenging situations, questions or debates may have been valuable opportunities of 'disjuncture' to enter into insightful and critical discussions, had the tutors taken full advantage and employed them as pedagogical tools for reflection and analysis. Taking Vygotsky's (1978) ideas as an example, the tutors could have viewed the issues as indicators that candidates were at their zone of proximal development (ZPD), hence 'scaffolding' discussions and peer collaboration to facilitate optimal learning and enable solutions at a higher level of development. It seems that the YAM3 at times tested candidates' initial developmental levels, creating disjuncture, but then failed to push them towards the 'edge of chaos' (Bowes & Jones, 2006), by giving them creative agency to explore personal solutions, work with tutors as 'more capable' others, transform new and existing knowledge, and reach higher levels of development. Such missed opportunities may stem from tutor training and expertise issues; as T1 states, his expertise lies with coaching young players which has led to employment helping coaches learn these methods, and as such he is not comfortable identifying with the role of 'coach educator'. In his own words, "the only training we have is two days generic tutor training ... we just do our best".

There may also have been some element of maintaining the balance of power in line with traditional tutor-student relationships. Indeed, some form of capacity to affect desired outcomes by affecting others, coupled with the active consent of subordinate groups, is necessary for tutors to influence changes in practice (Jones et al., 2002). The presence of power, or a political dimension to tutor-candidate interactions and the social context was identified as present within the learning environment. Sometimes candidates did not enter into questioning and challenging

the tutors due to the possibility of being publicly denounced through disagreeing, and worries about how such conduct would look in front of others. In the words of S1,

I probably wouldn't have questioned it; in my mind I'll probably be thinking well...(laughs) hang on a minute, I've had success with this. The other thing is you've got lots of your peers in there from lots of good clubs and do you want to be the one that gets verbally slashed?

M7 similarly described trying not to "make myself a bit of a target where I can just get hammered, 'cause they [the tutors] can". These reactions of adopting a cautious approach to the learning situation in an attempt to avoid 'rocking the boat' can be linked to Chesterfield et al.'s (2010) and Piggott's (2012) research in coach education. Although the participants in this study did not generally report going as far as FA core education course participants in Chesterfield et al.'s (2010) research by consciously using various communicative props to create a 'front' convincing coach educators of their compliance, their behaviour can be interpreted as involving some degree of 'studentship' (Graber, 1991). Coach M7 reported that "lots of people on this course have come up to me and sort of asked questions or backed up me asking the question", suggesting that many projected the self-image of understanding and agreeing with the tutors despite privately harbouring doubts. Candidates perceived that challenges to the core YAM3 knowledge would be dismissed, not be taken seriously, or even lead to their 'excommunication', suggesting a closed element to the social system, despite the lack of immediate assessment which would require candidates to fully feign compliance (Piggott, 2012). Closing the 'circle' by suppressing awkward questions and quashing disagreements, the tutors were in the position to indoctrinate and reproduce their 'gold standard' way of coaching and protect their informational power (Raven, 1992) in the social system. Indeed, M7 describes how in his case, "I've put myself out there as a bit of a target really" by asking several questions of the tutors and attempting novel ways of completing group presentation tasks. As a result, he received entirely negative tutor feedback, reinforcing the legitimised, 'correct' way of coaching:

Dave's session, his feedback was wholly positive and he's done exactly the same session as me to start with. I don't think the feedback was given back to me very well; there wasn't any positives, we're taught and preached to that

players learn in a number of different ways, yet we just get told what was wrong, and nothing, there's no positive side to it.

Taken in context of the YAM3 learning outcomes which include “positive management of player mistakes” and “effective feedback techniques – including questioning – which help the player develop and improve” (FA Learning, 2010: p12), the course messages were not always effectively modelled by some tutors, something that coaches have identified as important in their training (McCullick et al., 2005). This highlights further contradictions between the espoused theory of the course and the candidates' perceptions of what they actually received. With respect to their resulting learning, Kegan (2009) writes that in order for adult learners to develop increasingly complex self-authoring, relativist epistemologies or ways of knowing, educators need many of them to fundamentally alter the way they understand themselves, their world, and the relationship between the two, by ‘relativising’ their relationship to authority. Candidates' perceptions of the YAM3 suggest the tutors hindered such transformational learning by reinforcing their positions of power, thereby limiting coaches' capacity to value differing forms of coaching knowledge and reason between alternatives (Entwistle & Peterson, 2004). Moreover, the course did not facilitate candidates' engagement in power analysis of the situation or context, which could have enabled critical learning to occur (Mezirow, 2009).

#### **4.4 Summary**

This chapter has looked at, and attempted to understand the intervention phase of the study from three perspectives; intended delivery, what participants experienced in terms of actual delivery, and participant perceptions of and reactions to the delivery. Data relating to the first outcome of coaches' learning; their reactions to a formal coach education course (the FA YAM3) and the relationships of these perceptions to learning was presented. A number of concepts related to coaches' learning around a formal education course were apparent from interview and observational data in combination. Despite intentions to encourage ‘learner centred’, individually relevant, contextualised learning through trial and error, the course delivery relied on an assortment of implicit learning theories, with emphasis on behaviourist ‘gold standard’ demonstrations and feedback sessions. The results

indicated the presence of an epistemological gap between the espoused theory and the observed theory-in-use, creating a rhetorical open circle culture.

For participants undertaking the YAM3, perceptions of the key course messages and relevance were accompanied by reactions of increased coaching efficacy and judgements of value. While confusion or disjuncture caused by difficulty integrating new knowledge within existing biography prevailed, the lack of individualised learning opportunities and micro-political manoeuvrings curtailed candidates' opportunity to transform new information and adapt their biography, arriving at a higher level of development. Clarity came from practical coaching experience and tutor feedback, and informal learning from others on the course. Despite these limitations to the course, candidates still identified it as a "step in the right direction" for formal education in football. The implications of this formal educational 'intervention period' for coaches' knowledge and practice, and the processes involved in their learning over this time, will now be explored in the ensuing chapters.

## **Chapter 5: Knowledge**

### **Introduction**

“Learning is defined as the process whereby knowledge is acquired. It also occurs when existing knowledge is used in a new context or in new combinations” (Eraut, 2000)

To adopt the sentiments of the above statement and contentions that coaching is based on cognitive expertise (e.g. Cushion & Lyle, 2010), one way to gauge coaches’ learning is to focus on knowledge, and the use of knowledge, over time. Accordingly, changes in coaching knowledge and the way it is used can be considered as an indication that learning has occurred. This chapter therefore sets out to address the question of whether there is evidence for a key aspect of coaches’ learning, by looking for and characterising changes in their knowledge use at different time points.

The first part of the chapter functions as a results section, illustrating the knowledge coaches used before the ‘intervention’ phase, and presenting the changes apparent in their knowledge use on follow up. I will then discuss, compare and contrast the changes in knowledge of the group of five coaches who attended the YAM3, with the four comparison coaches who continued their day-to-day coaching practice during this 6 month ‘intervention’ period. The second section will further illustrate and analyse the nature of their learning and origins of these knowledge changes, using constructed summary case studies. Finally, the implications of these findings with regards to knowledge itself, its meaning, conception and representation, will be discussed.

### **5.1 Models of coaching knowledge**

This section presents a model of coaches’ knowledge, based on the study of situated knowledge use in naturalistic coaching situations. Since the practical context is the context in which coaching exists (Cushion, 2007), the data I report relies predominantly on contextually-linked stimulated recall interviews (outlined in Methodology, p.67). Therefore the knowledge presented is intimately bound to practice, which is explored specifically in chapter 6 on behaviour (p.156). In addition, since I employed grounded theory techniques to organise standard semi-structured

interview data as part of the overall analysis, less contextualised interview data also played a smaller role in the building of the reported concepts, sub-categories and categories.

The limitations to making coaches' often highly tacit knowledge explicit are formidable. It is clearly worthwhile to pursue the problem of eliciting tacit or near-tacit knowledge, yet researchers need to be both inventive and modest with their aspirations (Eraut, 2000). Here I will report knowledge that coaches explicitly discussed in relation to seeing their practice in video clips. There may be further levels of implicit knowledge used by coaches that they could not verbalise; nevertheless, this is an attempt to get as close a representation of coaches' knowledge-in-action as possible. Like Abraham and colleagues' (2006) model of the coaching process, I am presenting a "necessarily tidy and concise conceptual description of knowledge areas" (p.550). Modelling aspects of coaching in this way should be undertaken with a critical consideration for issues of simplified 'tidiness' inherent in such an approach. Models are unproblematic representations of complex actions, limited by their two-dimensional nature; they plot linear, hierarchical relationships and neglect the underlying functional complexity and inter-linking of concepts (Cushion, 2007). Despite the complexity of coaching however, it is likely no more so than other relational phenomena, such as teaching, that have been successfully studied and modelled (Brewer, 2007). As such, this is an imprecise model which does not explicate the inter-linking of knowledge types, but it does advance on many previous frameworks (e.g. Nash & Collins, 2006) in that it is empirically informed and grounded in naturalistic, practice-linked data. Rather than coaches' knowledge in isolation, the focus here is on changes in knowledge-in-use over time, the different changes in different groups of coaches, and the reasons behind these changes. These findings are now considered in detail.

**5.1.1 Pre-intervention knowledge.** 'Intervention group' coaches, who took part in the YAM3, and 'comparison' coaches, who did not, both reported using professional, interpersonal and intrapersonal knowledge in their practice (Côté & Gilbert, 2009). The categories, subcategories and concepts that made up these initial broad areas of knowledge are represented in Figure 5.1, with exemplar verbatim quotations to illustrate their meaning.



Pre-intervention, professional knowledge appeared to be the most extensive area utilised, consisting of three categories: content knowledge or ‘what to coach’, pedagogical content knowledge or ‘how to coach’, and pedagogical knowledge of learning and outcomes. In the first of these categories, coaches used technical and tactical, sport-specific knowledge “of the game” (A1,2). Interestingly, participants contradicted a number of existing models of coaching knowledge in their lack of reported use of sport scientific knowledge, e.g. biomechanics and psychology (Abraham et al., 2006). Comprising coaches’ pedagogical content knowledge of “the actual delivery side” (C4) were the sub-categories of planning, practice set-up, session structure and intervention styles. The concepts of session topic and flexibility to the situation made up coaches’ knowledge of planning, while the sub-category of session structure knowledge comprised the concepts of introducing the topic in the warm up, linking learning, the whole-part-whole, and building up. The concepts of using zones and channels, the STEP principle, differentiation, types and returns, game realism and ‘what should happen’ informed coaches’ knowledge of practice set-up. The final component of ‘how to coach’ – intervention styles – comprised knowledge of a range of strategies. These were directive; demonstrate and recreate; conditions; correcting negatives; coaching the positives; challenges; questioning; player ownership; team, group and individual; and coaching position. The third category of professional knowledge was pedagogical knowledge. Here, coaches used their knowledge of learning principles along a spectrum from behaviourist concepts of reinforcement, repetition and build up; to cognitive and social cognitive concepts of learning ‘styles’, chunking, scaffolding, linking learning and guided discovery; to the constructivist learning with others, and trial and error. A further sub-category of coaches’ pedagogical knowledge related to outcomes; specifically, the “four corner” (A1,3) long term player development model. This sub-category was related to knowledge concepts of technical and tactical outcomes, and players’ confidence.

Coaches also reported using a broad range of interpersonal knowledge (Figure 5.1), which consisted of categories of knowledge about context and players. As well as knowledge about the situation, contextual knowledge of “outside influences” (A2,2) were important in coaches’ practice. These included structures such as the club syllabus and setting, and knowledge of other people; superiors,

other coaches and players' parents. The second reported component of coaches' interpersonal knowledge related to "knowing your players" (S2,1), in particular, regarding the age group in general, the specific group, and individuals. Knowledge concepts of ability, engagement and behaviour management made up the general age group and individual sub-categories, while coaches reported concepts of ability, engagement and previous learning with respect to their knowledge of the specific group. The final aspect of knowledge that coaches used was intrapersonal; knowledge of themselves. This was made up of a sub-category of knowledge of reflection, and in particular the concept of reflection-in-action.

**Figure 5.1. Overview of YAM3 and comparison coaches' pre-intervention knowledge-in-action, displaying hierarchical concepts, subcategories and categories**

Type (theoretical)	Category	Sub-category	Concept
Professional	What to coach (content knowledge) Fundamental things where I thought that needed to be said (A2,2)	Game An understanding of the game (A1,2)	Tactical they may need to increase the tempo in the last five minutes (A2,2)
			Technical if Luke takes that first touch inside, gives Joe the chance to get round on the overlap (S2,2)
	How to coach (pedagogical content knowledge) The actual delivery side (C4)	Planning What's in my plan? (A1,3)	Topic a focus for the players and for the coach (A2,1)
			Flexibility to situation The situation was there so I just touched upon it (C3,1)
		Session structure in the back of my mind as a structure to follow (A1,1)	Introduce topic in warm-up the warm up was relevant to what we were doing (S2,1)
			Linking learning later on in a game situation, you can relate that actual practice and that detail (A2,1)
			Whole-part-whole give them like a whole, break it back down and build it back up again (A1,1)
			Build up build upon that as the session went on (C3,1)
		Practice set-up I tweaked the set-up (A2,1)	Using zones and channels I put the focus on trying to spread play so I had it set up in zones (A1,3)
			STEP principle space, task, equipment, player. All those can be changed during the session (S1,1)
			Differentiation strivers, copers and strugglers (A1,3)
			Types and returns You've got all the things moving around so it's a bit more variable or random really (S1,1)
			Game realism trying to be a bit realistic and take it back to the whole game (S1,2)
			What should happen when there's space in behind you should see more balls played in front. (C4)
		Intervention style I know there are different styles (A2,1)	Directive The command style of telling, keep telling them (S2,1)
			Demonstrate & recreate See it, halt play, instruct, rehearse, try. (A1,2)
			Conditions that's the condition I'd set, that they must use the sole of the foot, and a

			reward for that (C2,2)
			Correct negatives identifying areas that needed fixing and try to patch them up (C1,3)
			Coach the positives Instead of picking on the negatives, pick up the positives (C4)
			Challenges Could we achieve certain challenges within the game as well? (C1,1)
			Questioning asking them if they could come up with an idea (S2,1)
			Player ownership they control that part. I guess it comes to that sort of ownership of learning sort of thing (C2,2)
			Team, group and individual rather than stopping everybody and having a chat, if I just stop individual players the game can carry on (C2,3)
			Coaching position Get out the way and don't be caught up in it (A1,1)
	Pedagogical knowledge I think the learning was done by...(A1,3)	Learning principles - Behaviourist	Reinforcement to get that point across it sort of reinforces that behaviour (C2,3)
			Repetition going over things over and over again, so it sinks in, so that it's embedded (C1,3)
			Build up we can start it right back there then bring movement into it and then build it all the way up (S1,P1)
		Learning principles - (Social) Cognitivist	Learning styles the ways people learn, aurally, kinaesthetically and then showing them visually you know (S1,P1)
			Chunking I wanted to chunk the information on the way (C3,1)
			Scaffolding try and re-scaffold it back up (C2,1)
			Linking Learning just to try and plant a seed somewhere (S1,2)
			Guided discovery I led her, but yeah, it was just to almost get her to say the words rather than just her listen to me say it (C1,1)
		Learning principles -Constructivist	Learn from / with others That sort of group learning as well (C1,2)
			Trial and error trial and error isn't it? You know, they had a go, realised it didn't work; realised they had to consider other things (A1,3)
		4 corner model (LTPD) I'm thinking about the four corners (A1,3)	Confidence outcomes it gives them that bit of self-esteem (S2,1)
			Technical & tactical outcomes

			Get them to think bigger about game understanding and working together as a team (C1,1)
Interpersonal	Context There's a lot of outside influences (A2,2)	Structures The academy has got quite a stringent structure on what we're going to do (A2,1)	Syllabus It was on the syllabus (S2,1)
		Other people they're watching you (A2,2)	Club setting / domain girls who are selected from the county to come to this development centre (C1,1)
			Superiors I know my centre director is keen on fitness (A1,3)
			Other coaches You're always conscious of your own peers (A2,2)
			Players' parents I wonder what the parents are thinking now? (A1,3)
		Situation the heat consideration (A1,2)	
	Players Knowing your players (S2,1)	General age group That's just kids isn't it (C2,3)	Ability especially at this age and similar ages around this, you put them in those technical drills and they're awful (A2,1)
			Engagement They were older, the boys that they are, they don't really want to stand there and ask loads of questions (C1,2)
			Behaviour management prevent chaos with that amount of kids at that age (A2,2)
		Specific group Getting to know where they were at (C1,3)	Ability They're good players. (S1,1)
			Engagement They're very coachable and they're very easy to work with (C1,3)
			Previous learning they'd never really done it before (S2,1)
		Individuals You've got to know individuals (A2,2)	Ability he's a more advanced player (C2,1)
			Engagement I knew I could have a 1:1 chat with her (C1,1)
			Behaviour management you learn to develop individual coping strategies (A2,2)
Intrapersonal	Self I have a habit of doing that (C1,1)	Reflection You always try and reflect objectively (C4)	Reflection in action I remember thinking at that moment in time, 'I wish I had my whiteboard' (C1,2)

**5.1.2 Post-intervention knowledge: YAM3 coaches.** YAM3 coaches' changes in knowledge use were analysed using constant comparison of the concepts collected before and after the intervention period (Gilbert & Trudel, 1999; McCaughtry & Rovegno, 2003). Accordingly, a concept is reported here as having changed over time if there were altered, or more codes relating to the concept post-intervention; in other words, if the coaches used it or understood it in a different manner. A model of the knowledge concepts that changed in coaches who attended the YAM3 is shown in figure 5.2.

Figure 5.2 shows that a number of concepts were altered post-intervention. Under the category of 'what to coach', coaches referred to the concept of tactical knowledge more after attending the YAM3 than they had previously. In contrast to using a higher balance of technical than tactical knowledge before the course, this pattern was reversed with coaches showing a greater reliance on tactical knowledge afterwards. Significantly, these changes in reported knowledge use are reflected in patterns of observed coaching behaviour, reported in chapter 6 (p.162). Coaches who attended the YAM3 appeared to change their proportion of technique-related to tactical questions in a different way from those who did not attend the course. Over the intervention period, on average the YAM3 group lowered their proportion of technical questions, demonstrating an accompanying rise in frequency of tactically related questions. This indicates an important outcome of learning, apparently linked to the YAM3, which impacted on both knowledge and behaviour (see also Behaviour, p.163).

Various concepts relating to 'how to coach' changed following the intervention period. Coaches talked about using the concept of "what went well" (J2,P) to help with the planning of their sessions. Rather than using it as a reflection tool, coaches discussed this concept as something that helped them plan what to do in subsequent sessions, for example, "if you're thinking, oh what's went well, if there's a particular area that went well you might need to go back into that." (S3,P1) In contrast to this more deliberative planning cycle, they also emphasised coaching 'off the cuff' in a flexible response to situations as they arose, coach A2 claiming, "your knowledge and what you deliver is going to have to be based on what comes out in the session" (A2, P3). Concepts within the sub-category of session structure also changed over time, albeit in a subtle fashion. Coaches already knew about structuring their warm-

up activities around the session topic before the intervention period, and continued to use this practice. After attending the YAM3, however, they adopted a different language around the strategy, exemplified by coach A1, who talks about using certain technical coaching points in the warm-up “just as reminders really, to set the scene, get them thinking about what we’re going to do”. Similarly, some coaches used knowledge of the concept of whole-part-whole session structure prior to the YAM3, and reported using it afterwards. Latterly, though, coaches showed a more detailed understanding of the concept, for instance: “in the first game its more about the build-up and are we getting into positions to shoot, which I think we did to a certain extent. If we hadn’t have done that then the part might have been slightly different” (S1,P1). The data also indicated some change in concepts relating to coaches’ knowledge of practice set-up over the intervention period. Coaches more often referred to using zones and channels, and the knowledge required to do so. These set-ups were mentioned as having multiple different uses, but mainly as a “reference point” to help players “to understand moving and spreading out” (A2,P1). Codes relating to the concept of game realism also altered following the YAM3. Pre-intervention, many of the codes referred to relating players’ learning to game situations, no matter the practice type, for example “they need to know why they’re doing it and how it relates to what they’re going to be doing on a Sunday morning.” (S1,1) Post-intervention, though, the majority of codes related to the realism of the practices themselves, such as using “a more game realistic practice to see who’s picked stuff up how they’ve picked it up and what’s happening” (A2,P3).

Finally under ‘how to coach’, three of the knowledge concepts relating to intervention style developed over time. Coaches demonstrated an altered understanding of the concept of ‘challenges’ after attending the YAM3. For example, initially they often paid rhetorical ‘lip service’ to challenges while actually delivering directions; “the challenge for you is *can you* score from checking out and then checking in?” (A1,3: italics added). Knowledge of challenges was also referred to as completely separate from the concept of questioning at this stage. After attending the course, however, coaches adapted the language of their challenges to match an appreciation that they are allowing players to make their own decisions on when to perform the skill in question, and began to form links with the concept of questioning: “Well it’s a question isn’t it? It’s the way you word it because you know the challenge

is *can we try to*...it adds an element of choice to them that like, rather than telling them what they should be doing, there are ways, they're achieving something" (A2,P3: italics added). Knowledge of the particular language and ways of using questioning developed over the intervention period, as described by M5, "structuring it with questions and the order of questions, the style of questioning, is probably the biggest thing. I thought the wording of questions was also useful". YAM3 coaches also used new knowledge of delivering interventions through a "before, during, after" (A1,P1) process on follow up. Post-intervention, coaches placed greater emphasis on expression of constructivist-informed pedagogical ideas than they did pre-intervention; particularly, on players' own learning from mistakes through trial and error. For instance, coach S2 explains that "something with experience tells them that, 'I've made that run but it's probably the wrong time to make it', so next time they make it, they do it at a different time. So sometimes you don't have to go in and correct it, they basically just correct it themselves" (S2,P1).

Changes in coaches' interpersonal knowledge were also apparent. While coaching roles were not discussed beforehand, over time, knowledge of roles within club structures and the wider context developed, as coach A2 demonstrates:

you know they're here effectively as an academy player, they're there to learn and it's my job to teach them, and if they don't learn the basics or they don't learn what they need to be doing then I'm sort of doing them a disservice by the time; you know if we tell their parents that they're being released because they're not picking this up (A2,P3).

Some of the coaches (N = 3) also incorporated knowledge of the stage of the season into their post-intervention practice. As S2 reported, "with coming towards the end of the season, I just wanted to finish off touching on a few things". The final category of coaches' interpersonal knowledge-in-action that changed related to "knowing your player" (S3,P1). Specifically, coaches reported using concepts of individuals' learning, abilities and personalities to a much greater extent than they reported pre-intervention. Coach A1 exemplifies his use of these three concepts in combination:

I know Joe now and he needs to be challenged and this didn't really challenge enough in this set up so he just kind of strolled through it. But then when it



comes to the game he brings that mentality with him a bit...No he's a good player, he should do it...Some of them will try to do it because they're into that learning and they've got the idea that they're going to learn something by trying it. But Joe doesn't seem to have that. (A1, P3)

Corresponding to this developing knowledge of individual players, systematic observation data did indeed show that on average, YAM3 coaches increased their rate of coaching behaviours directed towards individuals after attending the course (see Chapter 6, p.168). This trend was not seen in comparison coaches, suggesting that the YAM3 had an impact on candidates' learning about "developing the player" (FA Learning, 2010, p.11), with an outcome of changed coaching knowledge and behaviour (see also Chapter 6, p.168).

**5.1.3 Post-intervention knowledge: comparison coaches.** In an extension of the constant comparison method used to locate changes in knowledge of YAM3 coaches, comparison group coaches' post-intervention concept use was judged against pre-intervention concepts, and also against the post-intervention concepts of YAM3 coaches. Acting as a counterpart to the data presented in section 5.1.2, therefore, the knowledge concepts of comparison coaches that differed pre-to-post-intervention, and between the YAM3 group's changes, are shown in figure 5.3. At first glance, it is apparent that these coaches developed a narrower range of concepts than the YAM3 group over the same period of time; in this case in the areas of professional and intrapersonal knowledge.

As coach C1 exemplifies with his analysis that "that was the main challenge initially, but it sort of became a condition", the comparison coaches continued to use their knowledge of conditions and challenges but did not show a clear distinction in understanding between the two, often confusing one for the other. Under the category of pedagogical knowledge, comparison coaches also emphasised knowledge use around constructivist learning principles after the intervention period. The concepts of learning by trial and error and learning from, but not necessarily with others were used more often post-intervention than pre-intervention, for instance by coach C1: "I'd prefer for them just to almost find out for themselves and watch each other maybe, but sort of find out what works for them best." There was an increased use of knowledge of the specific group of players coaches were working with, in

particular with regards to their engagement in the sessions, for example “as they’re a bit older, they’re a bit wiser, some of them are looking to rebel against authority because of the age they’re at (C1,P1). Lastly, comparison coaches’ use of intrapersonal knowledge concepts differed from the YAM3 group over the intervention period. Specifically, comparison coaches continued to rely on reflection in action and reflection on action to inform their practice. Coach C2 explains,

“I’m starting to think a bit more...to get to know the players, to get to know what I’m dealing with...I’ve started to look for different things from when I did the first lot [of interviews]. I’m thinking can he do it, can I help him more?  
(C2,P3)

The data suggests that this enhanced use of reflection over the intervention period may be linked to taking part in the stimulated recall interview protocol. For example, in her final interview, C2 reported that the process “makes you think a bit more about why you’re doing what you’re doing” (C2.P3). It is unclear, however, why the comparison coaches but not the education group demonstrated this changed use of reflective practice. It may be that as the comparison group took part in the research while continuing with their day-to-day practice, solely by means of the observations and SR interviews and without attending formal education, they were more focused on the process itself and learning from their experiences through reflection (c.f. Gilbert & Trudel, 2001). YAM3 candidates meanwhile, who had the additional formal course-related learning, may have been more concerned with that learning and its implementation throughout the data collection than on more incidental, informal learning from reflection on experiences. Nevertheless, as the grounded learning process model presented in chapter 7 (p.189) will explain, reflective practice was an important aspect of coaches’ learning no matter the type of situation.

The discussion has so far provided evidence for coaches’ learning over time, characterised by changes in their use of knowledge concepts after an intervention period of six months. The origins of these changes and between-group differences are addressed in the following section. Moreover, having summarised these changes, I will next discuss and explain the results in more detail.

**Figure 5.2. Hierarchical concepts, sub-categories and categories of YAM3 coaches' post-intervention knowledge that differed from pre-intervention**

Theoretical category	Category	Sub-category	Concept
Professional	What to coach	Game	Tactical supporting the ball from different areas, the wide players and the centre (S2,P1)
	How to coach	Planning	What went well thinking how can I improve that, what went well today (J2,P)
			Flexibility to situation I just coached what I saw when I got out there (A2,P3)
		Session structure	Introduce topic in warm-up: "set the scene" Set the scene, get them thinking about what we're going to do (A1,P1)
			Whole-part-whole Tested their understanding before in a whole, pulled it back to a part, then gone back to the whole (A2,P1)
		Practice set-up I don't think the sessions I'm doing are particularly different, I just think the way I'm delivering them is different. (A1,P2)	Using zones and channels the three channels – when they're defending they should be occupying two of those three (S3,P1)
			Game realism It's okay if it's messy, it's okay if it's realistic to what happens on a pitch (A1,3)
		Intervention style in most sessions I would cover all of them (S3, P1)	Challenges The challenge is 'can we try to'...it adds an element of choice to them (A2,P3)
			Questioning I used some supporting questions, to try and draw that point out (A1,P1)
			Before-during-after broke it down into that before, during, after phase (A1,P1)
	Pedagogy	Constructivist learning principles	Trial and error If you leave them to do it another couple of times, then you know they'll realise they can do it differently (S2,P1)
Interpersonal	Context	Structures This whole academy and everything has just been restructured (A3,P1)	Role It's my job to teach them (A2,P3)
		Stage of season its towards the end of a long season (S1,P1)	
	Players	Individuals Knowing your player (S3,P1)	Learning he's got dyslexia so he learns better from visual demonstrations (A2,P3)
			Ability technically, he is there (S3,P1)
			Personality he certainly doesn't want to be shown up in front of other people (A1,P3)

**Figure 5.3. Hierarchical concepts, sub-categories and categories of comparison coaches' post-intervention knowledge that differed from pre-intervention and/or YAM3 coaches' post-intervention knowledge**

Theoretical category	Category	Sub-category	Concept
Professional	How to coach	Intervention style	Conditions vs. challenges That was the main challenge initially, but it sort of became a condition (C1,P1)
	Pedagogy	Constructivist learning principles	Trial and error It gives them a chance to explore that and try those skills out (C2,P1)
			Learn <i>from</i> others They're learning from their peers (C3,P)
	Players I learned a lot about the players (C2,P1)	Specific group As they're a bit older, they're a bit wiser (C1,P1)	Engagement You could see one or two who were like, yeah okay you're gonna be lively as beans...so you sort of knew it was going to happen (C2,P3)
Intrapersonal	Self	Reflection I'm starting to think a bit more (C2,P1)	Reflection in action I've started to look for different things from when I did the first lot [of interviews]. I'm thinking can he do it, can I help him more? (C2,P3)
			Reflection on action Evaluate it at the end; did they improve, what will I do next time almost? (C1,P1)

## 5.2 Case studies

As a number of scholars point out, necessarily tidy schematics of knowledge and learning cannot tell the whole story (e.g. Abraham et al., 2006; Eraut, 2000). Thus a more in-depth analysis of the learning involved, and the origins of these developments is necessary. Extending the 'scenario' style adopted by Armour (2010) in her recent chapter on 'the learning coach', constructed, composite 'vignette' case studies are chosen to illustrate the patterns of change in knowledge between different groups of coaches (see also Callary, Werthner & Trudel, 2012; Cassidy, Jones & Potrac, 2009). Non-fictional vignettes are compact sketches that summarise what the researcher finds in his or her work (Ely, Vinz, Anzul & Downing, 1997), while a case study approach is characterised by its focus upon a particular, naturally occurring unit of analysis, incorporating contextual data, a temporal element, and a concern with theory (Willig, 2008). In this instance, the unit of analysis is coaches' knowledge change linked to a particular situation; the YAM3 formal education course. Two composite examples will be presented as instrumental, explanatory case studies which aim to provide general exemplars of how knowledge changes were manifested in a particular group of coaches who completed the YAM3. Each scenario includes direct quotations from the participants.

A composite vignette style is adopted to engage the reader by more entirely capturing and depicting the patterns of changing knowledge and understanding that are common enough to extract and present together, rather than attempting to report each coach's idiosyncratic learning in a fragmented, protracted manner. Nevertheless, it is acknowledged that idiosyncrasies are a vital part of coaches' highly individualised learning, and the intention is certainly not to imply that every coach experienced the same changes in knowledge. As such, chapter 7 on impact will address these idiosyncrasies in more detail. While scenarios or vignettes are written by the researcher as an interpretation and representation of knowledge change, every piece of writing can be seen as a construction of the author (Ely et al., 1997). The following are based on the concepts of the grounded theory method analyses described above, highlighting particular findings that summarise the analytic theme of knowledge change.

**5.2.1 Carlo's scenario: pre-intervention.** Carlo loves the game. He's played it all

his life, but his playing career never came to anything, especially after a number of knee injuries. He started coaching to stay involved and put the game knowledge he gained from his “playing days” (S1,2) to good use. Now he earns his living as a football development manager at a sports specialist grammar school, coaching at the local club’s (Wanderers) centre of excellence, and tutoring the odd introductory FA course. Carlo worked his way up the FA’s mainstream pathway to UEFA ‘B’ licence level; training that gave him plenty of technical and tactical information, prescribed sets of rules and outcomes to take away and use with his players. Often these were things he knew when he was playing anyway, but the coaching courses over the years have emphasised the technical “terminology” that he sometimes uses almost word for word, “like angle and distances apart, and timing of run, recovery runs” (A1,3). Watching other coaching sessions, too, and using Sky+ to pause, replay and analyse professional games on television – what do the players do? Where do they put themselves? – All of this has combined to help form pictures in Carlo’s mind of what to look for, and the technical detail that he wants from his players. Put differently, his game knowledge forms the basis of a cognitive map of specific coaching situations, with which he compares new situations as they unfold.

It’s the start of the season at Wanderers, and Carlo is taking a typical Wednesday night coaching session. At this early stage of the season, Carlo is “still getting to know the set up of the players, everything” (A1,P2). He has planned his session based on switching play, a topic in the club’s curriculum. Just as he was taught on the FA’s mainstream education courses, Carlo built in a focus and a list of key factors to intervene and deliver with. He has structured his session as a steady build up from the warm-up, which introduces the theme, to a couple of technical practices, into a small sided game. For Carlo, it’s the obvious way to do things, learnt on the FA Level 2 and ingrained through years of doing it that way as a coach and player. Sometimes he’d be willing to set the players off into a game related practice, break it down then build it back up again; the whole-part-whole that he learnt about during college sports science and education classes. However, the traditional build up is easy to understand and manage, and he can link the players’ learning from each aspect into the game situation. Linkage of ideas was something Carlo came up with as a result of reflecting on his previous experiences. Having unsuccessfully tried to give a player helpful information, Carlo felt that by simplifying

the message and gradually building it up, even across subsequent sessions, he could remedy this to aid the player's understanding.

Carlo's recent completion of the FA youth award modules 1 and 2 has extended his practical knowledge of different approaches to coaching. Although he had previously encountered some of the theoretical concepts at college and in conversations with other coaches, he was impressed with the courses, which he found more relevant to the children he coaches. The modules encouraged him to think about different types of practice and coaching interventions, beyond the command style "see it, halt play, instruct, rehearse, try" (A1,2) formula from the mainstream courses. In tonight's session, Carlo uses his knowledge gained on Module 2 to run a mixture of constant and random type practices. He concludes with the random practice, as he knows it is most realistic to a game, a set-up from the FA's 'future game' book using three channels sectioned along the left, middle and right hand sides of a pitch. Carlo challenges his attacking players: "can you attack by spreading out into wide areas?" (S2,1) an intervention style originating from the module 2 course. Occasionally he stops the game and engages in 'question and answer' with groups of players, asking them for ideas of ways they could improve or things they could do better, in line with his coaching points. As a player, Carlo disliked being told what to do by coaches when he knew the answer himself, so he believes this strategy of asking the players' opinions, from the mainstream level 2 and 3 courses, has positive outcomes for their self-esteem. From experience of working with and watching this specific group of players in games, Carlo knows that they possess a good level of playing ability and knowledge to be able to participate in this questioning. However, the intervention needs to be done as quickly as possible, as experience of working with different age groups tells Carlo that he only has a "split window of attention" (A2,2) while the players at this age (under 11 years) remain engaged with the information.

Carlo relies largely on learning styles to understand players' development, something that has been "drilled in" to him on all the FA courses, as well as in his work as an FA tutor. He also tries to help players learn by getting lots of goes at doing things, which he frames as a "kinaesthetic learning" style (A1,3), and by giving positive reinforcement when they do things correctly; knowledge gained by watching other coaches and reflecting on his own life experiences of learning. Overall, Carlo

is looking forward to attending the upcoming Module 3 course as he hopes it will give him some ideas to think about and improve him as a coach, helping him to help his players improve. Ultimately, he wants to ensure he is “doing the right things” (A2,2), especially since he feels he has to prove himself to other Wanderers coaches and players’ parents, who form their own awareness and opinions of his work.

**5.2.2 Amy’s scenario: the comparison coach.** Amy works for the FA as a development officer, and coaches at a regional girls’ player development centre (PDC). Having played football for several years, she initially got involved in coaching to gain some extra income while studying sports science at university. Mid-way through the PDC season, Amy has completed the youth modules 1 and 2 and is now approaching her UEFA ‘B’ licence assessment.

**5.2.3 Carlo and Amy: post-intervention.** Six months after completing the module 3, Carlo is coming towards the end of his season coaching at Wanderers. At this stage of the year, he knows by reflecting on his coaching sessions that he is not feeling “on it as much at the moment as I did before” (S1,P1), coaching a mixture of topics based on players’ performances in previous games, rather than sticking to a clear focus as he did previously. Nevertheless, through this term of coaching experience, he has become more confident in knowledge of his role within the Wanderers context: “now I think I’m into it and if I make a mistake I think, I’m not as worried about it...just because I’m used to the environment now.” (A1,P2)

Carlo is taking the under-11 group for the second last session of the season. He goes about planning in a similar way to before, as the YAM3 process of ‘plan-do-review’ “added a bit of weight” (S3,P1) to the things he was already doing. Rather than reflecting on his previous coaching practice, the ‘review’ consists of using the new concept of evaluating ‘what went well’ previously, for the players in the game last Sunday, in order to plan today’s training. Although Carlo adopts a positive rhetoric in this sense, he decides to work on receiving the ball in attack to shoot because, using his knowledge of the group from watching them in games, “it was something that we didn’t do very well on the Sunday before” (S2,P1). Therefore he reviews the players’ performance rather than reflecting on his own coaching, situating himself as a technician and ‘more knowledgeable other’ that ‘fixes’ problems - errors that are committed by the players. The planning process therefore



covers specific 'topics', practice set-ups and key coaching points designed to improve players' abilities around these topics, but it does not encompass the interventions and interactions through which coaching is conveyed. Carlo explains that the intervention style remains flexible to the specific situation:

I plan what I'm going to coach but I don't think, now this might be a good thing or a bad thing, but I don't think I actually plan how I'm going to coach; I try where I can to read what the situation sort of requires, and try and go that way. I wouldn't say I plan ahead of how I'm going to actually get my point across. (S3,P1)

Although the YAM3 set out a plan-do-review framework which includes space to prearrange "practical delivery" and "this is how we will do it" (FA Learning, 2010, p.28), this has clearly not been implemented by Carlo (see also Chapter 4, p.108). He explains that he usually uses knowledge from his UEFA 'B' licence in letting the players play for a few minutes before intervening, but not necessarily deciding beforehand what type of intervention to utilise. This emphasises the division between the procedure of using pre-determined key factors of 'what to coach' learned on mainstream courses, versus the typically more tacit process of 'how to coach' being left to experience and 'intuition'. The dichotomy has left Carlo struggling to consolidate the two 'sides' of his coaching.

**5.2.3.1 The whole-part-whole.** Tonight's session follows a whole-part-whole structure. Although he had some knowledge of this practice structure before, Carlo says "it's definitely the module 3 that's made me go game, take it back, work with individuals, then game again." (S1,P1) Accordingly, he demonstrates a more detailed knowledge of the procedure, explaining that in the first 'whole' he is "seeing how they work it out", and thinking "are we getting into positions to shoot? I think we did to a certain extent. If we hadn't have done that then the part might have been slightly different" (S1,P1). During the part practice, too, Carlo uses self-questioning as a tool to guide his thinking, an approach akin to reflection-in-action and conducive to constructivist views of coaching:

in the part I was thinking of are we getting the shots off, are they getting themselves into positions? Once they got into a position where they could take a shot, had they seen it? (S1,P1)

Amy, meanwhile, coaches a session at the PDC, using a whole-part-whole approach under her boss' direction. Although Amy had learnt the structure in her undergraduate degree, she reports "it wasn't something I'd thought about doing" (C1,P1) until her boss, who has completed YAM3, requested its implementation. In this way, YAM3 knowledge was seen to filter down second-hand, uncritically, through football cultures. Amy explains the 'part' as an opportunity to work on and get repetition of technique, which the players can then transfer into the game. Thus the structure is understood in terms of underlying behaviourist assumptions about learning, with a neglect of any reported analysis or diagnosis in the first 'whole'. Indeed, despite Carlo's increased knowledge of the whole-part-whole and apparent change in espoused learning theory, his practice also remained informed by an enduring behaviourist theory-in-use. He designed the warm-up to build towards the first 'whole' game, starting unopposed with "fundamental movements" and gradually adding in more interference. Carlo explains that he nearly always uses this way of building up, informed by well-established knowledge based on the way he did things as a player and in his working life.

**5.2.3.2 Challenges and questioning.** Within his session, Carlo continues to use challenges as one of his intervention strategies. Post-intervention, though, he has altered his language and understanding of their application. He sets the challenge of "try to play off one touch to set up attacks", the change in expression corresponding to an appreciation that "I know they're not going to be able to do it every time and I wouldn't want them to try and do it every single time" (S2,P1). Carlo acknowledges that challenges give the players the opportunity to make decisions themselves based on what he has said, and "had I not been on the Module 3, maybe I wouldn't have had the knowledge" (A2,P3). After setting his challenge and letting the players try it out for a few minutes, Carlo employs "some supporting questions to try and draw that point out" (A1,P1), demonstrating that the concept of questioning has become more closely linked with the use of challenges. Nevertheless, despite adopting the particular language of challenging and supporting questioning, and being aware of their espoused 'player centred' origin, when the players still aren't doing what he thinks is right, Carlo reverts to directive correction, and tells them what to do.

Amy, having attended the youth modules 1 and 2 and watched the supporting FA DVD video, has picked up “the way the fella on there engages with the players and asks them to do certain things or sets a challenge that way, ‘can you do a no touch turn’ I think he asks them” (C1,P1). Using this knowledge she sets the challenge for the whole team to play two-touch football in the second ‘whole’ practice. Although Amy acknowledges that “how they decide to take on that challenge is up to them, to a certain extent” (C1,P1), her understanding of the concept has not changed over the intervention period and does not seem as clear as Carlo’s. In fact, her input ended up as “more of a condition” that was simply phrased in a similar manner to a challenge. Therefore Amy mirrors Carlo’s pre-intervention rhetoric, harbouring some confusion around the concepts of conditioning and challenging, and how and when best to employ one or the other:

I don’t know, it’s that choice element and how you can do it without conditioning, just making sure that...oh, I’m confusing myself now (C2,P1)

Moreover, rather than the linked use of questioning to support players’ learning from challenges, Amy continues to use questioning “to check their understanding but also show them that they’re learning something” (C2,P1), in a strategy learned from the level 2 coaching course. Her resulting rationalistic ‘mainstream’ knowledge around types of questions and their relative “pros and cons” remains disconnected from her understanding of challenges gleaned from modules 1 and 2. In other words, Amy demonstrates no change in her knowledge of challenges and questioning over the intervention period, while it seems that Carlo, having attended the YAM3, has learned and implemented some knowledge from the course albeit while retaining some underlying behaviourist, traditional methods and assumptions.

**5.2.3.3 Pedagogical Knowledge.** During his session, Carlo now relies less on the ‘VAK’ learning style concept to understand the players’ development. Instead, he attempts to utilise constructivist principles of allowing his players to implicitly find solutions to overcome their own mistakes, generally reflecting the YAM3 ‘coaching pillar’ of trial and error learning. The YAM3 emphasised Carlo’s existing knowledge of this type of learning, gained from his own “experience of everyday life” (S2,P1). However, his expression of this apparently constructivist-informed pedagogy is at

times manifested in an emphasis on learning by “having lots of goes” (A2,P3); a concept closer to the repetition and embedding of pre-determined responses of behaviourism (Light & Robert, 2011). For example, Carlo facilitates learning in his part practice which he sets up as “an area where they could get loads and loads of shooting opportunities”; “loads of situations to react to and see what works for them” (A1,P3). Although he tries to leave the players to self-correct and learn from their own mistakes, when the same problem occurs repeatedly he pulls individuals out of the practice “to get them to understand they’ve made a mistake and how they might put it right next time” (A2,P3). Carlo also highlights positive outcomes “so they can think about what they’ve just done and attach it to a positive reinforcement” (A2,P3). These interventions reveal remnants of an underlying behaviourist theory-in-use in the presence of Carlo’s espoused constructivist learning theory. This knowledge ‘profile’ is also reflected in the coaching practice behaviours of YAM3 coaches, outlined in chapter 6 (p.156).

Amy also appears to use more ‘naïve-constructivist’ concepts (Cushion, 2013) in her post-intervention coaching session, giving her players a chance to “go and try stuff, see what happens...very much just letting the game teach” (C4), something that was encouraged “going through uni” (C1,P1). Like Carlo, she lets one individual try out a specific turning skill and goes in to help when the player has made the same mistake more than “one or two times” (C2,P1). Overall though, Amy’s intentions are to help the player make her own decision about “when to do that move...rather than me or another coach making that decision for her” (C2,P1). She has developed her use of this concept during the intervention period “from discussions with other coaches” (C2,P1). Amy works most closely with her PDC director who has completed the YAM3. They have started more frequent discussions after the session about what happened and any issues; therefore it again seems that the course concepts become filtered down through communities of practice. However, the enduring use of behaviourist corrective feedback demonstrates a ‘Chinese whispers’ type mechanism whereby the intended YAM3 message gets distorted and traditional practices are passed on unchallenged. Thus, a practice mutation occurs, fragmenting the original ‘innovative’ message to create a naïve constructivism (Cushion, 2013). Amy also uses a number of positive player demonstrations, intended to let the players “kind of teach each other” (C3,P). She

tries to use praise as a strategy so that “the others socially pick up on” her intended outcomes and learning becomes “infectious” (C4). Therefore Amy is attempting to use a social constructivist model of learning to allow players to create shared knowledge, in cooperation with each other. In practice, however, this consists of a rather linear transmission of knowledge whereby she provides positive reinforcement and sets up a player demonstration in line with her expectations, so that players “might be able to copy it” (C2,P2), learning from others. Amy has ‘cherry picked’ (Cushion, 2013) knowledge of this learning principle from watching other coaches that she works with. In particular, she adopted the strategy of player demonstrations after seeing it successfully employed with her group of players by another coach. Again this indicates a tendency to learn through “copycat coaching” (C2,P2) whereby surface level practices are transmitted without deeper learning or consideration of the knowledge and assumptions that underpin them. In a self-referenced manner, certain elements of different coaching approaches are abstracted and applied to knowledge and practice without a conceptual or practical understanding of their pedagogical foundations and implications (Cushion, 2013). This has been termed ‘safe simulation’ (Cushion, 2013) and its underlying learning mechanisms will be further elucidated in chapter 7 on Impact (p.193).

**5.2.3.4 Players.** As the ‘part’ section of Carlo’s session continues, one of the players, Joe, adjusts his body to shoot as he “tries smashing it in as hard as he could” (A1,P2). Carlo uses his knowledge of Joe’s abilities, personality and learning to intervene, prompting him by taking him aside and asking “do you think you need to do that?” without pressing for an answer. During the intervention period, Carlo has gained several months’ experience coaching and “watching how these lads play, getting to know these guys” (A1,P2). As a result, he knows that Joe “sulks a bit if you get on his back, he doesn’t like being wrong...and he certainly doesn’t want to be shown up in front of other people” (A1,P2); hence his choice of an individual, questioning approach. Moreover, “he is one of our better players so his understanding is already there, so it’s merely just a probing question for him” (S3,P1). Carlo’s attention to individual players is grounded in previous life experiences; his upbringing with a twin sister and family life as a father giving him an appreciation that “every kid’s different and has different needs” (A1,P3). Over the intervention period, though, “from the Youth Awards, possibly 3, developing the player,” Carlo has “learnt

to think about the players in a group more, rather than just actually what the session is.” (A2,P3). Therefore the YAM3 focus on individuals appears to have interacted with Carlo’s experiential learning to facilitate more detailed knowledge of individual players.

Indeed, after a comparable period of coaching practice, Amy does not show changes in her use of knowledge about individual players. Instead, she adopts a group level focus, preferring to use a universal ‘challenge’ rather than too much individual conditioning and direction because “the anticipation is on experience that a lot of these will drop out and not come back to the centre next year. So it’s trying to find an approach of keeping them on board...that little thing of not scaring them away” (C1,P1). Therefore, through coaching experience and “from observing them in the session” (C2,P2), but without the added influence of the YAM3, Amy has increased her knowledge about her players’ engagement on a group rather than individual level. Amy also points out that her current involvement in the FA’s mainstream education pathway accentuates a wider group or team focus:

what I’m doing at the moment with my UEFA B Licence, which is something that the coach educators really try and get us to do; they try to get us to focus on the bigger picture because of getting certain coaching points out to see what’s happening in the game rather than just the player. So I guess it’s just to be in that mind set and try and – because of the assessment, that’s the next assessment that I would have coming up, so I’m just training myself almost, to focus on that and to get in that mind set, ready for the assessment. (C1,1)

**5.2.3.5 Reflection.** During and after his session, Carlo shows no change in his use of reflection. Amy, however, differs from Carlo in altering her part practice mid-session by adding in another defender and shortening the distance between the goals. She “came away thinking it didn’t really go that well”, and afterwards comes up with a new approach to try in her next session; “a little reflection in action, and reflection on action afterwards” (C1,P1). Amy claims the knowledge that allows her to “constantly try to adapt and change” originates from previous learning of “the value of the reflective cycle” (C4) at university. Thus, she implements this knowledge as a way “to generate new knowledge” (C4), allowing her to continue

learning from her experiences over the intervention period (Gilbert & Trudel, 2001) despite not attending the formal YAM3 course in this time. Rather than changing pre- to post-intervention, Amy's use of reflection tends to differ from Carlo's more generally across the time period due to her personal affinity for the process and the facilitative context of the PDC. Her preference for reflective practice means she is motivated to take up the opportunity of "peer review" sessions to "talk about how we coach and what we're coaching" (C2,3) with colleagues, also engaging in reflective learning through the stimulated recall interview process. The impact of the observation and interview process, which Amy felt "makes you think a bit more about why you're doing what you're doing" (C2,P3), is explored more fully in Chapter 7 (p.204). Amy's more extensive use of reflection in comparison to Carlo is therefore based on interrelated personal, social and contextual factors; the complex interplay of which will also be addressed in Chapter 7 (p.186).

**5.2.4 Case-study summary and discussion.** Carlo and Amy, representative of the YAM3 and comparison groups of coaches, illustrate learning by way of a number of key areas and sources of knowledge change over the intervention period. Specifically, there were interesting and subtle contrasts in their understanding of the whole-part-whole and challenges, learning principles, and their knowledge of individuals versus the group they were coaching. These changes were traced back to several learning situations, which often included the YAM3 in combination with previous life or playing experiences; or communities of practice and reflection in the case of coaches not attending the course. This provides yet more evidence to support the idea that coaches learn from a variety of sources (e.g. Winchester et al., 2011) which vary in their level of formality and interact in a complex manner (Nelson & Cushion, 2006). Underlining the importance of looking at coaches' wider learning rather than just their education, formal course concepts interacted with existing knowledge concepts and other informal learning to impact on knowledge use in practice, for example in the case of Carlo's increased knowledge of individual players. The nuances of how this occurs are explored further in chapter 7 (p.186).

Some of the changes in knowledge use were minimal and only apparent due to the in-depth analysis of multiple stimulated recall interviews, closely linked to coaches' practice. At the pre-intervention time point, both groups revealed that they already possessed some knowledge of several of the concepts contained in the

YAM3 course, most notably whole part whole practice structure and challenges. This mirrors the exploratory findings of Gilbert and Trudel (1999) with their single case study coach, who had a basic prior knowledge of course concepts and therefore demonstrated only slight changes in his use of them in practice. Despite the coaches in this study already knowing about course concepts, the group comparisons over time indicated subtle changes in the knowledge concepts of coaches who attended the YAM3, but not in those who continued with their normal practice. For YAM3 coaches, the learning could have occurred in this manner because the course “was more applying the knowledge you already had but in a more effective way” (M3,P). Finally, the results indicated that those who took part in the YAM3 interpreted the presented whole-part-whole and pedagogical principles in terms of their existing highly structured view of coaching. This is akin to previous research showing coaches implementing games-based rather than truly Game Sense approaches, emphasising repetition and testing of pre-learned skills (Light & Robert, 2010). In other words, Game Centred Approaches were to some extent inserted within a traditional behaviourist model (Cushion, 2013), and evidence of the behavioural aspects of this learning are presented in chapter 6 (p.156).

### **5.3 Knowledge**

The results have further implications for coaching knowledge itself, its application and meanings. In section 5.2.1 (p.140), Carlo explained how his sport-specific professional knowledge concepts created a mental framework with which to compare similar specific coaching situations as they happen. This echoes previous work depicting the way coaches’ knowledge forms the basis of cognitive structures for later use in naturalistic decision making (e.g. Gilbert & Côté, 2013). The mental models of coaches have been characterised as flexible and adaptive structures which are built on knowledge about (a) the goal of the coaching task; (b) the coaching process, which includes organisation, training and competition; (c) the personal characteristics of the athletes; (d) the personal characteristics of the coach; and (e) contextual factors (Côté et al., 1995). Different aspects of knowledge are interrelated to create a mental model of a specific coaching situation, generating an ‘operating model’ for intervention (Saury & Durand, 1998). Gilbert and Côté (2013) interpret these operating models as another way to describe coaches’ use of



procedural knowledge. Participants in this study specified how “suddenly it just, flicks a switch, that doesn’t look right or that doesn’t feel right” (A1,P2) when the cognitive model formed by existing knowledge did not match the unfolding situation. Accordingly, they would then use an operating model based on their knowledge to intervene. Although a number of authors have contributed to the conceptual development of these ideas under the rhetoric of judgement and decision making, reasoning, problem solving, mental models, operating models, conceptions, routines and coaching skills (e.g. Abraham & Collins, 2011; Lyle, 2010; Saury & Durand, 1998; Schempp & McCullick, 2010), these ideas are poorly defined and clarifying how developing knowledge translates to decision making in practice, using standardised terminology, would be a useful avenue for future empirical research (Gilbert & Côté, 2013; Lyle & Vergeer, 2013).

The results showed that coaches applied developing knowledge in their day-to-day coaching practice, highlighting the idea that knowledge was primarily something to be used. Participants paralleled Nelson and colleagues’ (2012) practitioners in reporting that they conceived knowledge as a tool used to achieve pragmatic outcomes; specifically, to become better at coaching. For example, “if you’re open-minded to picking up ideas and using things...then I don’t see how you can fail to become better” (J3). Coaches described their development as building up to new levels of coaching ability, along a linear continuum, “to kind of build that, it’s that ideology of being an expert, just working in that direction” (A1,P4). This desire to become better was linked more often to coach-centred micro-political outcomes than directly to the players’ learning and development, as demonstrated by coach A1:

I wanted to gain that knowledge, to be better than the next bloke...and be better respected, probably, by whoever I’m working with, or for...for me to be more knowledgeable, to be able to work with the players better (A1,P4)

These desires align with Potrac et al.’s (2002) claims that in football, coaching knowledge is a vehicle for gaining respect and enhancing power. Being able to prove one’s knowledge in this setting increases a coach’s ‘informational power’; their capacity to affect desired outcomes by significantly affecting or controlling situations and other people (Raven, 1992). Rather than exercising this power over players,

however, coaches seemed more intent on furthering their status in the eyes of other coaches; to use the well known idiom, 'knowledge is power' in coaching circles.

As the discourse contained in the previous quotations imply, knowledge was conceptualised as 'out there' to be obtained and transferred between bodies and contexts. The default holder of knowledge was typically perceived to be The FA. By attending The FA's formal courses, which are seen to contain the desired knowledge, coaches believed they could acquire this knowledge and get to the next level of coaching expertise. Coach A1 even described knowledge in this process as a commodity,

...feeling you need another course to get you to another level. I just wanted to get that course information...you just buy it; you pay your money for the course, and you get that knowledge, that's it. The attraction is to go on the course, to get that knowledge and try and use it (A1,P4)

Formal education courses were therefore framed as neatly enclosing continually higher stages of verified, absolute knowledge for coaches to acquire and apply in their practice. According to Entwistle and Peterson's (2004) framework (Figure 5.4), this reflects a conception of learning as reproduction, inferior to the pivotal equivalence of learning with understanding and personal transformation. Indeed, the YAM3 claims to "package" a new way of doing things; "a progressive change in coaching philosophy" (FA Learning, 2010, p.2) that distances itself from the directive, traditional route of coaching. Although this new way advocates learner centred practices and therefore would acknowledge that there are multiple, relative forms of knowledge that the learner can discover for themselves to construct understanding and empower decision making, YAM3 knowledge is still "sold as the only way" (S3,P1) to coaches. Despite tutors' expressions that the course material is something to be added to candidates' existing knowledge, the use of 'gold standard' coaching demonstrations (Abraham & Collins, 1998) showcasing a correct way of doing things that candidates were expected to emulate, illustrates a behaviourist, dualistic approach to pedagogy and a linear view of learning with coaches the passive receivers of information. There was no space to consider whether and when the use of certain knowledge is effective, especially for different players in varying contexts and situations. In other words, there was no critical reasoning among

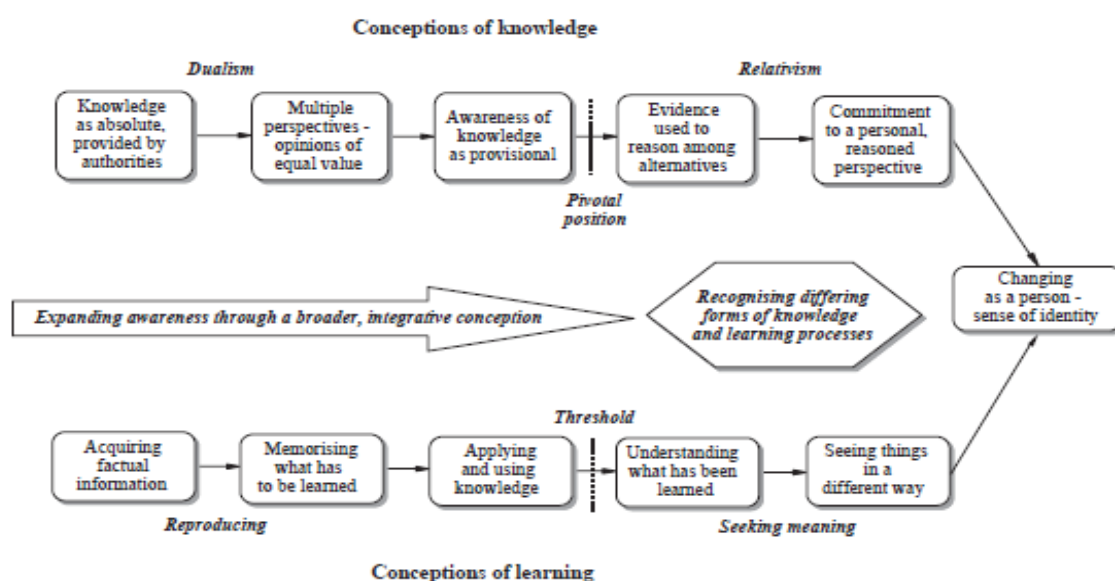
alternatives to allow a personal stand on a preferred perspective, revealing a lack of appreciation that knowledge is relative (Entwistle & Peterson, 2004). For example, the YAM3 implied that questioning is absolutely the correct intervention to employ and is as simple as just asking a question, without consideration of how the question is asked, the type of question, the outcomes, and the relative benefits and drawbacks of using this strategy in comparison with others. As two candidates put it,

this is how we [the tutors] want you to do it, here's a demonstration, you go and do it, if you don't do it quite how they've done it, then it's like, no we don't want you to do it like that. (M1,P1)

I've probably got the FA people on a pedestal of, that's the way to do it (A1,P4)

Coaches therefore continue to display the basic dualistic assumptions about knowledge and learning reflected in the course operation (depicted in figure 5.4). Since knowledge is perceived as absolute and provided by authorities, and learning is acquiring factual information, coaches' capacity to see things in a different way and undergo transformative learning is curtailed. Instead, the candidates 'buy in' and reproduce certain legitimised knowledge which supposedly allows them to travel up another stage towards expertise and gain respect from others. The tutors, and thus The FA, maintain and improve their position as "gatekeepers to knowledge", dictating what knowledge is legitimate and necessary for coaches to practice (Cushion et al., 2003).

**Figure 5.4. Categories describing conceptions of knowledge and learning (Entwistle & Peterson, 2004, p.409)**



This situation contrasts with Piggott's (2012) research identifying the FA Youth Award as an 'open circle' style of course, whereby the central dogma of course knowledge is permeable and therefore 'learnable' through education rather than transferred through indoctrination. Rather, the YAM3 appears to display some aspects of a 'closed society' (Piggott, 2013), as learners pursue the central dogma of core knowledge, behaving in accordance with that knowledge; for example by replicating 'the right way' to coach or adopting the characteristic coaching language. The closed core is impermeable to criticism and therefore legitimised knowledge and practice is transmitted and reproduced, in a process not unlike the way coaches outwardly mimicked core knowledge and practices of coach education to meet certification criteria (Chesterfield et al., 2010). The social conditions are therefore detrimental to the creative growth and reform of knowledge and coaching as a whole (Piggott, 2013). Piggott's model, which originated from the work of Karl Popper (1972) and Munz (1985), can also be used to begin to understand how coaches learn only particular knowledge from formal courses like the YAM3. As part of a wider social system encompassing their day-to-day practice within a club, coaches are members of another 'circle', with its own different, yet equally valid, dogma. Since within closed circles, the value and validity of any idea or knowledge is tested by reference to the central dogma, those within the circle will collect ideas that fit in rather than accept criticism in the form of contrary ideas. Indeed, the coaches in this study did not passively accept all the YAM3 knowledge, and once they came to apply and use the concepts they had gained or developed, they did not automatically adopt them into their practice. The process of integrating new and existing knowledge highlights the relative nature of knowledge, and according to Entwistle and Peterson (2004), for coaches to change and commit to a personal perspective they need to recognise and choose from different knowledge with a critical eye using evidence. Chapter 7, on Impact, will take up this thread to explain how coaches integrated and used knowledge on the basis of what works in practice.

## **5.4 Summary**

This chapter provided evidence for coaches' learning in terms of changes in the use of knowledge concepts over time. Coaches that took part in a formal education course, the YAM3, demonstrated different changes in knowledge than those that

continued with their day-to-day practice. Specifically, subtle contrasts in coaches' conceptions of tactical knowledge, of the whole-part-whole and challenges, learning principles, and knowledge of players were linked to multiple interacting learning sources. Coaches saw knowledge as absolute; a commodity to be acquired from above and applied to enhance their coaching ability. As a result, YAM3 knowledge was uncritically 'transferred' and filtered down through coaching circles. Coaches who attended the YAM3 course demonstrated learning related to tactical knowledge and individual players, which was also reflected in altered patterns of coaching behaviours. These behaviours, and their links to the knowledge explored in this chapter, will now be considered in chapter 6.

## **Chapter 6: Behaviour and Practice**

### **Introduction**

Coaches' behaviours in competition and training can be seen as the concrete manifestation of their knowledge base. (Gilbert & Côté, 2013, p.150)

According to Gilbert and Côté (2013), naturalistic coach behaviour research should be integral to our understanding of coaches' knowledge. Therefore, studying coaches' changing behaviours and practice activities in context is an advantageous way to assess and 'measure' their learning in a realistic, functional manner (Ford et al., 2009). Behavioural observations are a powerful tool in coach learning as, superior to often inaccurate self-reports (Partington & Cushion, 2011) (see Literature Review, p.23), they can indicate what knowledge coaches actually translate for use in their practice. Likewise, longitudinal observations can demonstrate how coaches implement their changing knowledge or learning in the coaching process. Behaviours also form a central link between coaches' cognitions and resulting athlete responses and outcomes (Cushion, Ford & Williams, 2010). In terms of Coldwell and Simkins' (2011) evaluation model (see Introduction, p.8), behaviour - the implementation of knowledge and skills - forms the single direct connection to the final outcomes, or the overall impact of CPD (Guskey, 2000). Therefore it can be argued that without any changes in coaches' behaviour, their learning will have no impact on athletes, and formal education will not have achieved its intended effects (c.f. Guskey, 2002). Given the significance of coaching behaviour, coupled with the control coaches have over it (Cushion et al., 2012a), this chapter addresses the question of whether coaches show observable evidence of learning over time, through changes in coaching behaviours and use of practice activities. The current chapter sets out to characterise the changes in behaviour and practice structures apparent in coaches who attended, and did not attend, the YAM3 course. Issues that may have prevented the translation of learning into understanding and changed coaching practice, meanwhile, are addressed in chapter 7 (p.186).

This research follows repeated recommendations to combine observational techniques with qualitative interpretations of the individual knowledge and strategies that underpin and guide coaches' actions, and the processes by which these

influences occur (e.g. Potrac, Jones & Armour, 2002; Smith & Cushion, 2006; Partington & Cushion, 2012) (see Literature Review, p.42). Taking these views into account, the chapter will draw on various types of linked data to support behavioural observation, and is best interpreted in the context of Chapter 5 on coaches' knowledge. Subsequently, Chapter 7 will more explicitly tie these threads of coaches' learning outcomes (behaviour and knowledge) together to look at overall impact.

The first section of the chapter presents general behavioural profiles of the two groups of coaches before and after the intervention period, providing analysis of the changes over time. The discussion will go on to add more depth and nuance to these findings by depicting and explaining 'before' and 'after' behavioural profiles of individual coaches. This longitudinal case study approach has recently been exploited in the coaching literature by Harvey and colleagues (2013) and Stodter and Cushion (in press). Throughout, links to qualitative interview and course observation data are made, in order to build as full a picture as possible of coaches' overall learning. This chapter therefore builds upon the findings regarding coaches' knowledge use (Chapter 5), examining how these cognitive changes are reflected in practice and providing another layer to the evaluation of coaches' learning. The final results chapter will follow on from this exploration of what and how behavioural outcomes change, to examine the mechanisms of change at work; the 'what works' and 'why' of coaches' learning.

## **6.2 Descriptive and Inferential Statistics**

A number of descriptive behavioural research studies have provided percentage and rate per minute (RPM) data, which have been recommended as reliable variables (e.g., Ford et al., 2010; Partington & Cushion, 2011; Potrac et al., 2002) (see Literature Review, p.40). While the total 24 CAIS categories are designed to cover sensitively a comprehensive range of behaviours that coaches might use across a session (Cushion et al., 2012), a smaller section of these were coded for the specific purposes of this study aligning to the learning outcomes of the YAM3 (see Methodology, p.66). Since the full range of CAIS behaviours was not included, RPM rather than percentage data were quantified for the 6 primary behaviours and their associated secondary detail (Stodter & Cushion, *in press*). In line with recent

additional investigations of practice structures (Cushion et al., 2012a; 2012b; Ford et al., 2010; Harvey et al., 2013; Partington & Cushion, 2011), the behavioural data also includes the average percentage time spent in different forms of practice. The RPMs and percentages were averaged across pre- and post-intervention coaching sessions. Data on specific practice types were grouped into four categories for the purpose of analyses; training, playing, game and other. Following on from, and augmenting recent research on practice state using the CAIS (see Harvey et al., 2013), performance states were collapsed into these four categories to align with the outcomes of the YAM3. Since the course emphasised use of the most realistic 'game' forms, these were separated out from 'playing' forms, which feature rule restrictions or variations. Descriptive data of the CAIS profiles of each individual coach can be seen in Appendix J, as a complement to the statistical analyses. Assumption checks, including boxplots and Shapiro-Wilk tests, were performed on the data to look for outliers and test for non-normal distributions, skewness and kurtosis (Field, 2013).

The average RPM questioning scores, and average question type and content percentages pre- and post-intervention did not deviate significantly from a normal distribution. General and specific positive reinforcement RPM scores were also normally distributed pre- and post-intervention, as were pre-intervention RPM scores for individual recipient. Likewise, percentage scores for each of the four practice state categories did not deviate from normal distribution pre- or post-intervention. Post-intervention RPM scores for individual recipient, however, were significantly non-normal ( $W(8) = 0.75$ ,  $p < 0.01$ ). Shapiro-Wilk tests were also significant for average pre-intervention  $W(8) = .80$ ,  $p < 0.05$ , and post-intervention  $W(8) = 0.80$ ,  $p < 0.05$  corrective reinforcement RPM scores. Boxplots highlighted coach S2 as an outlier on this measure. Similarly, specific negative reinforcement RPM scores were significantly non-normal (pre  $W(8) = 0.67$ ,  $p < 0.001$ , post  $W(8) = 0.72$ ,  $p < 0.01$ ), with coach C4 an outlier at both time points. Scores for general negative reinforcement were non-normally distributed pre-  $W(8) = 0.60$ ,  $p < 0.001$ , and post-intervention  $W(8) = 0.71$ ,  $p < 0.01$ . Indeed, this latter behaviour was displayed rarely, by only four of the coaches.

To compare differences in coaching behaviours over time and between groups, two-way mixed analysis of variance (ANOVA) was performed on average



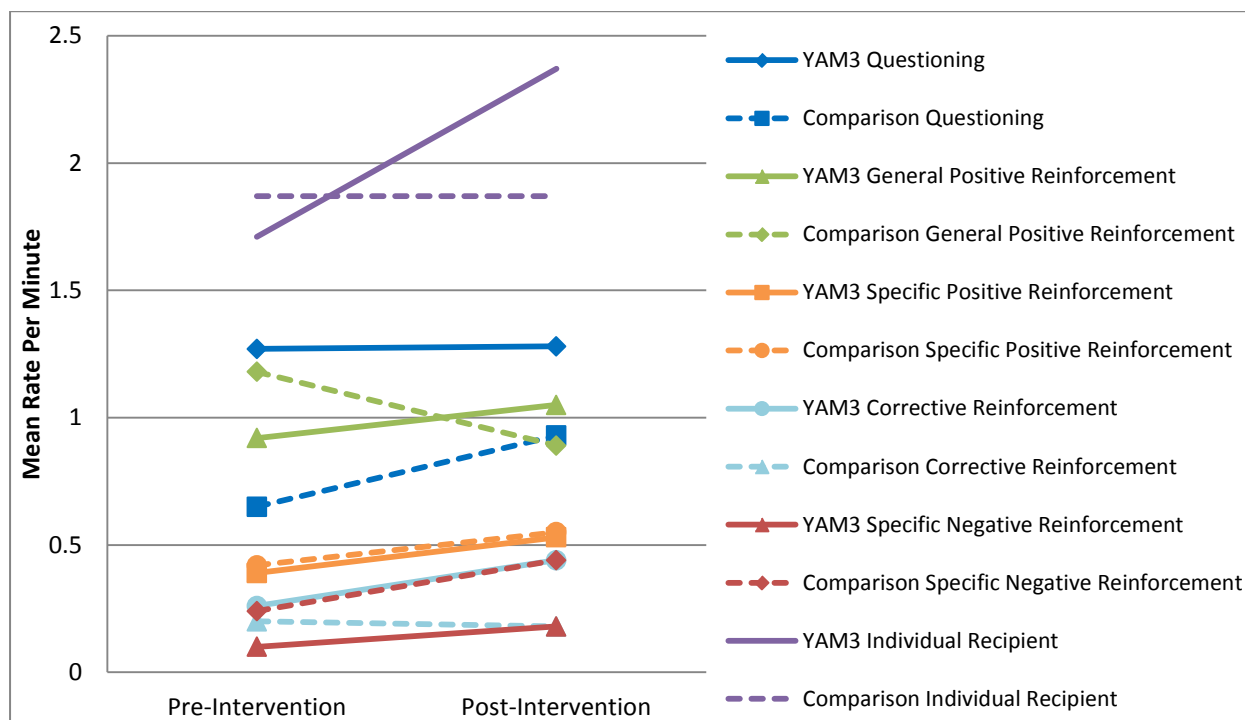
Rate Per Minute (RPM) scores for each of the normally distributed primary CAIS behaviours and average practice state percentages. To avoid the drawbacks and conceptual difficulties of transforming the data or trimming or substituting outliers from the small sample, dependent variables that did not meet the assumptions of ANOVA were analysed using robust mixed ANOVA (Field, 2013; Wilcox, 2005). Field (2013) indicates that robust tests, based on 'bootstrapping', are the best option to reduce the impact of bias in the data. Such tests can be applied with small sample sizes and are relatively unaffected by violations of standard assumptions and outliers (Wilcox, 2005). Bootstrap methodology, which treats the sample as a pseudo-population from which multiple samples are drawn, has been adopted in previous quantitative coaching psychology research (Felton & Jowett, 2013; Stebbings, Taylor, Spray & Ntoumanis, 2012). Rather than using a method based on identifying and removing outliers, the median was used as the M-estimator, drawn from 2000 bootstrap samples (Field, Miles & Field, 2012). The statistics package R was used to perform this procedure (Wilcox & Schönbrodt, 2014).

The independent variables, intervention and group, each had two levels; pre and post, and YAM3 and comparison respectively. For secondary behaviours (i.e. recipient, timing, content and question type), descriptive statistics were calculated, with mixed ANOVAs conducted on those that warranted formal analysis as a follow-up to the primary behavioural and qualitative analyses. For example, RPM scores for individual recipient were analysed in light of stimulated recall interview data which indicated a change in YAM3 coaches' knowledge of individual players (Chapter 5, p.135), coupled with behavioural trends in questioning and corrective reinforcement (p.159). Similarly, mixed ANOVAs were performed on the four practice state categories (training, playing, game and other); with follow-up examination of coaches' use of specific practice types where appropriate. This exploratory approach minimised the number of ANOVAs conducted, in an attempt to reduce the likelihood of type I errors occurring. Moreover, it afforded flexibility in line with the specific research questions and the pragmatic nature of the project.

**6.2.1 Rate Per Minute Behaviours.** The mean Rates Per Minute of five of the primary CAIS behaviours pre- and post-intervention, for both groups of coaches are illustrated in figure 6.1. The sixth primary behaviour measured, general negative reinforcement, is not included due to it being exhibited very infrequently. Since

levels of behaviours directed towards individual recipients were statistically analysed (see p.80), these mean values are also shown in figure 6.1.

**Figure 6.1. Chart of mean values of average RPM coaching behaviours pre- and post-intervention for YAM3 and comparison coaches.**



**6.2.1.1 Questioning.** This category of behaviour captured both questions about skills or strategies and challenges, typically phrased along the lines of “can you try to...?”. Moreover, general questions, for example about procedures or the welfare of players (Cushion et al., 2012), combined to make up coaches’ overall questioning RPM scores. Two-way mixed ANOVA indicated no significant main effect of intervention on average questioning RPM  $F(1,6) = 0.44$ ,  $p = 0.53$ , no main effect of group  $F(1,6) = 4.95$ ,  $p = 0.07$ , and no significant interaction effect  $F(1,6) = 0.41$ ,  $p = 0.55$ . The mean values, shown in table 6.1, reflect this lack of change pre- to post-intervention for coaches attending the YAM3. Comparison coaches, meanwhile, seemed to increase their use of questioning behaviour pre- to post-intervention. The blue data points in Figure 6.1 highlight comparison coaches’ overall lower rates of questioning than YAM3 candidates. It may be that initial higher levels of questioning by YAM3 coaches led to a ceiling effect whereby no increase in frequency was possible. Indeed, in practical terms, 1.27 indicates a high rate of questioning per minute, for instance in comparison to other research which shows equivalent high-

level youth football coaches using an average overall questioning RPM of 0.69 (Partington & Cushion, 2011). This raises the issue of question content and whether the types of questions coaches used changed over time.

Secondary-level coaching behaviour data, shown in table 6.2 and figure 6.2, revealed a high ratio of convergent to divergent questions across all coaches. Convergent questions, with a limited number of responses, constrain athletes to a desired 'correct' answer and require recall of information that has been previously presented (Pearson & Webb, 2006). Effective divergent questioning, meanwhile, requires the learner to think through a problem, increasing learning through critical thinking abilities (Partington & Cushion, 2011). There were no changes in question type used by coaches over the intervention period. The lack of change in rate of questioning, and in the proportion of convergent and divergent questions asked by YAM3 coaches, could reflect a failure to address the issue of question types on the course. Although demonstration of questioning behaviour was presented as a key outcome of the course, following a communication style based on asking questions "effectively using a variety of methods" (FA Learning, 2010, p.98), there was no specific deliberation on how to develop and manage this "real art form" (Tutor 3, Aug YAM3, Day 1) beyond providing examples of "valid" supporting questions to use. Coach M1, for instance, felt limited in his knowledge and application of questioning post-course:

"When I came to do the next session after that it would pretty much be the same thing over and over again, because it's kind of like, 'alright what's stopping you playing forward?' I don't know, there's only so many questions you can ask like that" (M1,P)

Therefore although YAM3 coaches reported changes in their knowledge of "devising challenges within that, and then appropriate questions" (J1,P) (see p.133), there was no observable transfer of any changes to their behaviour in terms of types or rates of questions asked.

Comparison coaches used a significantly higher proportion of convergent questions than YAM3 coaches overall  $F(1,6) = 6.92$ ,  $p < 0.05$ , a percentage split that was slightly magnified post-intervention (Table 6.2). Comparison coaches may have adopted the general strategy of questioning without fully considering the type of

questions they ask and the coaching philosophy underpinning their use. Indeed, stimulated recall data indicated some use of convergent questioning as part of an approach which aimed “almost to get her [player] to say the words rather than just her listen to me say it” (C1,1):

“Could she have taken another touch? If she could have, what next if she’d have taken a touch; could she have had a shot? Could she have dribbled, could she have passed to somebody in a better position?” (C1,1)

This approach is controlled by the coach in terms of leading towards their desired corrections to a perceived mistake by the player. Conversely, a more player-centred approach which would consider “not always what I want to get out, but what’s that child going to learn from that by asking that question?” (C2,P3). By the end of the intervention period, the latter comparison coach appeared to have “thought more about the type of questions that I ask and what impact it has on [the players]. Again, from watching myself” (C2,P3), however this shift in use of knowledge about questioning is not yet reflected at a practice level. It seems that these patterns of behaviour and knowledge may have been due to the effect of taking part in the research and in particular the stimulated recall interview process. Comparison coaches appeared to respond differently to the methods of data collection than the education group, a notion that is addressed in chapter 5 (p.136).

In terms of question content, there was a significant interaction effect on the use of technical questions  $F(1,6) = 10.49, p < 0.05$ . In other words, the intervention period had a different effect on the proportion of technically-based questions used by YAM3 coaches versus comparison coaches. Figure 6.3 illustrates the drop in proportion of technical questions asked by YAM3 coaches over time, as well as comparison coaches’ increased percentage of questions about technique. Mean values, in table 6.3, indicate that for YAM3 coaches some of this decrease appears to be replaced with a trend towards asking more tactical questions (Table 6.3). This fits well with stimulated recall interview data indicating post-intervention changes in tactical knowledge (see p129). After attending the course, YAM3 coaches used tactical knowledge concepts more often than beforehand, even using questioning to describe their thinking in this area:

I was just basically looking for the points, so kind of when they play into the front man, what sort of support is he getting; the timing of the support, the angles of the support, where the support's coming from and then when we've got the support, the timing of the forward to play the ball into the support, is he going to play one touch or is he going to hold the ball? And then can we get a shot off from the support or have we got to go out wide? (S2,P1)

This is an important indication of learning whereby cognitive change is reflected in coaches' practice, through changes in the balance of questioning content. Comparison coaches, meanwhile, talked about "still trying to keep the technical detail" (C2,P1) in perhaps a more traditional 'mainstream' coaching approach (Harvey et al., 2013; Partington & Cushion, 2012). Indeed, these coaches drew on the FA "level 2 to a certain extent" (C1,P1) to inform their technical coaching behaviour, in the absence of changes in tactical knowledge experienced by coaches attending the YAM3.

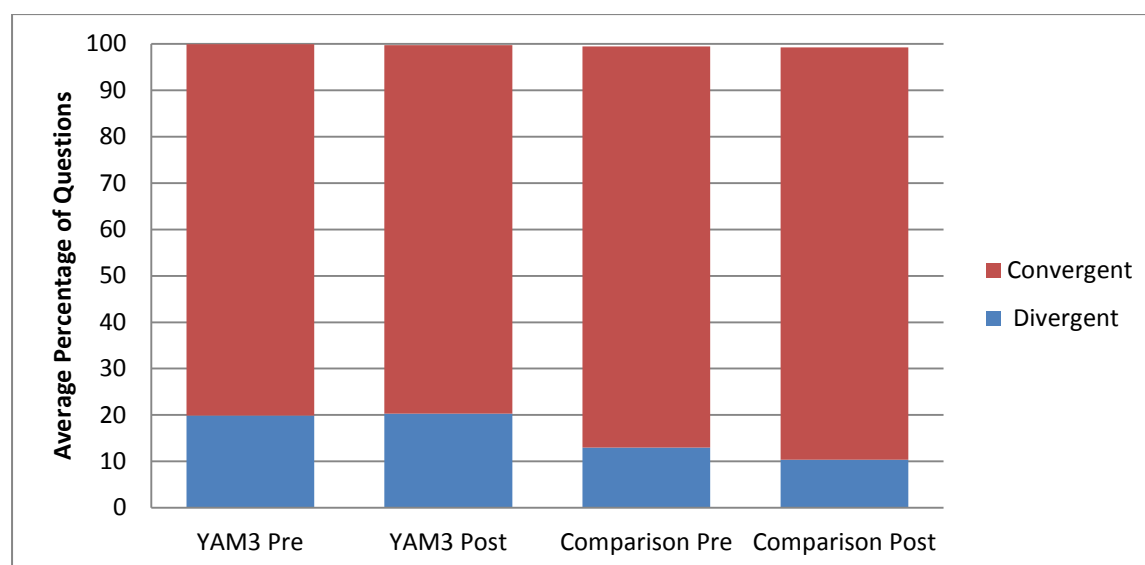
**Table 6.1. Table showing mean values for average Rate Per Minute of questioning used by participants pre- and post-intervention**

Group	Questioning Average RPM			
	M Pre	S.D.	M Post	S.D.
YAM3	1.27	0.22	1.28	0.15
Comparison	0.65	0.29	0.93	0.20
Overall (N=8)	0.96	0.18	1.11	0.13

**Table 6.2. Table showing mean values for average percentage of question type used by participants pre- and post-intervention.**

Group	Average Percentages of Question Types							
	Pre				Post			
	Divergent	S.D.	Convergent	S.D.	Divergent	S.D.	Convergent	S.D.
YAM3	19.9	2.75	80.0	2.94	20.3	2.43	79.4	2.22
Comparison	13.0	3.55	86.4	3.80	10.4	3.13	88.8	2.87
Overall	17.3	6.70	82.4	6.93	16.61	7.18	82.9	6.69

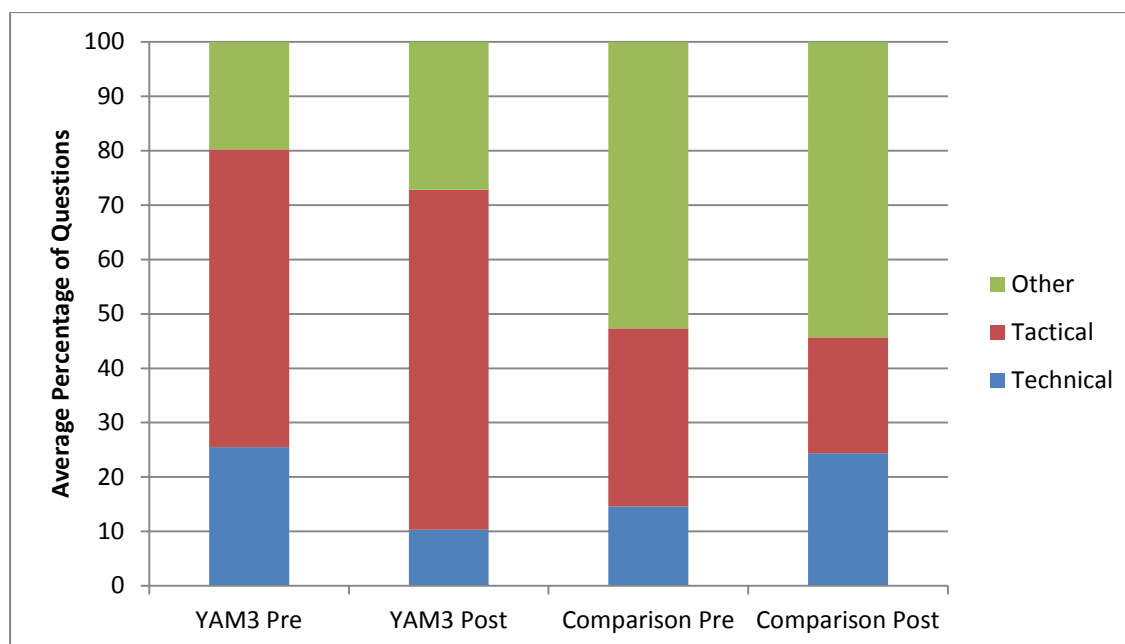
**Figure 6.2. Chart showing average proportion of convergent and divergent questions used by participants pre- and post-intervention.**



**Table 6.3. Table showing mean values for average percentage of question content used by participants pre- and post-intervention.**

Group	Average Percentages of Question Content							
	Pre				Post			
	Technical	S.D.	Tactical	S.D.	Technical	S.D.	Tactical	S.D.
YAM3	25.5	3.95	54.7	4.9	10.3	3.13	62.5	8.7
Comparison	14.6	5.10	32.7	6.3	24.4	4.05	21.3	11.3
Overall	21.4	9.94	46.5	15.20	15.6	9.75	47.0	27.9

**Figure 6.3. Chart showing average proportion of technical, tactical and other questions used by participants pre- and post-intervention.**



**6.2.1.2 General Positive Reinforcement.** There was no significant main effect of intervention  $F(1,6) = 0.36$ ,  $p = 0.57$ , or group  $F(1,6) = 0.02$ ,  $p = 0.89$ , on average RPM of general positive reinforcement, and no significant interaction effect  $F(1,6) = 2.33$ ,  $p = 0.18$ . Mean values (Table 6.4) appear to show a slight increase in the use of general positive reinforcement by YAM3 coaches, while comparison coaches' average rates dropped post-intervention. The mean post-course rise in general positive reinforcement can be linked to the YAM3 emphasis on positive interventions and "remaining positive throughout" (NGB, 2010: p.95). Although praise is essential for a positive coaching environment, overuse of non-specific feedback runs the risk of diluting the effects of more relevant interventions, rendering them habitual meaningless 'noise' (Cushion et al., 2012b; Partington & Cushion, 2011; Schmidt, 1991). Accordingly, precise, specific positive reinforcement may be more useful for effective coaching practice, especially with increasing task difficulty and athlete skill level (Williams & Hodges, 2005).

**Table 6.4. Table showing the mean values for average Rate Per Minute of general positive reinforcement used by participants pre- and post-intervention**

Group	General Positive Reinforcement Average RPM			
	M Pre	S.D.	M Post	S.D.
YAM3	0.92	0.22	1.05	0.24
Comparison	1.18	0.28	0.89	0.31
Overall (N=8)	1.05	0.18	0.97	0.20

**6.2.1.3 Specific Positive Reinforcement.** Despite the YAM3 intention to promote specific, positive managements of player mistakes and successes, there was only a small increase in mean levels of specific positive reinforcement pre- to post-intervention (Table 6.5). This change, mirrored in the comparison group, was not statistically significant  $F(1,6) = 2.00$ ,  $p = 0.21$ . There was no significant main effect of group  $F(1,6) = 0.03$ ,  $p = 0.87$ , and no significant interaction effect  $F(1,6) = 0.003$ ,  $p = 0.96$ .

**Table 6.5. Table showing the mean values for average Rate Per Minute of specific positive reinforcement used by participants pre- and post-intervention**

Group	Specific Positive Reinforcement Average RPM			
	M Pre	S.D.	M Post	S.D.
YAM3	0.39	0.07	0.53	0.16
Comparison	0.42	0.09	0.55	0.20
Overall (N=8)	0.40	0.06	0.54	0.13



**6.2.1.4 Corrective Reinforcement.** Robust mixed ANOVA with bootstrapping indicated no significant main effect of intervention  $\Psi = -0.07$ ,  $p = 0.25$ , or group  $\Psi = 0.11$ ,  $p = 0.30$  on corrective reinforcement RPM levels. Although there was no significant interaction effect,  $\Psi$ , at  $-0.18$ , reached a p-value of  $0.05$ , on the borderline of statistical significance. The mean values, in table 6.6, indicate that after the intervention period, there were different outcomes for the two groups of participants. While YAM3 coaches increased their levels of corrective reinforcement, comparison coaches demonstrated a slight decrease in their use of this behaviour. This pattern suggests an increasingly directive, behaviourist-informed response to player mistakes on the part of coaches attending the YAM3. Such an approach appears to contradict the less prescriptive ‘trial and error’ based method of coaching advocated on the course.

**Table 6.6. Table showing the mean values for average Rate Per Minute of corrective reinforcement used by participants pre- and post-intervention**

Group	Corrective Reinforcement Average RPM			
	M Pre	S.D.	M Post	S.D.
YAM3	0.26	0.75	0.44	0.12
Comparison	0.20	0.10	0.18	0.15
Overall (N=8)	0.23	0.06	0.31	0.09

**6.2.1.5 Specific Negative Reinforcement.** There was no significant main effect of intervention  $\Psi = -0.10$ ,  $p = 0.16$ , or group  $\Psi = -0.02$ ,  $p = 0.77$ , on average rates of specific negative reinforcement, and likewise no interaction effect  $\Psi = -0.05$ ,  $p = 0.64$ . Mean RPMs in table 6.7 indicate this coaching behaviour was utilised relatively rarely. Indeed, negative feedback and in particular, public criticism of players was discouraged by the YAM3 course, which emphasised ‘positive management of mistakes’ (FA Learning, 2010, p.12).

**Table 6.7. Table showing the mean values for average Rate Per Minute of specific negative reinforcement used by participants pre- and post-intervention**

Group	Specific Negative Reinforcement Average RPM			
	M Pre	S.D.	M Post	S.D.
YAM3	0.10	0.10	0.18	0.18
Comparison	0.24	0.12	0.44	0.23
Overall (N=8)	0.17	0.08	0.31	0.14

Taken together, these results indicate a general lack of significant changes in participants' primary coaching behaviours over time. The secondary detail of question content, however, did change in a different manner for coaches attending the YAM3 versus those who did not. Another secondary detail that was included in the analysis due to its prominence in the YAM3 outcomes was the recipient of coaches' behaviours.

**6.2.1.6 Individual Recipient.** Robust mixed ANOVA indicated no significant main effect of intervention  $\Psi = -0.26$ ,  $p = 0.29$ , or group  $\Psi = -0.04$ ,  $p = 0.82$ , and no significant interaction  $\Psi = -0.17$ ,  $p = 0.61$ . Despite this lack of statistical significance, mean values (Table 6.8 and Figure 6.1) appear to indicate an increasing rate of behaviours directed towards individuals in coaches who attended the YAM3, while those who did not attend remain unchanged. This trend fits with interview data (see p.134) indicating YAM3 coaches increased their knowledge and focus on individual players over the intervention period, linked to the course outcomes:

So I think that's probably from the Youth Awards that I've learnt to maybe think about the players in a group more rather than just actually what the session is. Module 2 possibly 3, developing the player. (A2,P3)

Comparison coaches, meanwhile, retained a wider group focus. This data suggests the YAM3 was moderately successful in implementing its title focus on "developing the player" (FA Learning, 2010, p.11), enabling coaches to translate increased knowledge of individuals into their explicit coaching behaviours. This is a valuable manifestation of learning which, although not statistically significant, is substantively significant in its apparent bridging of the knowledge-practice gap (e.g. Cushion et al., 2003). Acquired knowledge must be integrated into individuals'

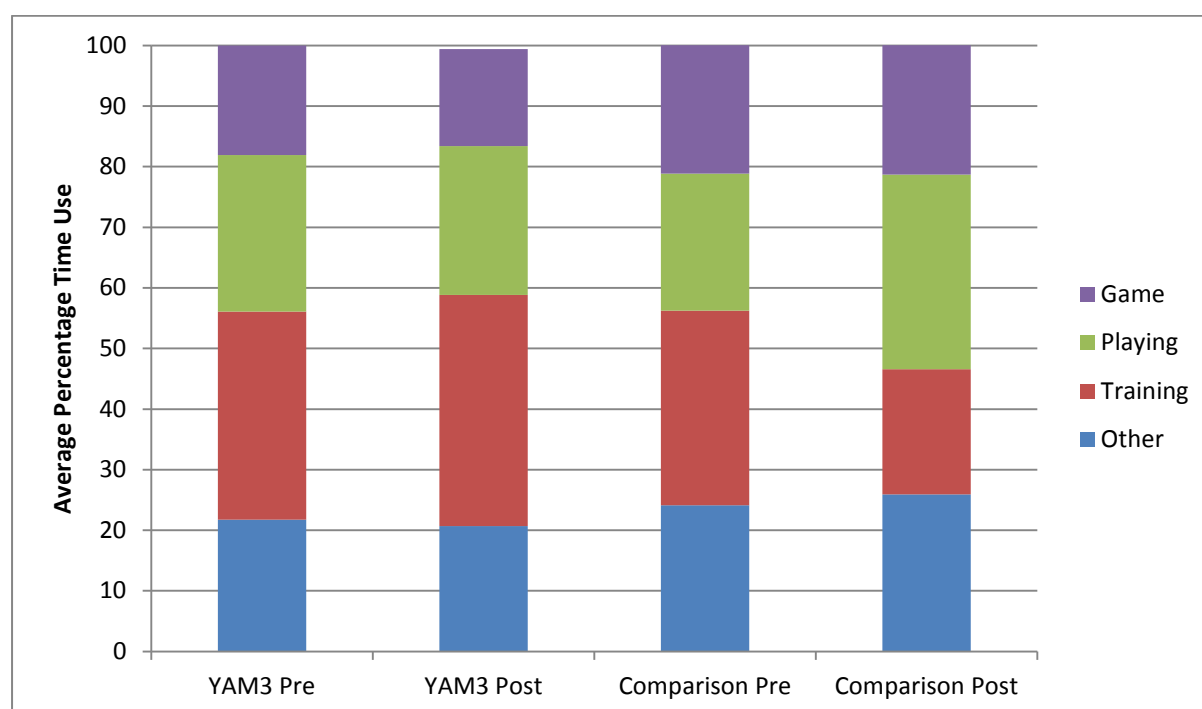
mental structures in order to change behaviours, a process that is far from straightforward (Cushion et al., 2012b).

**Table 6.8.** Table showing the mean values for average Rate Per Minute of behaviours directed at individuals by participants pre- and post-intervention

Group	Individual Recipient Average RPM			
	M Pre	S.D.	M Post	S.D.
YAM3	1.71	0.33	2.37	0.43
Comparison	1.87	0.43	1.87	0.56
Overall (N=8)	1.79	0.27	2.12	0.35

**6.2.2 Practice States.** Alongside primary and secondary coaching RPM behaviour data, the percentage time spent by coaches in different practice states was also investigated. The average proportions of different practice types used in sessions by the groups of coaches are illustrated in figure 6.4.

**Figure 6.4.** Chart showing average proportion of time spend by participants in game, playing, training and other practice states pre- and post-intervention.



**6.2.2.1 Game Type Practices.** Two-way mixed ANOVA indicated no main effect of intervention  $F(1,6) = 0.20$ ,  $p = 0.89$  or group  $F(1,6) = 0.48$ ,  $p = 0.52$  on average

percentage time spent in unrestricted game play. There was no statistically significant interaction effect  $F(1,6) = 0.33$ ,  $p = 0.86$ . Mean values in table 6.9 indicate little change in the average amount of time spent in game type practices, in the presence of very high standard deviations. A closer look at the individual data reveals that coach S1 did not use any small-sided or full-sided game practices pre-intervention, nor did coach S3 post-intervention; figures that are likely to have had a large influence on the standard deviation. These figures and the lack of change in game-type practices fails to match the YAM3 ideal of using unmodified game-specific practices that are proposed to “lend themselves better” to players’ learning “within the principles of play” (Tutor 3, August YAM3, Day 1).

**Table 6.9. Table showing the mean values for average percentage of time spent in playing type practices by participants pre- and post-intervention**

Group	Average Percentage Time in Game Type Practices			
	M Pre	S.D.	M Post	S.D.
YAM3	18.08	15.28	15.96	14.00
Comparison	21.20	7.84	21.47	3.10
Overall (N=8)	19.25	12.39	18.03	11.09

**6.2.2.2 Playing Type Practices.** Average percentage time spent in playing type practices, which are game-related but feature adapted rules such as particular restrictions or changes to the goals, also did not change significantly over time  $F(1,6) = 0.40$ ,  $p = 0.55$ . There was no significant difference between the groups  $F(1,6) = 0.02$ ,  $p = 0.89$ , and no significant interaction effect  $F(1,6) = 0.66$ ,  $p = 0.45$ . The mean percentage values, in table 6.10, seem to indicate an average 10 per cent post-intervention increase in playing type practice time by comparison coaches. Looking closer at the data and the specific practice states coaches employed within this category, it is apparent that coach C4 accounted for much of this increase. While C1 and C2 did not demonstrate changes in their use of playing-type practices, C4 spent on average 61% of his post-intervention practice time in conditioned games. Qualitative data revealed this change in behaviour was simply due to the specific situation; two of C4’s post-intervention sessions involved three age-groups combined into one large group of players:

Bloody hell, look how many kids...when I get big numbers like that it would

just be a case of getting them playing games that challenge them and try and learn through the game and try and stop it as least amount as possible, 'cause there's bigger numbers and if you stop it every ten minutes or every five minutes, some kids mightn't even had a couple of touches of the ball, you know. So yeah, that's why there'd be so much game time and so on. (C4,1)

**Table 6.10. Table showing the mean values for average percentage of time spent in playing type practices by participants pre- and post-intervention**

Group	Average Percentage Time in Playing Type Practices			
	M Pre	S.D.	M Post	S.D.
YAM3	25.80	6.77	24.60	11.84
Comparison	22.60	8.73	32.13	15.29
Overall (N=8)	24.20	5.52	28.37	9.67

**6.2.2.3 Training Type Practices.** Again there were no significant effects of intervention  $F(1,6) = 0.18$ ,  $p = 0.68$  or group  $F(1,6) = 0.68$ ,  $p = 0.44$  on time spent in training type practices, and there was no significant interaction effect  $F(1,6) = 0.72$ ,  $p = 0.43$ . Mean percentages in table 6.11 appear to show a drop in comparison coaches' use of these practices, which encompass warm-ups and cool downs as well as technical and skills practices; typically more traditional drill-based and less game-related states. However, this mean value was again influenced by coach C4 who did not spend any time in training states post-intervention due to his situation-specific perception that "you've got about 20 odd kids around you, you can't really get anything going, or you can't really engage in with them I feel" (C4,P). YAM3 coaches on average demonstrated a minimal increase in their time spent in training states, contrary to the course emphasis on players' trial and error learning through game-related practices; "giving kids the environment where they can play football" (Tutor 1). Despite this and the similar proportions of time spent in game and playing-type practices pre- to post-intervention, YAM3 coaches reported changes in knowledge of game realism (see p.133). This seems to be an example of both a theory-practice disconnect, and coaches' poor self-awareness of their own practice (Harvey et al., 2013; Partington & Cushion, 2011). Although coaches intended to use "a more game realistic practice" (A2,P3), on average there was still a reliance on training type activities for around a third of their coaching time. This is still however a

lower proportion of time than other recently studied coaches, who employed training form activities for around 40 to 65% of their sessions (e.g. Ford et al., 2010; Harvey et al., 2013).

**Table 6.11. Table showing the mean values for average percentage of time spent in training type practices by participants pre- and post-intervention**

Group	Average Percentage Time in Training Type Practices			
	M Pre	S.D.	M Post	S.D.
YAM3	34.34	7.79	38.12	10.40
Comparison	32.10	10.05	20.60	13.42
Overall (N=8)	33.22	6.36	29.36	8.49

**6.2.2.4 Other Practices.** Lastly, participants showed no change in the average time they spent in management and transition states over time  $F(1,6) = 0.01$ ,  $p = 0.91$ . There was no significant main effect of group,  $F(1,6) = 1.91$ ,  $p = 0.22$ , and no interaction effect  $F(1,6) = 0.21$ ,  $p = 0.66$ . Table 6.12 shows the mean percentage values, which are in line with previous analyses of the amount of time coaches typically spend in 'other' states (e.g. Harvey et al., 2013).

**Table 6.12. Table showing the mean values for average percentage of time spent in other practices by participants pre- and post-intervention**

Group	Average Percentage Time in Other Practices			
	M Pre	S.D.	M Post	S.D.
YAM3	21.75	2.97	20.69	2.09
Comparison	24.13	3.83	25.95	2.69
Overall (N=8)	22.94	2.43	23.32	1.70

### 6.3 Coach Behaviour: Summary

Overall, the practice states results mirror coaches' RPM behaviours in their relative resistance to change over the intervention period. The small alterations that did appear in YAM3 coaches' use of different practice types appear to contradict the game-centred approach of the course, with slightly less time spent in game and playing type practices and more in training form activities. Meanwhile, comparison coach data were skewed by C4's post-intervention emphasis on conditioned games,

due to his specific situation at the time. The most notable changes in coaching practice occurred in participants' questioning behaviours, with an increase in the ratio of tactically to technically-based content by YAM3 candidates, accompanied by more frequent technical questions from comparison coaches. In addition, while comparison coaches did not change the direction of their coaching behaviours, there was a trend of YAM3 coaches directing more of their coaching towards individual players post-intervention. Despite these subtle alterations in coaching practice, the overall lack of significant changes in the behaviours of YAM3 candidates implies an absence of deep learning (Moon, 2004) that connected the knowledge-practice divide. Nevertheless, the discussion has so far concerned group-level patterns in coaching practice and behavioural data. As coaches' practice and learning are thought to be idiosyncratic (e.g. Werthner & Trudel, 2009), there is a need to look in more detail at the individual level data (see also chapter 5, p.139). The data does suggest that the participant coaches each displayed different changes pre- to post-intervention (see Appendix J), changes that are difficult to detect through statistical methods with a small sample.

### **6.3.1 Case Study Profiles**

In order to unpick these general trends in the data, individual behavioural profiles of two coaches are now examined, combining quantitative and qualitative data to develop a more nuanced and meaningful understanding of why they coached as they did (Harvey et al., 2013; Potrac et al., 2002; Smith & Cushion, 2006), and the complexity of their individual learning. Recent behavioural research has endorsed such a focus on the world of individual coaches and how they operate within given contexts (Harvey et al., 2010; 2013) to provide a holistic explanation of changes in coaches' practice. Two profiles in particular were purposively selected based on 'opportunities to learn' about coach learning (Stake, 2005). They function as instrumental case studies which enable a more specific examination of the phenomenon of learning, through the outcome of changes in coaches' practice over time, within real-life contexts (Armour & Griffiths, 2012). Since there was a lack of significant differences between the groups of YAM3 and comparison coaches over time, the profiles presented focus on two coaches from the same YAM3 cohort. They were chosen to provide the most information rich data possible (Harvey et al., 2013), due to the contrasting impact the course had on each coach and, importantly,

the distinctive contextual influences impinging on this. As such, these distinct case studies provide insights into two coaches' specific individual learning around the YAM3, resulting differences in practice over time, and the reasons underlying these (Armour & Griffiths, 2012; Stake, 2000).

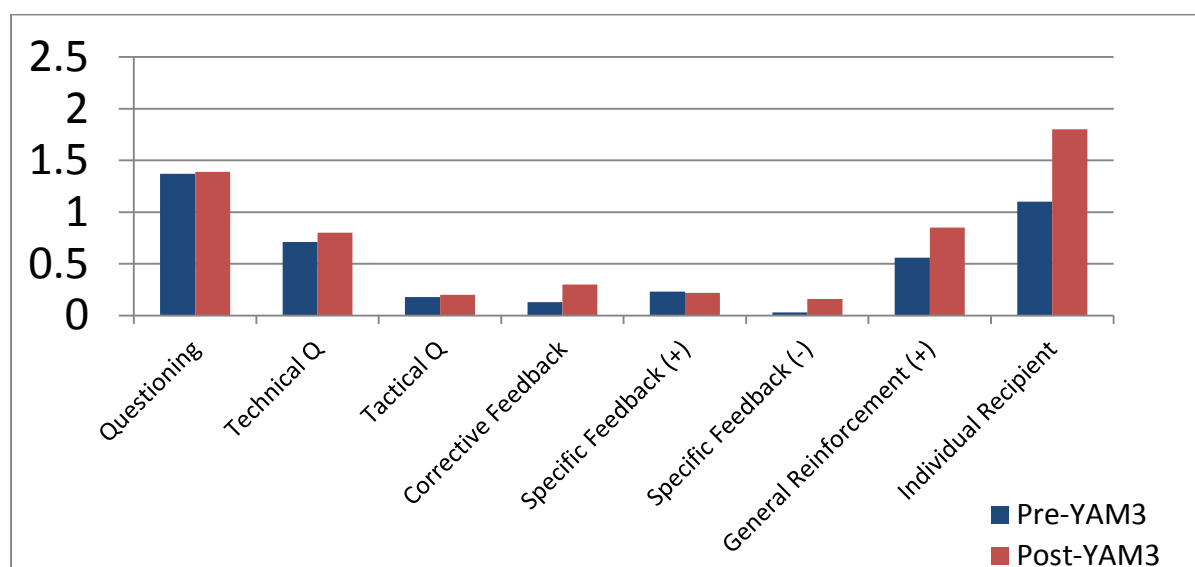
**6.3.1.1 Coach A1.** As shown in Figure 6.5, coach A1 (pseudonym Rob) demonstrated minimal changes in his coaching behaviour following the YAM3. Corresponding to the overall data, the biggest change was an increase in the rate of individually-directed coaching behaviours post-intervention. In stimulated recall interviews, Rob linked these coaching interventions directly to his learning on the YAM3:

When Sam made his mistake it was just him reacting to his own mistake, I wanted to just get that across to him...In fact, I know where that comes from, that was [Tutor 3], with his individual units and the whole team and breaking it into that, thinking about it. (A1,P1)

Rob's particular situation was a key influence in this aspect of his learning. During the pre-intervention phase, he was new to the club and in a new coaching job; he had limited knowledge of his athletes and the other club staff, and they did not know him. As the intervention period drew on, Rob focused on "just getting to know the players, getting them to know me" (A1,3) and had therefore developed his knowledge of individuals on follow-up. Rob's learning "from working with the players" (A1,3), in other words through coaching experience, combined with his learning from the YAM3, reflected in a change in his practice in terms of more individually directed coaching behaviours.



**Figure 6.5. Average rate per minute of YAM3 related behaviours, coach A1**



Over the intervention period, Rob's rates of corrective feedback increased from an average of 0.13 to 0.3 instances per minute, while specific negative feedback went from on average 0.03 to 0.16 instances per minute. Such increases in the rate of more directive, traditional coaching behaviours may also be linked to the coaching context. For example, Rob reported working in an environment where "people around me looking at my sessions that haven't done the youth awards", who therefore would be accustomed to a more traditional coaching approach, added to some feelings of "a coaching performance anxiety" (A1,P2). Rob was one of five coaches in this study who reported some perceived pressure to interject with instruction in order to be seen to be 'coaching' and doing what coaches should do (Chesterfield et al., 2010; Partington & Cushion, 2011). He was aware of surveillance from senior coaches and staff, and the need to conform to the latter's expectations (Chesterfield et al., 2010). By the post-intervention period, which fell at the end of Rob's first season at the club, his behaviour was in part driven by the need to present an idealised 'performance' following a normative script compatible with the club culture (Partington & Cushion, 2012). Accordingly, he describes consciously controlling interactional information in order to maintain his credibility and right to perform as an accepted member of the coaching staff:

There's so much going on there in that conversation there with Martin [colleague]. In the back of my head I'm thinking he's questioning what I'm doing, and I'm thinking he's more interested in me and what I'm saying than

he is in the actual players, and I didn't like it. That interaction there with the kids, whether it was needed or not, I don't know, but at the time I was - get away from Martin – and show him that I'm coaching. (A1,P4)

Rob's consistency of displayed behaviour over time, in contrast to any demonstrable shift towards specific questioning behaviours suggestive of 'trial and error' focused coaching, indicates that the decontextualised, 'gold standard' YAM3 delivery did not adequately provide candidates with an understanding or a means to tackle such complex contextual and social constraints in the coaching environment (Partington & Cushion, 2012). Indeed, by the end of the season, these contextual tensions and the pressure to perform normative practices at odds with his ideals had contributed to Rob's decision not to stay on for a second year at the club.

One area of coaching practice where Rob demonstrated noteworthy patterns of change was in his session design (Figure 6.6). In the pre-course phase, he used a relatively even spread of practice types, with an average of around 20% of his session time spent in game, playing and training states and a third in transition. This time often consisted of asking players to think about concepts during water breaks, explaining or waiting for players to set up practices themselves, and leading group discussions around a whiteboard. Post-course, Rob showed increased use of game-realistic practices and a combination of states that aligns more closely with the YAM3-advocated version of a whole-part-whole structure, consisting of two game-based 'wholes' either side of a practice state 'part'. The reduction in time spent in transition and management also reflects his learning, albeit from misleading tutor feedback that players learn by doing rather than observing and discussing (Cushion, 2013):

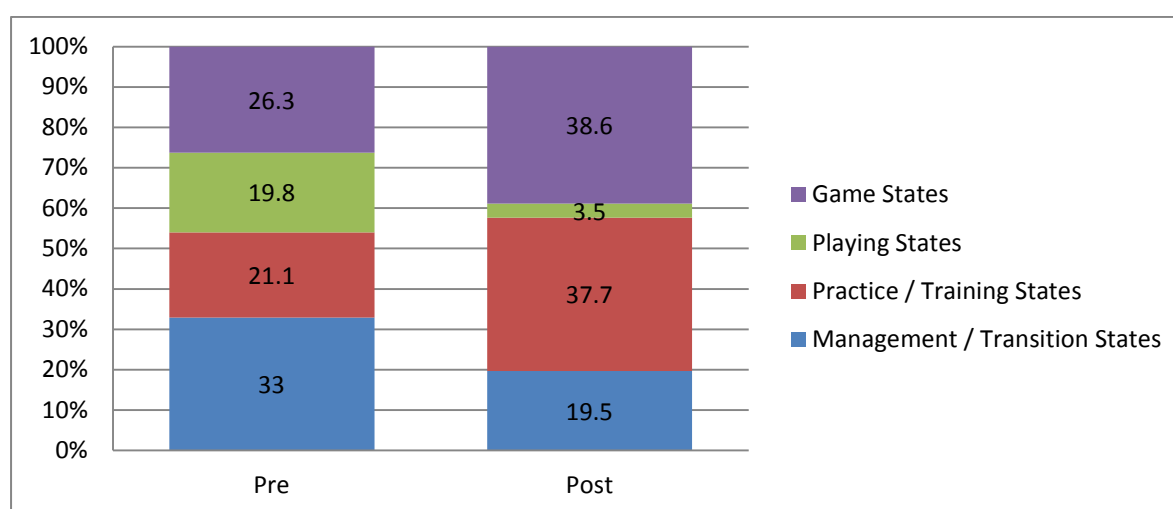
That's that [Tutor 1] comment, when he had a pop at me – I'd done my session that he'd seen, and I'd had in my head that I wanted observation groups because at that stage I thought, those visual learners could stand back, watch it, then step in. He didn't like that, he felt that the best way of them learning was by doing it, and that they'd be able to observe it from within the session, which I now agree with. (A1,P4)

Accordingly, Rob was inclined to put into practice the tutor's flawed rhetoric that athletes must universally be physically taking part in order to learn, through increased provision of game-centred practices:

The best way they can get feedback is by playing the game. They don't learn that by just looking. The best way footballers learn is by figuring it out, and just give 'em those little chunks...how can you build a part practice around that, that involves everybody? (Tutor 1, August Day 4, A1 Feedback)

Thereby the common but misguided idea that learning is equated exclusively with activity, and that physical or social involvement alone is a sufficient and necessary condition for constructing knowledge, was cultivated (Cushion, 2013). Ironically, game-centred approaches and the overall YAM3 coaching approach are billed as player centred yet their uniform application presents a 'one size fits all' approach to learning deemed universally sufficient, regardless of individual differences (Cushion, 2013). This suggests a reliance on tutors' folk pedagogies with straightforward links to 'toolbox' coaching practices, without enough consideration of the underlying principles of a truly player centred philosophy.

**Figure 6.6. Average percentage time spent in different practice states, coach A1**



Rob adopted these particular modifications to his coaching practice over the intervention period as they fitted well with his biography. Describing the learning processes at work, he expressed a tacit, intuitive feeling whereby certain aspects of the YAM3, compatible with his personal preferences, were easily translated into coaching behaviours:

On a personal level it might help me understand it more and that's why I use it. It seems relevant; it seems to make sense. (A1,P1)

Some other aspects of learning took more time and effort to take hold and translate into practice. Rob used the initial uncertainty, or disjuncture (Jarvis, 2006) common to many YAM3 candidates (see p.116) as a learning opportunity, adapting the new knowledge to integrate it into his biography. Within his relatively solitary coaching role, he was able to achieve this by finding and adapting around 'what works' in his particular club context:

I think my coaching for the first few months after module 3 got totally wobbled and chucked about, and I kind of lost confidence in myself putting stuff across; but with a bit of support from a few people that I know, and just going through it and being determined to get through it I think was able to pull a few bits back together and try stuff. But it's like, you do the course and, or I feel I do the course and I want to be delivering how I've been told to deliver. I'm finding now when I'm doing stuff, that yes I know a bit about module 3 but I've got my B licence stuff in there and it's just bringing all the bits together to find something that works for me. (A1,P2)

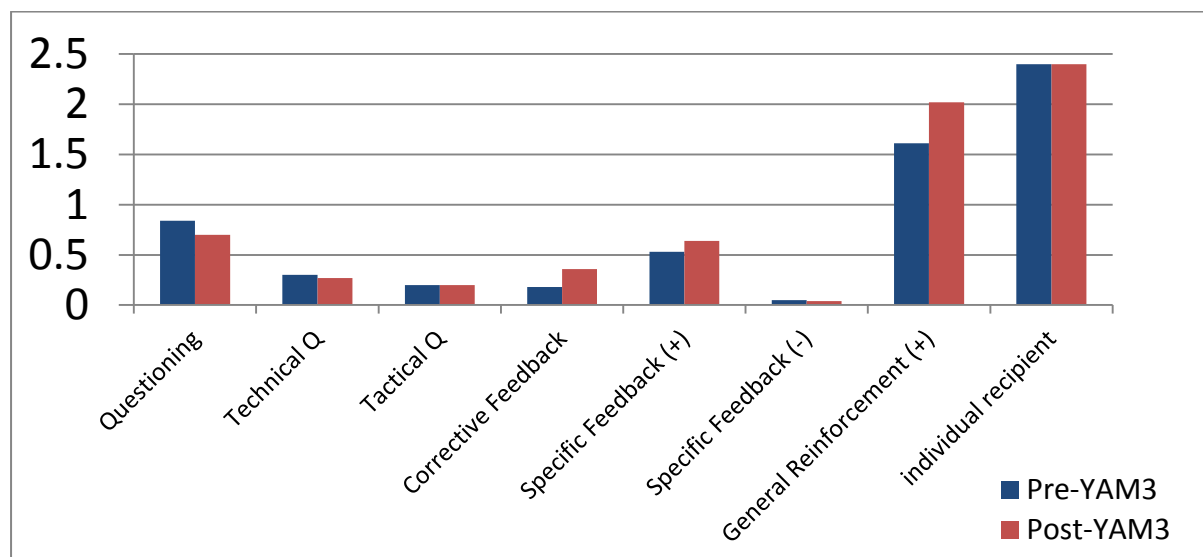
These learning processes will be addressed in more detail in Chapter 7 (p.186). On the whole though, Rob's learning over the intervention period was influenced by his biography and his coaching context, and translated primarily into changes in whole-part-whole practice structures as well as more individually targeted coaching behaviours.

**6.3.1.2 Coach A2.** Coach A2 (pseudonym Blair) showed remarkably similar behavioural (Figure 6.7) and practice state (Figure 6.8) patterns before and after the intervention period. The lack of change in Blair's coaching behaviours was heavily influenced by the contexts he worked in. Blair himself was aware of the relative consistency of his practice, noting that his job as a football development officer with the FA meant he already had knowledge of some of the course content:

I would think that my behaviours and my knowledge before the module 3 are not too dissimilar to what they were after. Only because possibly my exposure to the courses because of the environment that I work in, in terms of

here [The FA]; I sort of knew what was coming on the module 3 before I sat it because I've seen the literature and I've also watched. (A2,P3)

**Figure 6.7. Average rate per minute of YAM3 related behaviours, coach A2**

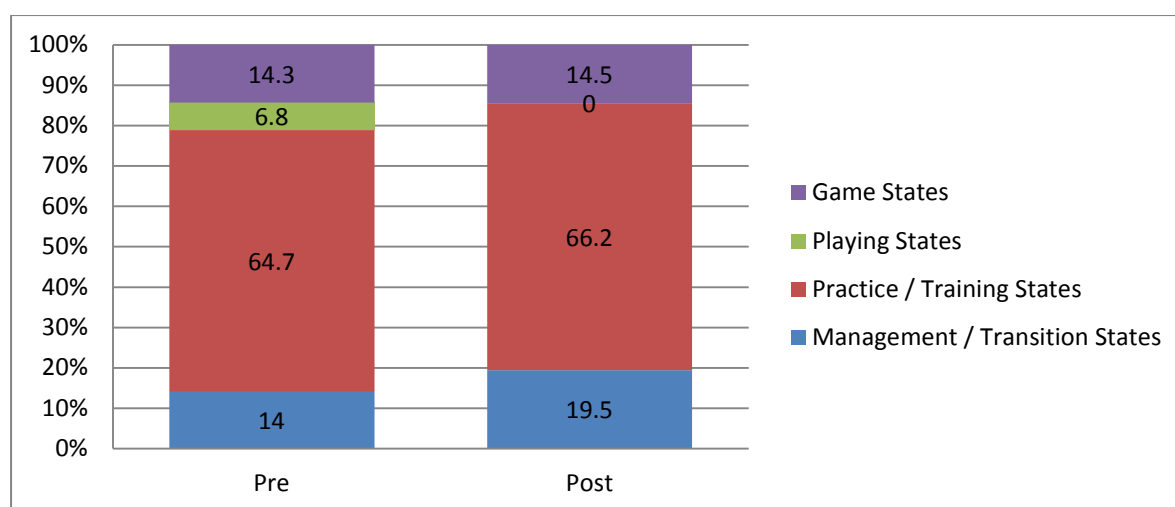


Indeed, Blair did demonstrate high rates of individually directed coaching behaviours, and relied on positive rather than negative feedback across the two time points (Figure 6.7). Nevertheless, his rate of questioning was somewhat lower than the YAM3 group average of 1.27 per minute, and the biggest changes in his behaviours were an average increase of 0.41 instances per minute of general positive reinforcement, as well as 0.18 more instances of corrective feedback per minute. This evidence is suggestive of a slightly more directive response to player mistakes post-intervention, and a general behavioural profile that has some mismatches with the characteristic YAM3 coaching style. Moreover, Figure 6.8 shows that Blair continued to employ a traditional warm-up - technical - skills - game structure in his coaching sessions, at odds with the more game-centred whole-part-whole model. Therefore an epistemological gap between Blair's reported knowledge and his actual practice was evident, reminiscent of previous research by Partington and Cushion (2011) and Harvey and colleagues (2013) which revealed coaches' low self-awareness of their behaviour. Blair's high levels of general positive reinforcement, a behaviour he used almost twice as often as the group mean (see p.166), denotes a surface-level attempt to foster a 'youth module coaching style' without deeper understanding or learning around the underpinning meaning of general reinforcement (Cushion, 2013). In a similar vein, stimulated recall interviews

revealed a cursory use of youth module knowledge and behaviours in the presence of underlying directive, behaviourist ‘theories-in-use’ (Cushion, 2013):

From a module point of view, when I stopped it, don’t know whether I do or not but do I ask him what was in his head, what was he thinking. So I almost get some feedback from him before I tell him what the possible outcomes could be. (A2,P3)

**Figure 6.8. Average percentage time spent in different practice states, coach A2**



Blair’s limited use of reported YAM3 knowledge can be linked to the context in which his coaching practice took place. Unlike Rob, he was well established within his club, where the youth set-up had long-standing customary methods for providing athletes with “a rounded footballing education” (A2,P3). Blair worked with an assistant coach and a group of players he knew well, and he appeared to understand and unequivocally ‘buy in’ to the club culture:

In places like this and other places; it’s tried and tested, they create professional players...this is very much a business. Obviously the academy has got quite a stringent structure on what we’re going to do. (A2,2)

Despite completing his coaching and feedback session within this club setting, with his usual group of players, Blair relied on the structures in place in his club context to dictate his practice. For example, although as “part of the course we talked about how you could – don’t be too frightened to go into a whole practice and then put it back into a part” (A2,P1), he spent on average two thirds of his coaching time on training type practices, always building up his sessions to finish with a game.

This high proportion of training form activities is comparable to other football coaches working in UK centres of excellence (Ford et al., 2010). Therefore although Blair engaged with the YAM3 content, the club culture had an overruling influence on his practice:

The module stuff... I think is very good, but I think a lot of professional clubs will use a syllabus and will use a situation, models, that have worked for them... they'll stick to it and why change it? (A2,P2)

In Blair's case, situating learning in his club context was not powerful enough to alter his coaching behaviour, as he was not challenged to be reflexive about how the YAM3 fitted in to his existing knowledge, practice and beliefs, and when to use different approaches in context. As a consequence, he was free to tacitly assume the appropriateness of his approach, continuing to uncritically accept the club curriculum and 'ways of doing' coaching:

you've got the mainstream which is very much moving chess pieces and you've got the module awards that are very much coaching and getting them to understand random situations...So maybe there's a changeover point and do you do your phases of play, small-sided game, structured to get certain tactical awareness out at early ages? But that's not a question for me to answer really. (A2,P2)

Blair therefore failed to engage with the apparent tension between the YAM3 messages and other approaches as a juncture for reflective learning (c.f. Moon, 2004), instead choosing to continue operating within a surface-level, accepted course of action perceived to work in his coaching context. Again, these processes will be explained further in the next chapter (p.186), but in general, pre-existing biography and context played prominent roles in Blair's learning and the resulting uniformity of his practice over time.

## **6.4 Discussion**

The behavioural data set out in this chapter has overall demonstrated a lack of statistically significant changes in participants' coaching practice across the intervention period. As has been suggested in previous studies of coaching practice

(e.g. Gilbert & Trudel, 1999; Harvey et al., 2010; 2013), participants generally displayed their own trademark coaching patterns that were relatively resistant to change over time. Nevertheless, analysis of secondary coaching behaviour detail revealed one statistically significant interaction effect, which indicated different changes in YAM3 and comparison coaches' question content over time. On average, coaches asked technical questions less frequently after attending the YAM3 than they did beforehand, in turn increasing their proportion of tactical questioning; while those not on the course displayed the opposite pattern of change.

This points to an important impact of the YAM3, whereby changes in candidates' knowledge were reflected in altered behaviours after completing the course; learning that was not evident in coaches who did not attend the course. A further mean behavioural change trend that appeared to reflect changes in knowledge as a result of the YAM3 was an increasing rate of coaching behaviours directed towards individuals. While comparison coaches did not change the direction of their behaviours, those who attended the YAM3 used their knowledge of individuals more often post-course; a useful foundation for the player-centred coaching central to the youth award (Kidman & Lombardo, 2010). Practice states data, meanwhile, showed no change in the types of activities coaches utilised over time. Contrary to the YAM3-advocated emphasis on game-type practices, coaches attending the course continued to spend most of their sessions on technical, skills, functional and physiological training states, adhering to safer, well established and deeply ingrained ways of doing coaching (Harvey et al. 2010). This, combined with other patterns of adjustments in behaviour, such as small increases in YAM3 coaches' rates of corrective reinforcement, follows a more behaviourist-informed coaching 'style' at odds with the youth award coaching philosophy (see Chapter 4, p.93). Coach S1, for example, implemented a whole-part-whole structure in one of his post-course sessions whilst retaining a linear, process-product outlook on learning, building up complexity of skills in the warm-up as the basis for game-play (Harvey et al., 2010):

So we'd get a bit of passing and receiving in there, a lot of interference again no nothing opposed as such straight away but lots of interference so they need to play with the head up. Yeah that just high tempo warm up really and then we got into a game...Probably because a mixture of that's the way I've



done things as a player, that's the way I also do things with adults when I coach on a Saturday. The way I've been taught as well to build things up slowly and progressively (S1,P1)

These results suggest a lack of deep learning (Moon, 2004) around the exact meaning and theoretical underpinnings of certain behaviours. Here the lack of adequate critical exploration as part of the YAM3 learning process constrained meaningful impact, with coaches adopting superficial tips and retaining some deeply ingrained traditional linear, behaviourist assumptions. This 'safe simulation' (Cushion, 2013) complements previous case study research by Harvey et al. (2010), who found that coaches altered their practice after a game-centred training programme, but deep seated practices and coaching identities were resistant to change.

The use of practice states was one area where despite the consistency of their behaviour, participants reported changes in their use of knowledge, revealing some disconnect between knowledge and practice. Coach S3, for example, reported learning about the use of game-type practice states on the YAM3, but was not able to bridge the divide between theory and practice, displaying no use of small-sided or full-sided games post intervention:

I think the module three also has – it's got a lot about, it's playing it through the game so it's more realistic, but trying to pick the appropriate times, when do you use a repetition practice when it's needed, when to use a drill or an exercise, and then when do you still use your small sided stuff? (S3,P1)

This evidence suggests that candidates were not supported to understand how they could apply YAM3 knowledge alongside existing practice, appreciating the value of and flexibly choosing from different approaches as a 'connoisseur' of coaching (Eisner, 1985). The 'gold standard' delivery, that was "sold as if this is the only way, a new way" led to "problems when you come back to your club" (S3,P1). Likewise, M3 exemplified this dualistic view of the YAM3 content:

When you actually try and start putting it into practice, it's difficult to know what's right and wrong. You try these things where it's difficult to know if

they're actually benefitting the players. So I found it quite hard, especially designing practices, I found quite hard. (M3,P)

In the same vein, case studies incorporating supporting stimulated recall interview data further emphasised that translating the new knowledge to coaching behaviours in context was something coaches struggled with, limiting the impact of the YAM3 on practice. A closer look at two case-study coaches' behaviours over time and the learning behind these revealed that the YAM3 had a different impact on each coach's practice. The distinctions between individual coaches' learning depended on their personal starting points and contexts, illustrating the importance of biography in learning. Similar to much coaching research (e.g., Cushion & Jones, 2006; D'Arripe-Longueville et al., 2001; Jones, 1997; Partington & Cushion, 2012; Potrac et al., 2012; Saury & Durand, 1998), specific situations and contexts were found to be key drivers of coaches' practice, with behaviour often underpinned by coach-centred concerns and tensions, rather than the player-centred pedagogical principles espoused by the YAM3 (Partington & Cushion, 2012). Even situating the coaching practice and feedback aspect of the YAM3 within Blair's working context was not enough to overcome these issues, suggesting that the idealised delivery of the initial course content, coupled with a lack of acknowledgement of and open, critical discussion around such contextual constraints, further hampered impact.

The results also highlight the importance of exploiting mixed methods to enable longitudinal monitoring of coaches' thinking and behaviours, which unlike the flawed self-reports of learning prevalent in the coaching literature (see Literature Review, p.23), can illuminate the unseen reasoning behind coaches' behaviours and provide an index of change. Therefore, although the lack of statistically significant differences in coaching behaviours over time and between the groups of coaches was potentially biased by a lack of statistical power with restricted sample sizes, the small number of participants facilitated indispensable qualitative exploration of interpretations and cognitive processes behind the behavioural data, in line with the recommendations of several scholars (e.g. Ford et al., 2010; Harvey et al., 2010; Potrac et al., 2002; Partington & Cushion, 2011; 2012; Smith & Cushion, 2006).

## **6.5 Summary**

This chapter has indicated a minimal impact of learning on candidates' coaching behaviour and practice activities. The data revealed a general reliance on well-established patterns of coaching, although coaches who attended the YAM3 did demonstrate altered question content and individually-directed coaching behaviours; changes in practice not apparent in the comparison group. Impact was limited by certain aspects of the YAM3 course delivery, but also by candidates' existing knowledge and considerable contextual pressures. The mechanisms through which these latter factors influenced practice and knowledge are explored further in the next chapter.

## **Chapter 7: Impact**

### **What works in coach learning, and why?**

#### **Introduction**

A significant feature of the research in this case that sets it apart from much of the literature in this area (e.g. Cassidy et al., 2006; McCullick et al., 2005; Piggott, 2012) is its consideration of the impact of learning experiences on coaches, alongside wider biographical and contextual influences. This chapter looks in more detail at the reasons underlying the outcomes and builds on the previous chapters (see pp. 90, 125 and 156), which reported coaches' learning experiences on a formal course, and changes in their knowledge and behaviours. The chapter addresses the key question of how coaches' existing experiences, knowledge and contextual factors influence their learning. To adopt Coldwell and Simkins' (2001) terminology (p.8), I will examine the antecedents and moderating factors that influence the consequences of learning experiences, helping to explain why apparently similar activities like the YAM3 result in different learning or non-learning for different individuals. In so doing, this chapter ties together the preceding discussions to understand them as a whole, culminating in an integrated, holistic perspective on coach learning.

Keeping a central focus on 'what works' and why in coach learning, the first part of the chapter provides a grounded theory of the cognitive filter process referred to by several coaching scholars including Cushion and colleagues (2003) (see p.37), whereby coaches' existing biography (experiences, knowledge, beliefs and practice) forms a screen through which all future events will pass. The substantive grounded theory, built up from semi-structured and practice-linked stimulated recall interview data from all of the coaches in this study (N = 25), explains the mechanisms involved in this learning process. (For more detail on participants and the grounded theory methodology adopted, see p.48). The chapter goes on to discuss these findings with reference to various explanatory models of learning, situating the current study within the context of existing coaching and learning literature and demonstrating how the research adds to this body of work.

## 7.1 The 'Filter' Process

The following model of the process of coach learning (Nelson et al., 2006) represents the deepest layer of explanation in this thesis. Figure 7.1 presents in diagrammatical form a grounded theory of the interactions and relationships between themes in the interview data, which is, as in previous chapters, elaborated on using contextualised verbatim text examples. The learning filter process (Figure 7.1) represents coaches' accounts of how they approach and learn from different experiences. Nevertheless, although these coaches and their contexts are all unique, they and their learning also share enough commonalities with other coaches to ensure that we can learn from them (Armour & Yelling, 2007); in other words, "there is a sameness about our uniqueness" (Cushion & Lyle, 2010, p.10). The following discussion will highlight the 'commonality' of several aspects of the process to other studies in coaching and learning, suggesting wider relevance to other coaches in similar learning situations (Holt et al., 2010) (See p.83 for further discussion of generalisability).

Actions, conditions and consequences are shown in boxes, while arrows represent the links between these, depicting directional processes. Although existing research has argued that knowledge and practice are closely intertwined (e.g. Cushion et al., 2003; Lyle, 2010; Schempp et al., 2006), through the model, this research is the first to evidence the workings of this in coaching. Knowledge and practice, as well as beliefs about coaching and 'what works', are shown as framing the entire phenomenon; their different elements playing roles in all stages of the learning process. The model therefore adopts the characteristic individual focus of cognitive behavioural approaches, but places the individual as an active agent in the process, which takes place in interaction with others in wider contexts. Learning scholars such as Vygotsky (1978), Mezirow (2009) and Jarvis (2009) adopt a similar perspective, which has been endorsed in the coaching literature (e.g. Jones, Edwards & Viotto Filho, 2014), yet only recently applied, utilising "complex-aware rhetoric" (Jones et al., 2014, p.2) in terms of a lack of appreciation for how coaches' changing actions are actually played out in context (e.g. Deek et al., 2013; Leduc et al., 2012).

The multi-level approach taken here is epitomised by two of the central elements within figure 7.1 that make up a double-loop filter process. The coach's knowledge, beliefs and practice at the individual level precedes a secondary level contextual filter. The elements of any learning experience engaged in by the coach must therefore pass through these two levels before new knowledge can be translated into practice and 'tried out', for potential full integration within the coach's biography. Thus new concepts move through the process from beliefs and knowledge towards practice. In addition, reflective processes also have a role in the adaptation of constructed knowledge. A significant theme throughout, often a key driver in adult learning (e.g. Knowles, 1980) is the expressed pragmatic desire for relevant, practical knowledge that 'works' and leads to enhanced coaching ability (c.f. Nelson et al., 2012). In the words of coach M6, "until you get back and work with your players, that's when it sort of clicks". Each aspect of the model will now be discussed in turn.



**7.1.1 Individual level filter.** The first key aspect of the process is that coaches approached and understood learning experiences through the lens of their existing beliefs, knowledge and coaching practice; in other words, their biography acted as a continuous influence on their perspective (Cushion et al., 2003; Jarvis, 2006; Leduc et al., 2012). Approaching any type of learning experience in its entirety, coaches perceived a number of different aspects or “bits and pieces” (M5,P) which passed through this cognitive filter to be either discarded or adopted. The YAM3, for example, fits into Nelson et al.’s (2006) conceptualisation as a formal learning situation. Nonetheless, candidates reported “picking up ideas” (M2,P) from a variety of occurrences ranging in formality within the course, including classroom sessions, tutor feedback, giving peer feedback, conversations, watching other coaches, and taking part in practical sessions as players. For example, coach M5 reported informally learning from others on the YAM3:

There were a few ideas from other coaches that I thought ‘that’s quite good’...It’s always just the odd little idea that somebody’s said, or the way they phrase something, just little bits that are added on really, rather than anything major. (M5,P)

Wider learning experiences were therefore broken down to focus on smaller elements; the various ideas, ‘bits’ of information, or specifically, ‘chunks’ of knowledge available in said experiences. This is equivalent to the idea of knowledge concepts set out by Entwistle et al. (2000) and referred to in coaching by Abraham and colleagues (2006). Often encountered through formal education, concepts have a shared rather than personal meaning (Entwistle & Peterson, 2004), characterised by specific procedural knowledge, and underpinned by associated declarative knowledge (Abraham et al., 2006). As the following sections will illustrate, an initial cognitive filter process took place at the individual level, with coaches reporting the identification of new knowledge concepts as matching, mismatching, or fitting in with their personal existing knowledge, beliefs and practice. Each of these alternatives had different consequences for actions further down the process chain, and therefore for subsequent implementation and behaviour.

**7.1.1.1 Matching concepts.** Coach M6 explained how a coaching strategy advocated on the YAM3 matched his existing practice and preferences, leading to



increased use of the method and reinforcement of practice:

It was coaching within the flow of the game, and that's very much what I do now. I very rarely stop it, but bringing them in and talking to them, I like that idea. I've done it before but not to the scale that this is asking you to do. Just reinforcing what I've been doing. When you work with the individual player rather than stopping everyone, I like to think I do that, but I shall make sure that I'll do a lot more of that, and it's just reinforcing more my work up to as yet. (M6,1)

When a certain 'bit' of knowledge from a learning situation had already been learnt by a coach, the concept closely matched that coach's existing cognitive structures and therefore served to confirm, reinforce and add "a bit of weight to" (S3,P1) that area of knowledge, making it more readily available for use in practice. From a behaviourist point of view, reinforcement of certain practices led simply to outputs in the form of continued or increased use of such behaviours (Tusting & Barton, 2003). Moon (2004) referred to this process as non-reflective learning or assimilation of congruent ideas to individuals' cognitive structures. Ideas are slotted together on the basis of relatively superficial similarity, without any meaningful cognitive processes or changes in understanding (Moon, 2001). Some coaches experienced an accompanying boost in coaching efficacy when such reinforcement occurred. J3, for instance, said "That [YAM3] course helped, a lot of things in it rang true with me ... a lot of it helped me to be happier with where I'm at".

**7.1.1.2 Mismatching concepts.** In contrast, certain ideas that did not match, and contradicted the coach's existing knowledge, practice and beliefs were 'filtered out' and quite swiftly rejected, for example in the following informal situation of learning from other coaches:

For me, I look at other coaches and I think, is that something that I think is good that should bring into my sessions? And if it is then I'll use it and then you kind of dismiss the bits you think, actually I wouldn't do that. (A2,P3)

Therefore, coaches' knowledge, gained from previous experiences, played an important role in the rejection of new knowledge concepts. More specifically, coach S1 described how some of the content on the YAM3 contradicted his experience of

‘what works’, meaning he rejected the new knowledge and adhered to his existing practices. This coach perceived a mismatch between his knowledge of practices that have worked in the past - a multi-goal practice he employed to address the topic of switching play - and the YAM3 learning outcome that all practices should be realistic to the game of football, with one goal for each team to score in:

You know when they said it’s got to be realistic to the game... I get that and you know I’m fine with that ... but if your aim is to switch the play from one side of the pitch to another do those [additional] goals then encourage your team to do that? In my opinion yeah they do even though that it’s not realistic to the game cause you’re getting goals out there ... For instance I’ve had one again if you go back to what you’ve done that works for you – say you’ve got blues and reds; the blues could score in either goal; all the reds have got to do is when the ball get it back into the coach and the game starts again... and it works, it gets them opening their body up, dragging the ball back playing out and then switch the play from one flank to the other. But in the game, they play the game shooting into the two goals and is it realistic to the game? (laughs) no, because you don’t score in both goals during the game. Do you get out what I wanted to get out? Yeah they switched the play lots of times, so. (S1, P1)

As a result, S1 rejected the contradictory new ideas without trying them in practice; instead continuing to use what he knew would work:

Well it’s probably stuff that I didn’t agree with. Which would probably be that’s the stumbling block before instead of actually thinking, Oh I don’t think it’ll work but we’ll give it a go. You do tend to stick to what you know (S1,P1).

This situation, whereby the new material of learning was in conflict with the learner’s network of knowledge, experiences and beliefs, has been referred to as cognitive dissonance (Moon, 2004) or disjuncture (Jarvis, 2009) in the learning literature. While disjuncture is portrayed as a moment of potential for learning (Jarvis, 2009), coaches in this study simply rejected discordant ideas and reverted back to what had previously worked to maintain accordance or harmony in their biography (Jarvis, 2009). The process of picking out ideas that fit into beliefs and collecting evidence to confirm pre-existing knowledge, meanwhile rejecting concepts that are

more challenging, has been labelled 'safe simulation' and is relatively commonly reported in the literature (e.g. Abraham et al., 2006; Chesterfield et al., 2010; Cushion, 2013; Cushion et al., 2003) (see also Chapter 6, p.183). This approach can enable practitioners to adopt seemingly novel aspects of learning experiences (e.g. the whole-part-whole of the YAM3) while preserving their underlying assumptions about coaching and norms of practice (Light & Robert, 2010). In this way, the new material becomes fragmented and mutated, then transmitted along with traditional norms and folk pedagogies as a 'shared repertoire', through coaching cultures and generations (Piggott, 2013). New and more innovative coaching knowledge is therefore in danger of becoming 'washed out' (Cushion et al., 2003). Another significant issue with this surface learning approach is the potential for rejecting or disregarding information that could otherwise be highly valuable. Thus the status quo is maintained, coaches continue to practice in 'tried and tested' ways, and coaching itself fails to progress. Some potential ways around this situation are discussed later in the chapter.

**7.1.1.3 Concepts that 'fit'.** If the content of learning experiences did not either contradict or completely match coaches' existing knowledge, practice and beliefs, a third alternative was that some of the ideas were new to the coach, yet would fit in with their biography. Participants reported that they liked, agreed with and "picked up" (M2,P) these particular concepts:

So you know, you watch all the coaching sessions, you pick the bits that you think work and you like, and you put them together in your own session and it just builds...Like the coach that I worked with last season I've mentioned, some of the ideas that he had really rubbed off on me and I put them in 'cause...you know, I like them. (S1,1)

On encountering any learning experience, therefore, coaches filtered different ideas, taking 'bits' of knowledge that fitted in to use in their coaching practice; as coach M1 said of the YAM3, "I felt there was some, three or four good sessions that you could take from it, adjust and use". Knowledge that contradicted biography was rejected in favour of "sticking to what you know" (S1,P1), while anything that matched existing knowledge, beliefs and practice (i.e. had been learned previously) was employed more often and reinforced. Biography thereby acted as a "frame of

reference" (Mezirow, 2009) which had "a guidance function" for the noticing and perception of new learning (Moon, 2001, p.69). Coaches made sense of structured, context-devoid concepts by looking for links, similarities and conflicts with their own previous experiences, resulting in personal and therefore variable understandings (Abraham et al., 2006; Entwistle & Peterson, 2004).

**7.1.2 Contextual level filter.** Nevertheless, the data suggested that the learning process was not quite as straightforward as simply taking what fits and using it in practice. Coaches in this study reported agreeing with certain aspects of learning experiences that fitted in with their biography, but not implementing this learning due to the context in which they were working. In this respect, contextual considerations acted as a second-level filter loop, over and above biography. Coaching context overruled any learning that fitted in with knowledge, beliefs and practice, as coach M6 describes in relation to his learning of the whole-part-whole practice structure from the YAM3:

I knew about it, cos I've read a couple of books, I've never coached like that, but when I went back to the club, their first thing was – 'what the fucking hell's that all about?', and that's, that's an area where, 2 or 3 of the coaches didn't even know what it was! So it's decent, it's okay, but we have a syllabus to work to, it's difficult for me to go whole-part-whole, because I have a, we have a syllabus that we have to stick to. Which is, which is good, we're told what to do. (M6,1)

M6's experiences mirror those of other coaches in the study, in particular case study coach Blair, detailed in Chapter 6 (p.178). Coaches appeared to judge whether concepts would fit with their coaching context based on their belief that it was usable and would work or not. Abraham et al. (2006) explained this process as the internalisation of concepts, which become conceptions as they are applied to a particular context meaningful to the practitioner. A conception is generally organised around beliefs about how it is implemented in the field, therefore forming the basis of meaningful new knowledge in memory; idiosyncratic and applicable to the type of context it was learned in (Entwistle et al., 2000). When recognising a similar situation later on, the associated conceptions are likely to be brought to mind (Entwistle & Peterson, 2004).

**7.1.2.1 Rejection.** In the quotation above, coach M6 stated that he believed the whole-part-whole structure was not usable in his context; “we have a syllabus to work to, it’s difficult for me to go whole-part-whole”. This was informed by his knowledge of the set curriculum and the reactions of the other coaches in the club. Social relationships such as these were an important influence on coaches’ beliefs regarding whether knowledge was usable in context. Coach S3 echoed the tensions felt by several others, including Rob in Chapter 6 (p.175), when describing the “club boss coming out and looking at what you’re doing” as well as the resulting pressure to conform to the boss’ opinions and ‘act and coach a particular way’ (Partington & Cushion, 2013). Meanwhile, coach C1’s knowledge of the context he was working in and specifically the players he was working with came from watching and working with other coaches. Based on this knowledge, C1 believed the coaching method of giving individual challenges to certain players would not work and thus rejected it without trying it in practice, despite agreeing with the idea itself:

I don’t think it’s a bad suggestion, but to say that you should do that with every group I think is unrealistic. I don’t think it would work with this group, others have tried similar things and it’s just not worked... But I could see it working with other groups quite easily, younger groups, the under 11s for instance would probably take to that (C1,P1).

Although this particular coaching strategy had passed through C1’s initial individual-level filter and had then been rejected at the contextual level, C1 remained open to using the strategy in a different context, suggesting the knowledge concept of using individual challenges had fed back to become integrated into his coaching knowledge, but not his practice as a conception. Consistent with the findings outlined in Chapter 6 (e.g., p.161), therefore, the data suggests a clear distinction between knowledge and behaviour, with context a moderating factor on whether learning could bridge this gap.

**7.1.2.2 Adaptation.** Instead of rejecting content that they felt would not work in their specific coaching context, some coaches talked about adapting conceptions so that they would fit with “what works for your team, or your set of players” or to “suit my topic” (C2,3), “dependant on again knowing the player and understanding how they learn” (A2,P3). Despite coach C2’s assertion that she would “either adjust

that or do something that's worked in the past" this was by no means a straightforward deliberate decision, between rejection and adaptation. Instead, the data suggested a course of action resting on the individual's openness of mindset and reflection skills, as well as the nature of the content itself and existing knowledge of their work context, players and pedagogy:

I learnt just by, when you're in the game or watching the game and you're thinking, um I wonder if that could work with my Sunday afternoon group, probably not, but if I - so it was kind of learning through your thought process; not learning through necessarily the coaches, the tutors coaching you through it. But I think all the time when you're in those sessions, or watching those sessions you're constantly, well I was constantly thinking how would I use this in my group at the moment, or how could I adapt that, so you're trying to get ideas for your next sort of week's sessions if nothing else. I think there's some stuff that's just not relevant for some age groups, but other stuff you think, well it's not but it could be adapted so it could work. (M1,P)

At this contextual filter level, coaches' understanding of new conceptions was determined by their beliefs rather than knowledge of whether it does actually work; in the words of C3, "I don't know because I've not tried it". Therefore the 'reject or adapt' mechanism could also occur after the next, more practical stage in the learning process, which will be explored in further detail in the following section.

**7.1.2.3 Seeing is believing.** One way that knowledge could arrive immediately at the contextual level filter, bypassing individual biography, was if, in their interactions with others, coaches could see relevant material working, or they could see the benefits of using the new knowledge:

Yeah, some things that I've binned or forgotten about... I think if I can see – someone comes to me with an idea and I can see it working and it being relevant for the player and enjoyable, I can get my head round that and think right well let's give that a go and see if it works. (A1,2)

Convincing coaches of the beneficial outcomes of using knowledge, and that it is usable in their everyday context, was therefore one way to circumvent the filter's barriers to learning. In the words of one of Nelson et al.'s (2012) coaching

practitioners, “seeing is believing” (p.210). The results corroborate the idea that individuals make sense of concepts according to their beliefs regarding how they can be used. Other research has similarly revealed that coaches felt watching theoretical concepts applied to practical scenarios assisted the development of praxis (Nelson et al., 2012), that is, the progressive integration of knowledge, theory and practice (Cushion et al., 2003). This corresponds to claims by Armour and Yelling (2004) and Guskey (2002) in educational CPD research that “significant change in teachers’ attitudes and beliefs occurs primarily after they gain evidence of improvements in student learning” (p383).

**7.1.3 From knowledge to practice.** Once coaches believed that the new knowledge would work in context, either as it is or with some adaptation, the next step in the process was to experiment with using it in practice; as C2 remarked in relation to encountering new practices, “that works, I’ll try it”. On trying conceptions out, coaches retained their focus on ‘what works’, assessing whether the new idea was indeed successful in context:

It’s almost an experiment to see does it actually work if I coach this way?  
Does that work with the players, does it work with me, do I feel comfortable doing that? (C1,P1)

Such engagement in authentic social practice to ‘try out’ new conceptions follows Vygotsky’s (1978) ideas. Coaches described this as experiential, trial and error learning, regardless of the original source of the ideas being tested. As indicated by C1’s questioning of himself, reflection played a role in the process of judging whether the idea works or not. For some coaches, however, this was a much more tacit, uncritical process:

Trial and error, trust in myself, seeing what’s worked and what hasn’t worked, trust me a lot of it hasn’t worked, but that’s what experience is, experience is mistakes. I trust, I know if it feels right. I’m very much an instinctive coach, I know if it’s not quite right or if I’m not getting through to the player, I just know. (M6,1)

Coach M6 hints at using his existing tacit coaching knowledge in this judgement, emphasising that his biography was inescapably bound up within the

whole learning and filter process. Accurately mirroring the way coaches assessed whether conceptions were relevant to their context and adapted them using pre-existing knowledge before integrating with their biography, Eraut (2000) explains how new codified knowledge concepts are applied for practical use in professional work. He asserts that the “transfer” (p.133) process involves 1) understanding the situation, which itself requires appropriate use of some prior knowledge; 2) recognising that the concept or idea is relevant; 3) changing it into a form appropriate for the situation, and 4) integrating that knowledge with other knowledge in the planning and implementation of action (Eraut, 2000). With the addition of the ‘try out’ reflective loop’ in the current model, each particular conception became available for use in the same type of situation it was implemented in; its meaning for the knower embedded in a cluster of experiences of using it (Eraut, 2000). The coach’s mental model of the conception therefore includes typically tacit knowledge of how to use that conception in practical situations (Eraut, 2000).

A small number of the coaches (N = 4) including Rob in Chapter 6 (p.174), experienced applying their new knowledge as a problematic process, finding it “quite upsetting” “when you really don’t know what works” (A1,P1):

I think the idea is really good, and the way they structured it is really good. But when you actually try and start putting it into practice, it’s difficult to know what’s right and wrong. You try these things where it’s difficult to know if they’re actually benefitting the players. (M3,P)

Eraut’s (2000) ideas begin to illuminate why such coaches experienced difficulty bridging the gap between the codified theoretical knowledge concepts presented on the YAM3, and the implementation of associated conceptions in their practice, using tacit procedural knowledge. Indeed, as predicted by Cushion et al. (2003), the YAM3 had more of an impact on theoretical knowledge than coaching practice, as evidenced by the previous two chapters. This divide can be linked to Argyris and Schön’s (1974) espoused theories and theories-in-use. While espoused theories provide explicit, idealised explanations of the world, theories-in-use are experientially developed and refer to actions in context (Eraut, 2000). The one-size-fits-all, decontextualised formal course delivery failed to address the processes of candidates’ linkage to their previous knowledge and transfer described above,



therefore generating limited power to develop progressively integration of theory and practice (Cushion et al., 2003). Instead, coaches were left to make the links between espoused theories and implementation themselves, resulting in 'learning' from the course appearing uneven. Eraut (2000) suggests that in such situations, the meaning of a conception is linked to the most readily available beliefs about or experiences of implementing it; more specifically, the most frequently or recently used, or crucially "those which made a critical impact" (p.133). In the current research, as illustrated powerfully by the data and through the model, this translates to coaches' emphasis on 'what works' in practice.

**7.1.3.1 Reflective feedback loop.** Judgements of 'what works', and consequent rejections or adaptations of knowledge conceptions, were based on a feedback loop process. When coaches perceived that the new learning did not work in practice having tried it out, they progressed to either reject it or enter into a cycle of continuous adaptation and experimentation, remarkably similar to Schön's (1987) 'reflective conversation':

You know, whatever you think would be the best way to set it up. Then if it doesn't work, you know, evaluate and the next time you do it, you know, that didn't work so we'll try it a different way this time. If it did work, do the same, do the same way again. (S2,P1)

This repeating spiral, centred on active experimentation (Kolb, 1984), was portrayed in coaching by Gilbert and Trudel (2001); showing experiential learning as developing and refining coaching strategies through a sub-loop of strategy generation, experimentation, then evaluation (Gilbert & Trudel, 2001, see also p.27). Experimentation and evaluation consisted of a 'virtual world' or 'real-world' trial of a coaching strategy; equivalent to the 'will it work in context?' and 'try out – does it work?' stages in the present model. Both Gilbert and Trudel's (2001) and the current coaches described the feedback loop as "just instinct, I suppose" (S2,P1), displaying no overt, declarative decision making. Any adaptations to learned knowledge were tried out, then rejected or adapted several times over in a cycle mechanism, as C2 describes: "So I might have to look at that again... I might have to change the numbers...do it that way, see if that works". Through "basically reflecting on what things I think work" (C4), or, often, a more implicit process, coaches perceived that

something did work in practice when they “found it useful”, when it “had a positive impact” (C3,1) or “if it would be of benefit to do it again” (C1,1). In other words, if the outcome of using the new knowledge in context was satisfactory to the coach, they adopted it as part of their “tried and tested” practice repertoire for sustained use, integrating it into their coaching biography:

You kind of naturally take away the bits that you, that work for you, and then you bring in some of your other coaching that you’ve perhaps learned before or you’ve learned along the way after the course. So I think it’s kind of for me, a natural thing. (A2,P3)

In this way, coaches were seen to constantly work through a cycle of constructing and linking new knowledge, which was tightly bound to context-specific practice, into their existing knowledge structures. In line with a constructivist perspective, learning is seen as “holistic adaptation” (Kolb, 1984, p.31) to experiences in the social and physical world. Newly updated biography in turn worked as a filter for the next learning experience they engaged in, meaning that the coach’s knowledge, beliefs and practice were in a constantly dynamic state of flux. The continuous process (rather than outcome) of learning (Kolb, 1984), is therefore ‘lifelong’ as biography continues to alter, creating a constantly changing person (Jarvis, 2009).

**7.1.3.2 Moderating factors.** The choice between rejecting and adapting conceptions, as part of the reflective feedback loop, was identified as a significant feature of the learning process. Indeed, it is important to note that deliberate reflective practice did not necessarily ‘just happen’ (Moon, 2004). Rather than being aware of a clear choice between rejecting and adapting conceptions, coaches referred to their own personal openness, and contextual factors when discussing the process. Coach S3, for instance, explained how he had developed new knowledge conceptions from other coaches through the filter process and trying things out, with his openness and the context determining whether he would adapt or reject and revert to previously learned knowledge and practices:

Just experience and all the coaches and watching different coaches, picking up things and then just trying it out to see if it works. Sometimes things work, sometimes they don’t, but once you try it then you’re sort of tweaking things

here and there. Sort of if you don't try it you won't know. It's one of those, and that's one of the things I do quite a bit. Certainly this is my second season at the club. The first season I probably stuck more to – what would you say? Not basics but ... tried and tested stuff. (S3,P1)

Gilbert and Trudel (2001) similarly found that coaches' selection of options was influenced by access to peers, stage of learning, issue characteristics and coaching environment; that is, the influence of parents and league administrators. In the current model however, context was seen to encompass a broader range of factors that once again took precedence over other moderators. For example, C4 described an individual preference for "constantly trying to adapt and change", which was overruled by context in his eventual choice to reject certain practices:

I've never used that since, and it's probably 'cause I wasn't happy with it at the time, you know, where I felt they were too young to do it (C4).

Schön's ideas on the impact of context are also relevant for further clarifying why some coaches simply rejected knowledge that were perceived not to work in practice, while others adapted conceptions for further experimentation. He stated that reflection is most likely to be found in an environment in which there is "a high priority on flexible procedures, differentiated responses, qualitative appreciation of complex processes, and decentralized responsibility for judgement and action" (Schön, 1983, p338). The coaching contexts investigated in this study varied in terms of these characteristics. Coach C4, for instance, was in charge of his own age-group of players, working at a youth academy where he could meet and discuss practice issues with other coaches, often coming up with new ideas and adapted sessions as a result. This excerpt describes a colleague and mentor's intellectual approach to coaching and development:

The bloke I went to work with, in that first year, he's now the 12 to 16s coach and he's had like 30 years in education as a school teacher and he's one of these people who is always reading, always wants to improve his delivery and he's quite modern in his beliefs and, you know, his understanding (C4,1)

He explained how this environment enhanced his learning in the form of adopting a new strategy to implement the theoretical concepts of player engagement and tactical development:

What I do all the time really is in the games get them to make formations and pick teams so they're actually engaged in the actual tactical side of it a bit more...So that was just a gradual thing that we developed through the club and just as coaches talking and discussing and reflecting really. (C4,1)

Coach A2, in contrast, was afforded very little flexibility or responsibility for judgement and action in his club context, working within a well-established structure in a pressured climate of accountability for demonstrating 'correct' coaching:

You're always conscious of your own peers or other coaches who are around watching and thinking – are you giving the right information and are you doing it, are you going in right? Are you doing it right? And also you've got parents there, they've seen other coaches working with the players, they may have an opinion on you. You've got your superiors there who might have an opinion on what you're doing. Because this is a paid environment that you're in, there's also an added pressure on the coach to ensure that what he's doing is right. (A2,2)

Deterred from experimenting with different ideas outside the curriculum and the normative ways of doing coaching, A2 failed to change his coaching behaviour and practice, opting for 'safe simulation' (Cushion, 2013) despite undergoing part of his YAM3 within this own club setting (see chapter 6, p.178). Since coaching is strongly associated with maximising performance success and winning, with coaches accountable for and dependent on achievement of such outcomes, it is perhaps understandable that they "are reluctant to take risks or depart too far from the status quo of accepted practice" (Light & Robert, 2010, p.113). Coaches' reflective cycles of learning are bound up with coaching practice that often takes place in contexts subject to power relationships and deeply held anti-intellectual beliefs (Abraham et al., 2009; Thompson, Potrac & Jones, 2013). Consequently, while learning situated in everyday practice is essential, coaching environments are not often conducive to generating new ideas, supporting active experimentation, or

facilitating transfer from knowledge to implementation (Abraham et al., 2009; Light & Robert, 2010).

These contexts combined with personal openness to impinge on coaches' reflective feedback cycles and overall 'quality' of learning. Individual subscription to 'right' and 'wrong' ways of coaching underpinned by legitimate knowledge provided by authority, such as club bosses, follows a dualistic assumption about knowledge (Entwistle & Peterson, 2004). Individuals holding these more absolute, closed ideas about knowledge tend to also approach learning as simple reproduction of the accepted norm (Entwistle & Peterson, 2004; Piggott, 2011). As people begin to recognise knowledge as provisional and relative, evidence is used to reason among alternatives (Entwistle & Peterson, 2004); in other words, experimenting with and critically evaluating new conceptions in practice based on 'what works'. Coach C1 provides an example of this openness:

"I've got to find out somehow, I've got to try at some point, so why not now? Some people wouldn't want to, and some people would probably be scared to as well, because you do have to take a lot of criticism, with how you coach, for it. That'll be from people who don't understand or have set views on how football should be coached. (C1,P1)

Abraham and colleagues (2009) compared such practitioners to chefs who use in-depth knowledge of ingredients to develop new ideas and orchestrate successful outcomes, as opposed to 'cooks' who live by other peoples' tried and tested recipes as safe simulators (Cushion, 2013). In the field of educational evaluation, meanwhile, Eisner (1985) argued that the 'art' of education (or coaching) and its many complex processes can be knowledgeably appreciated through 'connoisseurship', a critical appreciation that illuminates a concept's qualities and allows an appraisal of its value, facilitating deeper understanding. Alongside an appreciation of the relative nature of coaching knowledge and growing 'connoisseurship', learning is said to become more reliant on individuals' efforts to fully understand ideas for themselves, by relating them to previous knowledge and experiences, thereby seeing things in a different light (Entwistle & Peterson, 2004). Thus the idea of meaningful, transformative learning (Mezirow, 2009) rests on the open-minded transformation and implementation of conceptions in practice, through

reflective linkage with existing knowledge (Moon, 2001), as displayed in the current model.

**7.1.3.3 Enhancing meaningful learning.** Leduc et al. (2012) also found that deep learning, indicated by whether coaches intended to change or preserve their coaching practice, relied on reflection following formal education modules. Similar to the coaches investigated here, their participants reported planning to change their practice by reflecting on the course content in relation to their current coaching, making adaptations where deemed necessary. A number of social factors seem able to support this process. For example, understanding was reported to 'click' into place when educators facilitated reflection on how to apply what they had learned, akin to the coaches in this study who benefitted from tutor and peer feedback (see also p.114):

I'm a lot more positive this time, this weekend [practical and feedback sessions], than I was after the first weekend, there's no doubts about that. There's been a penny drop I think, this weekend, which I didn't get from the first one. (M7,P)

On the other hand, those that had not yet changed their practice reported difficulties implementing their new knowledge, desiring further learning in the form of reflection and mentoring (Leduc et al., 2012). In line with this, case study coach Rob described how he used other coaches to experiment with what worked for him:

I sounded things off against him and because he knows me well enough to say, oh yeah Rob but did you do this and that kind of mentoring if you like, just a sounding board. I would say that it was kind of those things really that brought it together. (A1,P2)

These excerpts indicate that authentic social practice, guided by significant others (Vygotsky, 1978) can facilitate meaningful learning. For all of the coaches in this study, the stimulated recall interview process itself was a further positive influence along these lines. The method of stimulated recall interviewing, using video clips of coaches' actual practice and carefully examining the thought processes, knowledge, reasoning and learning behind it (Chapter 3, p.67), was highlighted as "really powerful" (A1,P4) and a "good development tool for me"

(S3,P1). Coach S1, for instance, indicated how the video feedback sparked the 'reflective conversation' process:

It's a good indication of what I'm actually doing. There's bits of that I think to myself okay, fair enough that was okay but then like we spoke about there's other times when I might think yes, perhaps I'll do that a little bit differently, shorter or whatever that differently might be. No I think that's pretty valuable actually. (S1,1)

Comparison coaches benefitted from the video reflection technique, which "makes you think a bit more about why you're doing what you're doing" (C2.P3). This learning process may go some way to explain the changes in comparison coaches' practice set out in Chapter 6 (p.156). While the YAM3 attempted to facilitate reflective practice through the plan-do-review framework, there were limitations to its conveyance (See Chapter 4, p.108) and candidates did not report major changes in their knowledge concepts in this area (see Chapter 5, p.142). One vehicle intended to endorse plan-do-review was the associated practical logbook, which included dedicated sections to evaluate coaching sessions along these lines. Coaches explained that using video data to reflect with others was more valuable and practically relevant than the process advocated on the course:

This whole process with you videoing me and you giving me stuff to read, has been really quite eye-opening for me in getting me thinking actually about what I'm doing; probably more so than the book that goes with the Mod 3... What does this mean next? I need to just collect what you're saying, looking at that, what does that mean – this is who I am, this is what I'm about, this is how I do stuff, and then I probably need to think about the results I'm getting, is it really working? Is one and a half questions a minute – are the players really learning, are they developing better? (A1,P4)

Rather than focusing solely on his own interests, the coach above seemed to factor in player-centred concerns and use the video to inform his judgement of what worked. Accordingly, video helped to avoid the risk of coaches unwittingly collecting evidence corresponding to what they believed or expected to see, thus receiving self-confirmation of their actions and espoused theories (Agyris & Schön, 1978). Relying solely on ones' own perception of what works risks closing down

conversations, blunting the knowledge of the discipline, and stifling creativity. All of which, if left unchallenged, produces stagnation and creates a claustrophobic climate of self-referential and self-justifying knowledge structures (Abraham et al., 2006).

Several years ago, Trudel, Gilbert and Tochon (2001) found similar 'unexpected learning', whereby coaching practitioners naturally benefitted from looking at their practice from another perspective. They explained participants' learning through a developing partnership between the researcher and coach, creating a context for shared reflection towards change, much like in the present study. Consequently, they noted the value of video and shared reflection in the construction of coaching knowledge, in particular within educational video study groups comparable to communities of practice (Trudel et al., 2001). The current research provided data to support Trudel et al.'s (2001) claims in the context of youth football coaching, suggesting that "it'd be a useful tool" (C2,P3) for enhancing practically relevant learning. It may be that shared video feedback and reflection facilitate deep learning by bringing tacit mental processes to consciousness and conceptualising practice, then integrating altered communally developed theory into action (Gibert et al., 2001). Indeed, Eraut (2000) has claimed that practitioners' performance could be enhanced by making procedural knowledge, such as the type used in implementing conceptions, more explicit. The "genuine feedback on the outcomes of action" afforded by video methods is crucial in allowing practitioners to step "outside their taken-for-granted world" and close the distance between practical theories-in-use and more abstract espoused theories (Eraut, 2000, p.123). As coach A1 put it, "there's nowhere to hide" (A1,P4). In other words, video methods helped make vital learning processes more explicit, facilitating coaches' judgements of 'what works', as well as making them more aware of their practice in context.

## **7.2 Summary**

Coach C1 sums up the entire process with respect to his learning from two formal education courses, which advocated contrasting coaching methods and approaches to knowledge and practice. He described how at the individual level, ideas that contradicted his previous practice and beliefs were rejected, unless he was persuaded that it would work, in which case he would try it out and adopt it if it works and fits within the specific context. He also demonstrated a move from absolute



views of Youth Module coaching knowledge being 'correct', to a personally reasoned perspective which allowed him to select different knowledges according to their particular benefits in context:

If I already had experience of it not working or some sort of method not working or a certain style maybe, I don't know, then I would perhaps dismiss it pretty quickly. But if it's something that I'd not really thought about before, something that I'd not really considered before, or I've seen, they've given me a demonstration of how it might work and then it has actually worked, then I'd be quite happy to turn round and say, 'Well, okay we'll give it a go,' then maybe, I'd see what it was like. The problem that I had, going in to say, my B Licence course, I'd done my modules between [the B Licence and the previous Level 2]. So going from that way of coaching into the B Licence was difficult, and straight away I had barriers up in terms of the way in that should be coached because I agreed a lot with a lot of the modules...was much more beneficial for me as a coach and the way that I am in my personality. But also the players that I was working with could see benefits in that. Whereas I couldn't see so many benefits in the Level 2 that I've done and perhaps the B Licence...But as it's gone through and I've had demonstrations given to me, of, 'Maybe this'll work,' or, 'That should work,' or – I've opened up a little bit more to it and accept that there are one or two things that that B Licence will give me and will help me with, which is why doing the sessions now, having stepped in and told a lot of the players, 'This is where you need to be; this is what you need to do,' that's off the back of the B Licence and what I've learnt on that or what I've taken away from that. Not just because of practicing for my assessment, but because it actually – it just needs it at the time. (C1,3)

This chapter has presented a grounded theory of coaches' learning processes and made explanatory links to other literature in coaching, learning and professional development. Although "tidy maps of knowledge and learning are usually deceptive" (Eraut, 2000, p.133), the model represents a useful representation of the way this particular group of coaches actively constructed and adapted knowledge for use in socially situated coaching practice, through double-loop individual and contextual-level filters, and 'reflective conversations'. While the framework essentially follows cognitive approaches to learning, it touches on principles from other more

constructivist-informed theories in combination (e.g. Entwistle & Peterson, 2004; Eraut, 2000; Gilbert & Trudel, 2001; Moon, 2001; Schön, 1987). It therefore meets the suggestions of Colley (2003) and Cushion et al (2010) in providing a specific 'coach learning' theory that draws on an eclectic mix of relevant explanatory frameworks.

The results correspond with and add to a number of previous studies, providing empirical evidence to substantiate several discussion-based papers in recognising that coaches see and interpret new situations on the basis of their formative experiences, which continuously influence their perspectives, beliefs and behaviours (e.g. Abraham et al., 2006; Cushion et al., 2003; Leduc et al., 2012; Schempp & Graber, 1992; Werthner & Trudel, 2006; 2009). It is not a novel concept that new ideas or learning experiences are negotiated and not simply accepted by coaches, with their belief systems exerting huge value and power in constructing their coaching practice (Schempp & Graber, 1992). Nevertheless, the design and provision of coach learning opportunities, including the YAM3 (see Chapter 4, p.118), has consistently failed to accommodate this well-established process (Chesterfield et al., 2010; Cushion et al., 2003). Previous coaching literature has also treated the phenomenon at a simplistic level, without attempting to delve into the actions or mechanisms involved, or their links to situated practice (e.g., Trudel et al., 2010). It has until now been supposed that only one layer of filter was at work, contained within the individual; neglecting the influence of other coaches and the wider coaching context. The current data subscribes to the notion that learning is both an individual and a social process (Eraut, 2000; Moon, 2004), indicating that there are two levels of filter at work in a highly practically focused process tied to reflection. These novel results therefore have a number of important evidence-based implications for the provision and enhancement of coaches' learning opportunities. The concluding chapter will address these and summarise the research, and its original contributions, as a whole.

## **Chapter 8: Conclusion, Implications and Recommendations**

### **Introduction**

This research sought to enhance understanding of coaches' learning, the processes that underpin it, and its impact on knowledge and practice. The principle findings and implications are considered in this final chapter, which is comprised of three sections. First, the background to and importance of the topic, as well as the research questions and methodology used to address these are re-established. Second, the main original empirical findings, and the contribution of the study to knowledge in this area, are synthesised by addressing the research questions. Finally, I conclude by considering the implications and recommendations for practice and research.

### **8.1 Research context and questions**

The study took place in the context of contemporary growth in coaching scholarship around the world (Potrac et al., 2013). Scholarly enquiry has established the complexity of coaching and placed importance on its development through formal avenues (Jones et al., 2014; Nelson et al., 2012). However, the existing literature continues to consider coach education a 'low-impact' endeavour, irrelevant to the situated realities of practice and out of touch with how practitioners learn (e.g., Chesterfield et al., 2010; Cushion et al., 2003; Cushion & Nelson, 2012; Jones et al., 2003; see Literature Review, p.20). The current findings tend to support these ideas, although formal education did have some impact on coaches' learning, primarily in terms of knowledge outcomes (see Chapters 5 and 6, pp.125 to 185). In an effort to remedy the problems with coach education, Lyle (2007) argues that research has generated a number of theoretically informed recommendations and idealistic models for coach learning (Nelson et al., 2006). Nevertheless, the range of research information available has generated limited influence on coach education content and methods (Cushion et al., 2010; Trudel & Gilbert, 2006). As well as being disseminated mainly in academic journals distanced from practitioners, coaching research has addressed questions driven by esoteric research agendas (Abraham & Collins, 2011) rather than pertinent practical issues, forming a research-training gap (Trudel & Gilbert, 2006). In addition, the suggestions generated by the literature are

often too broad and thus are not specific or structured enough for implementation (Abraham & Collins, 2011), often being based on empirically flawed, conceptually weak research and speculation (e.g. Vella et al., 2013; see Literature Review p.23). In particular, the 'piecemeal' research assessing coaches' learning exists as a fragmented proliferation of descriptive, cross-sectional, self-report studies divorced from situated action (Cushion & Nelson, 2012; McCullick et al., 2009; Jones et al., 2014; see Literature Review, p.12) and has revealed little of use about the complexity of how coaches learn to coach. Since coaching can be conceptualised as a cognitive endeavour (Côté et al., 1995; Lyle, 2010; Nash & Collins, 2006; Saury & Durand, 1998; see Literature Review p.37), models relating to learning and knowledge may help explain the processes that underpin coaches' use of a complex mix of learning situations. Nevertheless, such approaches often treat learning as a simple, stage-like process, neglecting social and environmental influences and the resulting impacts on situated practice (e.g. Schempp et al., 2006; Wiman et al., 2010; see Literature Review, p.43).

This study therefore aimed to advance the coach learning literature by addressing these limitations, through developing a cognitive-behavioural foundation to address wider influences on learning in a pragmatic, holistic approach. The aim of this study, therefore, was to examine coaches' learning in a more sophisticated, integrated and pragmatic way than has been previously achieved. Such an approach was necessary to address the overarching complexity involved in a seemingly straightforward question; how do coaches learn? The sub-questions of the study that informed this were:

- What impact of learning was evident via changes in coaches' use of coaching knowledge over time?
- What impact of learning was evident via changes in coaching practice over time?
- 'What works' in coach learning; why have changes occurred or not occurred?
  - How does learning relate to the design, delivery and perceptions of a formal learning course (The FA Youth Award Module 3)?
  - How do coaches' existing experiences, knowledge and contextual factors influence learning?

In order to address these research questions, I purposively recruited twenty youth football coaches attending four cohorts of the FA Youth Award Module 3 (YAM3), three tutors staffing these courses, and five 'comparison' coaches. Semi-structured interview, 'think aloud' stimulated recall interview, systematic observation and course observational data were collected longitudinally in three phases, building up in-depth case studies with a small number of coaches. Situated within a pragmatic paradigm, behavioural data was analysed using mixed ANOVAs, while I organised the qualitative data using a post-positivist version of grounded theory methodology (Strauss & Corbin, 1998) (See Methodology, p.75).

## **8.2 Empirical findings**

The following section addresses the thesis' original contribution to knowledge by reference to the research questions. The key findings of this research are synthesised under the heading of each specific area.

- **What impact of learning is evident via changes in participants' use of coaching knowledge over time?**

This study was the first to investigate and compare multiple coaches' knowledge use over time, and was achieved by developing Gilbert and Trudel's (1999) evaluation strategy to evidence a number of changes in coaches' knowledge-in-use. Importantly, this was elicited through practice-linked stimulated recall interviews rather than self-reports of perceived learning (c.f. Leduc et al., 2012). The study found that groups of coaches who took part in formal coach education, the YAM3, altered their use of coaching knowledge over time in a different manner from those who did not attend the education course. Before the intervention period, all coaches demonstrated 'baseline' knowledge spanning professional, interpersonal and intrapersonal categories, mirroring the structure proposed by Côté and Gilbert (2009; 2013). Learning linked to the YAM3 appeared to impact on participants' use of a number of conceptions. These included tactical knowledge, knowledge of the whole-part-whole practice structure, of challenges and supporting questions, trial and error learning principles and knowledge of individual players. Importantly, between-group comparisons of knowledge over time, unique in the coaching literature, created the first assessment of learning impact of its kind. Course candidates generally

developed a clearer understanding of the use of challenges and supporting questions in their coaching, than comparison coaches who confused these conceptions with conditions and ‘question and answer’ styles. These differences indicated learning from the YAM3, which impacted on coaching knowledge in interaction with other knowledge sources and the context. For example, while the course advocated a focus on developing individual players, coaches learned about the players under their charge through coaching experience over the intervention period, leading to increased knowledge use in this area post-intervention (See Chapter 5, p.134). This novel finding constituted the first indication of how learning from a formal source combined with coaches’ wider learning beyond education; made possible by the study’s unique focus on the coaches and their holistic learning as the unit of investigation (Cushion & Nelson, 2013).

- **What impact of learning is evident via changes in coaching practice over time?**

Although a significant body of research has focused specifically on coach behaviour during practice (Gilbert & Trudel, 2004), this study was the first that has compared “what coaches do” in terms of instructional behaviours linked to the way they structure practice activities (Cushion et al., 2012a, p.1631) before and after an episode of formal learning. Results revealed, via analysis of systematic observation data, a minimal impact of learning on coaching practice, which appeared resistant to change over time. Participants demonstrated the use of relatively consistent personal ‘trademark’ coaching behaviours and practice structures, whether they had completed the YAM3 or not. However, the YAM3 did have an impact on secondary behaviours, in terms of less frequent technically-based questions and a subsidiary increase in tactical questioning, as well as a trend towards increasing rates of individually-directed behaviours post-intervention. The use of a sensitive, contextualised coaching behaviour inventory (CAIS; Cushion et al., 2012b) enabled identification of these nuanced differences in behaviours, adding another layer of detail to the body of knowledge about instructional behaviours (e.g. Cushion et al., 2012a; Partington & Cushion, 2011; 2012). Matching up to course candidates’ altered knowledge conceptions, evidence suggested this learning bridged the theory-practice divide. Conversely, there was no evidence of an impact on coaches’ use of different practice types, which remained unchanged despite reported alterations in

knowledge of the whole-part-whole and game realism. The study therefore uncovered some level of demonstrable disconnect between knowledge and practice, representing an advance on previous research designs which have employed often unreliable and ineffective self-reports of coaching practice (e.g. Deek et al., 2013; Leduc et al., 2012). These findings both added to the evidence highlighting coaches' low self-awareness of their own practice (e.g. Smith & Cushion, 2006; Partington & Cushion, 2011), and suggested a lack of deep learning (Moon, 2004). Indeed, participants' behavioural profiles often exposed prevailing deeply ingrained behaviourist assumptions about players' learning, constituting the first empirical demonstration of 'safe simulation' alongside acceptance of surface level 'toolbox tips' (Cushion, 2013). The results so far have been discussed at a group level, yet learning was uneven between individuals, with impacts varying between different coaches (see Chapter 6, p.173). The following research questions explore the reasons for these differences.

- **What works in coach learning; why have changes occurred or not occurred?**
  - **How does learning relate to the design, delivery and perceptions of a formal learning course (The FA Youth Award Module 3)?**

Observational and interview data indicated an 'epistemological gap' (Light, 2008) between the intended design and delivery of the YAM3, and what the coaches on the course actually experienced. Despite maintaining an espoused 'learner centred', trial and error pedagogy, the course delivery displayed an assortment of theories-in-use including behaviourist 'gold standard' demonstrations and session feedback. This adds to similar findings of disparity between intention and delivery (Hammond & Perry, 2005), and provides important evidence to support claims that coach education can be more accurately described as training towards indoctrination, that exposes learners to an idealistic prescribed method of coaching, framed as "the only way" (S3,P1) (e.g. Abraham & Collins, 1998; Chesterfield et al., 2010; Cushion et al., 2003; Nelson et al., 2006). The data suggested that this, as well as the lack of individualised learning opportunities, limited transformational learning (Mezirow, 2009), as candidates perceived difficulties relating the new course concepts to their existing knowledge and practice. The study showed that the YAM3 therefore initiated disjuncture, a moment of potential for learning (Jarvis, 2009), but did not

support individuals in transforming course concepts for integration into their biography through reflective learning. In these situations, coaches were free to dismiss disjunctive confusion and uncritically reject problematic course material in favour of 'tried and tested' experience (see Chapter 4, p.118 and Chapter 7, p.191). Building on Chesterfield et al.'s (2010) research, this was the first empirical evidence to describe and explain the processes underpinning coaches' active rejection of contradictory knowledge concepts. It was perhaps not surprising that the most individualised part of the course, which involved putting new knowledge into practice in a coaching session with feedback, was perceived by coaches as most valuable. However, the amount of time spent undertaking these activities was low, with these aspects on average constituting only 4.6% of the time spent on the course; thus constraining 'practice of practice'. This added a different view to the evaluation of formal coach education delivery, which has rarely looked at the proportion of time spent on different learning activities in comparison to participants' perceptions of value (c.f. Hammond & Perry, 2005). Overall, as the first evaluation of the impact of a formal coach education course on learning, in the form of changing knowledge use and practice, this study indicated that the YAM3 had some meaningful impact reflected in coaches' questioning content and focus on developing individual players. These two concepts were relatively simple to implement at a surface level, without the presence of contradictory disjuncture or a need for more fundamental changes in underlying assumptions or values (see Chapter 4, p.90).

- **How do coaches' existing experiences, knowledge and contextual factors influence learning?**

Learning experiences had a varying impact on individuals due to their different biographies and practice contexts, or frames of reference (Mezirow, 1978). Chapter 7 (p.186) presented an original grounded theory model, the first to explain the processes through which these experiences, knowledge and contextual factors influenced coaches' learning (c.f. Côté et al., 1995). Constituting perhaps the most powerful finding from this research, a double-loop cognitive filter mechanism guided what coaches learned and implemented. The contribution to the literature in this case, was empirical evidence of learning as a combination of both individual and social processes, whereby coaches actively constructed and adapted knowledge with a pragmatic emphasis on 'what works' in context. The coaches rejected



concepts that contradicted their biography, and reinforced matching ideas. Individuals assessed concepts that fitted in with their biography, in terms of their beliefs or knowledge about how it could work in their practice context. The resulting internalised, individualised conception, once adapted if necessary, was then tried out in practice through a reflective feedback loop. Thus conceptions that were perceived to work were integrated into biography, while those that did not could be rejected or adapted depending on the moderating factors of individual openness and context. Crucially, context overruled individual influences on learning throughout. This deepened and empirically exemplified previously taken-for-granted single level accounts of cognitive structure guiding learning (e.g. Cushion et al., 2003; Werthner & Trudel, 2009), placing greater emphasis on the importance of convincing coaches of the benefits of concepts to engender 'better' coaching ability in their particular contexts (Armour & Yelling, 2004; Nelson et al., 2012).

**8.2.1 Overview of original contribution.** This study builds on existing approaches and adds significant levels of detail to our current understanding of coach learning. As the first in-depth, longitudinal, systematic practice-linked evaluation of coaches' learning (Cushion & Nelson, 2013), it makes a number of original contributions to knowledge in the subject area of coaching and coach development. The study is able to explain in more detail than before the idiosyncratic learning of different coaches, through the first substantive grounded theory of the learning processes involved. The research centred around an FA formal education course, and is the first in the coaching literature to link formal learning with measures of impact in more than one participant (c.f. Gilbert & Trudel, 1999), revealing their disparate learning. Moreover, It is one of very few mixed method studies able to compare the intended design and delivery of a coach education course with what participants actually received and perceived (see also Hammond & Perry, 2005), revealing a number of mismatches and a 'rhetorical open circle' culture (Piggott, 2012). Importantly, the research employed and extended Gilbert and Trudel's (1999) evaluation strategy for the first time, to include a comparison group of equivalent coaches continuing with their day-to-day practice. This enabled some separation of the impact of the YAM3 from other learning, highlighting changes in candidates' questioning and individually directed coaching interventions. In addition, formal education was explored within the wider setting of coaches' holistic learning, with coaches and coaching the central

unit of investigation (Côté, 2006; Cushion & Nelson, 2013). This generated novel empirical evidence to illustrate how different forms and sources of knowledge combined to create the 'complex blend' of coaches' learning (Cushion et al., 2010), via the grounded theory process model (see Chapter 7, p.189). In addition, this study provides for the first time in the coaching literature a comparison of coaches' knowledge-in-use, both over time and between groups experiencing disparate learning situations, indicating a number of areas of change. This was also the first comparison of coaching behaviours and practice structures over time. Despite relative consistency in what coaches did, a novel analysis of the secondary detail of coaching behaviours (CAIS; Cushion et al., 2012b) uncovered subtle changes. Overall, the research offered an essential evaluative perspective on the impact of learning on coaches' knowledge and observed practice in context, and the underlying mechanisms involved (Cushion & Nelson, 2013). The following points summarise where the current findings fit with, substantiate and extend several previous suppositions regarding coach knowledge development and learning. The current findings:

- Provide further evidence that practitioners learn from a complex mix of opportunities (e.g. Abraham et al., 2006; Cushion et al., 2010; Lemyre et al., 2007; Nelson et al., 2006; Mesquita et al., 2010; Werthner & Trudel, 2009; Winchester et al., 2013), building on this to explain how formal and informal sources interact
- Further emphasise and extend Nelson et al.'s (2012) finding that coaches' learning was driven by a pragmatic focus on 'what works' and desire for enhanced coaching ability
- Provide the first data to illustrate a disconnect between theoretical knowledge and practice, and the idea that formal education has more impact on the former than the latter (Cushion et al., 2003; Lemyre et al., 2007; Nelson et al., 2012)
- Support claims that deep learning arises from a notion such as disjuncture, and connects knowledge with implementation in practice (e.g. Jarvis, 2006; Leduc et al., 2012; Moon, 2001; Trudel et al., 2013)
- Supply more evidence for the role of reflection as a key element of deep learning, allowing connection and integration of new concepts into an

individual's biography (Leduc et al., 2012; Gilbert & Trudel, 2001; Moon, 2001; Nelson & Cushion, 2006; Trudel et al., 2013); yet extend previous research by identifying personal openness and context as mediating factors in this process

- Confirm that coaches' previous beliefs, knowledge and experiences guide learning (Cushion et al., 2003; Schempp & Graber, 1992), but add the overriding influence of context on these factors
- Provide the first evidence to demonstrate that coaches' learning was a continuous, individual and social process, as suggested by learning scholars (e.g. Jarvis, 2009; Kolb, 1984; Mezirow, 2009; Vygotsky, 1978)
- Indicate that much of the learning process was tacit and uncritical, meaning that deeply ingrained, 'tried and tested' beliefs, practices and norms could prevail unhindered, limiting the development of the discipline, in line with the suggestions of Cushion et al. (2003) and Piggott (2012; 2013)
- Add to and provide the first direct evidence for common claims that formal education provision does not do enough to acknowledge and work with these learning processes, leading to minimal impact on knowledge and coaching behaviours and practices (e.g. Abraham & Collins, 1998; Abraham et al., 2006; Chesterfield et al., 2010; Gilbert & Trudel, 1999; Lemyre et al., 2007)

Based on empirical research, these original findings enhance an understanding of coach learning in practice, than can add to more realistic recommendations for the enhancement of learning situations.

### **8.3 Implications**

One of my key intentions for this study was to conduct research with real-world relevance, answering questions of pragmatic benefit to coaching practitioners and coach education providers (Trudel & Gilbert, 2006). While generalising to all coaches, at all times, in all settings from a relatively specific in-depth sample is unfeasible, the results offer several 'commonalities' that tell us things of use about similar groups of coaches in similar situations (see pages 81 and 184 for more on generalisability). Academically, a greater, higher order comprehension of coaches' learning could be realised by using and expanding the components of the substantive grounded theory model (see Chapter 7, p.189) as a framework to study coaches in different sports and domains (Côté et al., 1995). Further research in this

vein can produce a general theory (Langridge, 2004) of coach learning that, rather than imported from other fields, is grounded in and derived from specific coaching data and the realities of day-to-day practice (Cushion et al., 2010). Practically, meanwhile, the study offers findings that can help educators better understand the ways they could maximise their impact on coaches, and it is to this the chapter now turns.

**8.3.1 Implications for practice.** Armour and Macdonald (2012) state that the significance of research can relate to its capacity to make a difference both within the academic sphere, as well as through potential or actual use beyond this. This study offers applications beyond academia, in particular for the purpose of enhancing opportunities for coaches to learn. Firstly, the results re-affirm that two prominent variables must be considered and accounted for in the design and delivery of coach learning opportunities (Côté, 2006); individuals' biographies and contexts. The data showed overwhelming support for the argument that 'one size does not fit all' (Nelson & Cushion, 2006) in coach education, and that individualised, contextually and practically relevant learning opportunities are most valuable for coaches in any learning situation.

The grounded model presented in the current research demonstrated that coaches' 'filter' and reflective processes were often uncritical and inadvertent, based on tacit understanding of how to implement concepts in context and implicit judgements of 'what works' (see Chapter 7, p.199). These processes could usefully be targeted to enhance the impact of learning situations (Abraham & Collins, 1998; 2011). The model itself could be used as an intuitive visual heuristic for coaches and coach educators to guide coach development, and potentially structure critically reflective conversations. While reflective practice is often identified as beneficial for coaches' development (e.g. Chesterfield et al., 2010; Knowles et al., 2001; 2005; Nelson & Cushion, 2006), formal education provision has consistently failed to provide adequate support for the process (Knowles et al., 2001). In the current study, reflection was largely descriptive, mechanistic, and cursory session-by-session evaluation (see Chapter 4, p.108). This process was also unsupported with individual coaches left alone to undergo disjunctive confusion (Jarvis, 2006) and consequently learning moments were missed (see Chapter 4, p.118). The findings therefore support wider claims that educators should not continue to assume that

explicit reflection will ‘just happen’ as a naturally occurring phenomenon (Knowles et al., 2001; Moon, 2004). Coaches need more support to uncover and link their underlying reasoning, assumptions and values to disjunctive concepts, transforming them for integration into biography (Jarvis, 2006) thus deepening meaningful learning.

This could be achieved through a number of avenues. The present research prompts some more specific functional points that could initiate and enhance reflection as a learning and teaching strategy. Firstly, the data that informed the grounded theory in Chapter 7 (p.189) suggests reflection should be structured around coaches’ existing authentic practice. The results implied an emphasis on drawing links between new concepts and tacit knowledge for implementation, as well as live experimentation and adaptation, would be most effective in terms of impact on learning. Linked to this, the notion of ‘what works’ was significant in coaches’ choices to implement and adopt certain conceptions over others (see Chapter 7, p.196). Educators could help individuals examine and challenge what practice that ‘works’ looks like in context, deconstructing “assumed know-how” and demonstrating how it may constitute a limited base for practice (Chesterfield et al., 2010, p.306).

As indicated in this research, video can be a powerful and flexible tool to facilitate judgements of ‘what really works’ and reflective practice more generally (see Chapter 7, p.204). Therefore, the evidence from the study supports the use of video in coach education. There are a number of ways that video could usefully be employed; for example, coaches could be supported to cultivate their own peer video reflection groups (Trudel et al., 2001); while coach educators could facilitate coaches’ deep learning by using video to explicate tacit cognitive processes vital for the implementation of knowledge. In addition, video could also quite straightforwardly enhance the impact of coach educators on coaches’ learning, by helping to construct their own knowledge of learners’ individual biographies. The data in this study suggested tutors lacked the necessary understanding of candidates’ existing knowledge, beliefs and practice, yet this was an important basis of more individually tailored, ‘learner centred’ tutoring, as educators “need to know what your capabilities are to be able to help you” (J3,P) (Chapter 4, p.120). Videos of candidates’ pre-course coaching sessions or even meetings of a format similar to the stimulated recall protocol could help coach educators understand and work with the starting

points and 'frames of reference' of individual learners. With constant improvements in the sophistication and availability of portable technology and application software, these points are simple to implement and could have a tangible impact on coaches' learning. Many of these implications rely on the skills of coach educators to be able to facilitate learning through active listening and effective questioning (Charteris & Smardon, 2013), and build reflective partnerships free from micro-political manoeuvrings such as those perceived by YAM3 candidates (see Chapter 4, p.120).

The reflective feedback loop mechanisms identified in this study also suggest that coaches need opportunities to experiment with implementing new knowledge in contexts that are highly realistic, yet open to innovation and occasional failure (see Chapter 7, p.201). Realism is vital to allow practitioners to make valid links between concepts and implementation, since conceptions are understood and linked primarily to the types of situations in which they are learned (Eraut, 2000). Coach educators can support practitioners integrating new ideas into situated action by scaffolding the reflection and adaptation process as above (Vygotsky, 1978); yet more challenging contexts may require further strategies. As well as setting an 'open' example within NGBs and coach education courses (Piggott, 2012; 2013), frank discussions about the micro-political issues and barriers hindering implementation can be a starting point to increase tolerance (Piggott, 2013) and generate possible solutions. A compelling strategy in this respect could be using evidence to persuade coaches and clubs that the desired practices work. Since this research indicated that for practitioners, "seeing is believing" (Nelson et al., 2012, p.7)(see Chapter 7, p.196), coach education providers could provide clear demonstrations of the worth of different approaches, and ways to apply them in specific contexts, rather than attempting to initiate change through shifting deeply ingrained values and cultures (Guskey, 2002; Nelson et al., 2012).

Indeed, the results of this study speak to a number of specific organisational level implications. As the participants identified in chapter 4 (p.108), coach education tutors and the climate they create played a pivotal role in coaches' learning. The data suggested a clear training gap in this area, where tutors felt underprepared to fully understand and deal with coaches' learning. Therefore the FA may be able to enhance "effective learning environments" (The FA, 2008, p.38) by placing emphasis on recruiting, developing and supporting tutors to appreciate

coaches' learning and how they can facilitate the learning process, rather than focusing solely on tutors' coaching ability or 'football knowledge'. Altering the structure and design of formal education courses could also enhance the learning environment. For example, candidates could begin the course with a video of their practice in context for the tutor to gain awareness of starting points. The desired theoretical concept or coaching approach could then be presented and groups of candidates would be given space to explore how, when and why they might implement it. Through contextually relevant practice involving young players, candidates could then experiment, using shared reflective practice and tutor guidance in smaller groups to adapt if necessary. Finally, videotaped sessions back in candidates' club contexts could indicate progress and function as a tool for ongoing mentoring relationships with course tutors. From a whole coaching pathway perspective, formal education structures that combine and allow reasoned choice between multiple 'ways' of coaching across all levels, rather than separating different approaches or game-related content knowledge from essential pedagogical, interpersonal and intrapersonal knowledge (see chapter 5, pp.129-131) could facilitate the development of more well-rounded and adaptable coaches.

The recommendations of previous research in coaching have so far struggled to successfully 'bridge the gap' to systematic application for the development of coaches' day-to-day practice (e.g. Abraham & Collins, 1998; 2011; Lyle, 2007). A key strength of this study, however, was highlighted by the findings which indicated the practical differences it has already made. All coaches who took part in the stimulated recall interview process reported its benefits as a highly relevant reflective aid. Comparison coaches displayed increased use of their intrapersonal knowledge of reflection over the intervention period, demonstrating the impact of this method on learning. The developing reflective partnership between researcher and researched was clear for some participants, who would not have otherwise benefited from such a learning opportunity (see p. 205):

My recommendation to The FA is to employ more people like you to work with coaches. I think I said to you quite early on that I never really felt as if I've had a mentor, cause of the environment I work in, within the school; surrounded by teachers, that are teaching, to really have that specific football

focus, I haven't really got anyone to look up to. This has been massive for me.  
(A1,P4)

**8.3.2 Future research.** Following on from this study, a natural progression would be to further develop and implement the present substantive grounded theory of coaches' learning, and 'test' its propositions through application. Understanding the processes underlying different coaches' learning in different settings, at different stages of development, could be generated and subjected to constant comparative analysis to explore the possibility of a coaching derived theory of coach learning. As highlighted in Chapter 4 (p.104) and the implications for practice, coach educators played an important role in practitioners' learning. Future research could look at the knowledge, learning assumptions and frames of reference educators bring to their work and how these impact on coach learners. Research could also explore educators' own learning and link this to practice; think aloud stimulated recall interviews could be equally powerful for this purpose.

Finally, there is a need to follow the suggestions of CPD evaluation frameworks in assessing the definitive level of summative outcome (Coldwell & Simkins, 2011; Guskey, 2002); the impact on athletes. Research that can determine some of the complex ways in which coach learning is linked to athlete learning and outcomes would be highly valuable in determining "the bottom line" of impact (Guskey, 2002, p.8); after all, athlete benefits are the whole point of coach education and coaching (Armour, 2010). Although this study focused on coaches' learning, athletes are a key and necessary aspect of coaching and they have been relatively absent from naturalistic scholarship in coaching science. This is no doubt due to the complexity of the interactions involved, however as this study demonstrates, research can still begin to help us understand complex processes as they are acted out in situ. Overall, for many topics within coaching science, a pragmatic paradigm can be a viable option for researchers wishing to 'ask the right kinds of questions' (Trudel & Gilbert, 2006) and conduct the kind of research that can lead to valuable improvements in knowledge, coaching practice, coach education and coaching as a profession.



#### **8.4 Concluding Thoughts.**

This study demonstrated that coaches learnt what fitted in with what they already believed, knew and did, and adopted tried and tested practices that worked in their particular day-to-day coaching context. Each individual came to construct understanding from the perspective of their existing biography, meaning that any one situation generated a different impact on different coaches. Reflection also played a role in meaningful learning, allowing adaptation of and experimentation with new knowledge in practice, depending on individuals' openness and the context. These mechanisms underpinned the minimal impact of formal coach education on candidates' coaching behaviours and practice, and to a lesser extent, their knowledge. The challenge for coach education provision is to work with these learning processes to enable the development of innovative, dynamic 'connoisseurs' of coaching, who can draw on extensive coaching knowledge to select personally reasoned, effective practices appropriate to the myriad complex situations they encounter.

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## **Appendices**

**Appendix A** - Invitation to participate

**Appendix B** - Participant information sheet (interviews)

**Appendix C** - Participant information sheet (stimulated recall interviews)

**Appendix D** - Background interview guide

**Appendix E** - Post course follow up interview guide

**Appendix F** - Behavioural observation classifications (CAIS; Cushion et al., 2012)

**Appendix G** - Example stimulated recall interview guide

**Appendix H** - Course observation inventory

**Appendix I** – Example diagram used in theoretical integration process

**Appendix J** – Table of individual coach CAIS profiles pre- and post-intervention

## **Appendix A - Invitation to participate**

Dear Candidate,

I am a researcher from the School of Sport, Exercise and Health Sciences at Loughborough University, studying coach education in football. As part of my research, I will be evaluating the FA Youth Award Module 3. In addition to studying the delivery of the course, I want to find out about the learning experiences of football coaches. I am writing to invite you to take part in the study.

The research will involve collecting information about your coaching and learning before and after the course, through:

- Videotaped observations
- Interviews

At no point will I assess your coaching, and afterwards you can request feedback about your learning and coaching. The information collected will be used to write an independent report about coach education for The Football Association.

If you have any questions or concerns about participating in the research, please do not hesitate to contact me.

Finally, please could you e-mail me to inform me of your willingness to participate in the research, confirming which of the following you would like to take part in:

- Videotaping of my coaching
- Interviews about my coaching and learning
- Both videotaping and interviews
- I would not like to take part in the study

Yours Sincerely,

Anna Stodter  
School of Sport, Exercise & Health Sciences, Loughborough University  
Email: [A.Stodter@lboro.ac.uk](mailto:A.Stodter@lboro.ac.uk)



## **Appendix B - Participant information sheet (interviews)**



### **Understanding Coach Learning and Education in Football Participant Information Sheet**

Anna Stodter, PhD Research Student, School of Sport, Exercise and Health Sciences, Loughborough University, Leicestershire, LE11 3TU

#### **What is the purpose of the study?**

This study aims to find out about the learning experiences of football coaches, and understand how they develop. The research will also evaluate the FA Youth Award Module 3 course.

#### **Who is doing this research and why?**

This research is being conducted by Anna Stodter, a PhD research student under the supervision of Dr Chris Cushion. This study is part of a research project supported by Loughborough University and the Football Association.

#### **Once I take part, can I change my mind?**

Yes! After you have read this information and asked any questions you may have, we will ask you to complete an Informed Consent Form, however if at any time, before, during or after the sessions you wish to withdraw from the study, please just contact any of the investigators. You can withdraw at any time, for any reason, and you will not be asked to explain your reasons for withdrawing.

#### **Will I be required to attend any sessions and where will these be?**

If you agree to take part in interviews, you will be required to attend a session/s before, during and/or after the FA Youth Award Module 3 course, either at Wokefield Park, Loughborough University or another location of your choice.

#### **How long will it take?**

Depending on the setting, each interview can take between 15 minutes and 1.5 hours.

#### **What will I be asked to do?**

We will ask you to talk about your coaching, learning, and experience on the course.

**Will my taking part in this study be kept confidential?**

All interview data you provide will be treated as strictly confidential, and will only be accessible to the investigators listed above. Once collected, the data will be stored securely and discarded after ten years in line with data protection legislation.

**What will happen to the results of the study?**

The information collected will be used to write a PhD thesis, as well as an independent report about coach education for The Football Association.

**I have some more questions - who should I contact?**

Please contact the principal researcher, Anna Stodter – [A.Stodter@lboro.ac.uk](mailto:A.Stodter@lboro.ac.uk) or Dr. Chris Cushion – [C.Cushion@lboro.ac.uk](mailto:C.Cushion@lboro.ac.uk)

**What if I am not happy with how the research was conducted?**

*The University has a policy relating to Research Misconduct and Whistle Blowing which is available online at*  
[http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing\(2\).htm](http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm).

## **Appendix C - Participant information sheet (stimulated recall interviews)**



### **Understanding Coach Learning and Education in Football Participant Information Sheet**

Anna Stodter, PhD Research Student, School of Sport, Exercise and Health Sciences, Loughborough University, Leicestershire, LE11 3TU

#### **What is the purpose of the study?**

This study aims to find out about the learning experiences of football coaches, and understand how they develop. The research will also evaluate the FA Youth Award Module 3 course.

#### **Who is doing this research and why?**

This research is being conducted by Anna Stodter, a PhD research student under the supervision of Dr Chris Cushion. This study is part of a research project supported by Loughborough University and the Football Association.

#### **Once I take part, can I change my mind?**

Yes! After you have read this information and asked any questions you may have, we will ask you to complete an Informed Consent Form, however if at any time, before, during or after the sessions you wish to withdraw from the study, please just contact any of the investigators. You can withdraw at any time, for any reason, and you will not be asked to explain your reasons for withdrawing.

#### **Will I be required to attend any sessions and where will these be?**

If you agree to take part, you will be required to attend 3 sessions before, and 3 sessions after the FA Youth Award Module 3 course, either at Loughborough University or another location of your choice.

#### **How long will it take?**

Each interview can take up to 1.5 hours.

#### **What will I be asked to do?**

We will videotape your coaching sessions, then use clips from each session to ask you to talk about your coaching and learning experiences.

**Will my taking part in this study be kept confidential?**

All video and interview data you provide will be treated as strictly confidential, and will only be accessible to the investigators listed above. Once collected, the data will be stored securely and discarded after ten years in line with data protection legislation.

**What will happen to the results of the study?**

The information collected will be used to write a PhD thesis, as well as an independent report about coach education for The Football Association.

**I have some more questions - who should I contact?**

Please contact the principal researcher, Anna Stodter – [A.Stodter@lboro.ac.uk](mailto:A.Stodter@lboro.ac.uk) or Dr. Chris Cushion – [C.Cushion@lboro.ac.uk](mailto:C.Cushion@lboro.ac.uk)

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## Appendix D - Background Interview Guide

	<b><i>Lead questions</i></b>	<b><i>Probes / Additional questions</i></b>
<b>Introduction</b>	<p>Do you mind me asking your date of birth?</p> <p>Can you tell me about your coaching experience?</p> <p>Why do you coach, what is your motivation?</p> <p>Would you say you have a coaching philosophy / ethos, or any particular values that inform your approach to coaching? Why do you have this philosophy?</p> <p>Do you have any beliefs about learning? (How do players learn?)</p>	<p>What is your occupation?</p> <p>How long have you been coaching for?</p> <p>Could you tell me about how you got involved in coaching?</p> <p>Who do you currently coach? (age group, numbers, club/community, recreational/developing/elite)</p> <p>What is your purpose as a coach during sessions and games?</p> <p>What does the idea of a coaching philosophy mean to you?</p>
<b>Experiences of formal education</b>	<p>Which coaching courses have you done so far?</p> <p>What did you think of them?</p> <p>What did you learn on these courses? Do you have a specific example?</p>	<p>When did you do them?</p> <p>What was it like taking part in the course?</p> <p>What did you not take from the course?</p> <ul style="list-style-type: none"> <li>• Do you think courses like these have changed what you actually do when you're coaching? In what way?</li> <li>• Do you think the courses you've done have impacted on your coaching knowledge? What kind of knowledge?</li> <li>• Do you feel like you have got better at coaching? Why?</li> <li>• Have you changed the way you think about coaching? E.g. understanding, perceptions, analysing play etc, reflection?</li> </ul>
<b>Current education</b>	<p>Why are you doing the Youth Module 3?</p>	<p>What do you hope to gain from it?</p>

<b>Wider learning</b>	<p>Overall, how would you say you learned to coach?</p> <p>Have there been any significant people in your learning / development?</p> <p>What about any experience as a player? How have your experiences as a player influenced you as a coach? (e.g. beliefs about coaching, what you coach, how you coach)</p>	<p>I'd like you to think about your coaching development as a whole. Are there any experiences or things that stand out as having been most important in your learning to coach?</p> <p>What do you think makes a good coach (in your domain)?</p> <p>What kind of knowledge do you need?</p> <p>How can you or have you learned these things?</p>
<b>Coaching practice</b>	<p>Say if you had a coaching session tonight, how would you go about planning it?</p> <p>Where did you learn to do this?</p> <p>Can you talk me through how you would run the session?</p> <p>Why do you do it like this?</p> <p>What do you usually think about while the session is running?</p>	<p>What happens after the session?</p> <p>How do you judge whether the session has been successful?</p> <p>Do you ever reflect on the session afterwards?</p> <p>Why / Why not?</p> <p>How has your coaching practice changed since you started coaching? Why?</p>
<b>Overall</b>	<p>Anything else you'd like to add about coach education, your coaching, or your learning?</p>	<p>Feedback on the interview?</p> <p>Speak to you again afterwards to hear what you think about the course, how it was delivered, the atmosphere, what you gained etc?</p>

## Appendix E – Post course follow up interview schedule

<b>Introduction</b>	How has your coaching been going since we last spoke?	Have you been on any other courses since? Have you been completing the course logbook for assessment? How has that been going?
<b>Opinions of YAM3 - general</b>	What did you think of the module 3 overall?	What was it like taking part in the course? Is there anything you would change about the course to enhance it and candidates' development?
<b>Impact</b>	<p>What did you learn from the course? Do you have any specific examples?</p> <ul style="list-style-type: none"> <li>○ How has the course impacted on your <b>coaching knowledge</b>?</li> <li>○ <b>The way you think</b> about coaching</li> <li>○ Assumptions about learning</li> </ul> <p>Has the course <b>changed the way you coach</b>? In what way? (<i>see coaching practice</i>)</p>	<p>Is there anything that stands out that you've taken from the course?</p> <p>What was the best part of the course?</p>
<b>Content</b>	What do you think was the key message of the course?	<p>Were there any issues that emerged from the course?</p> <p>Was there anything you didn't understand or struggled with?</p> <p>Was the content pitched at the right level to best develop you as a coach? (examples?)</p>
<b>Delivery</b>	What did you think of the course delivery / tutors?	What did you think of the teaching you received on the course?

		<p>Did the delivery style suit the way you learn?</p> <p>Did you like the way the course was structured and run?</p>
<b>Revisiting Themes</b>	Ask about pre-course interview themes (expectations etc)	
<b>Coaching practice</b>	How has your coaching practice changed since the module 3? Why?	<p>Say if you had a coaching session tonight, how would you go about planning it?</p> <p>Where did you learn to do this?</p> <p>Can you talk me through how you would run the session?</p> <p>Why do you do it like this?</p> <p>What do you usually think about while the session is running?</p> <p>What happens after the session?</p> <p>How do you judge whether it has been successful?</p> <p>Do you ever <b>reflect on the session afterwards</b>? Why?</p>
<b>Overall</b>	<p>Is there anything you'd like to add about the module 3, your development, or coaching in general?</p> <p>Any feedback on the interview / my questions?</p>	



**Appendix F** - Behavioural observation classifications, descriptions and steps in the CAIS coding process (Adapted from Cushion et al., 2012)

<b>Primary Behavioural Classification (Step 1)</b>	<b>Behavioural Description</b>
Specific Feedback (positive)	Specific positive verbal statements that specifically aim to provide information about the quality of performance e.g. 'that was good defending'
Specific Feedback (negative)	Specific negative verbal statements that specifically aim to provide information about the quality of performance e.g. 'don't force the pass'
General Feedback (positive)	General positive verbal statements or non-verbal gestures e.g. 'good'
General Feedback (negative)	General negative verbal statements or non-verbal gestures e.g. 'don't do that again'
Corrective Feedback	Statements that contain information that specifically aim to improve the player(s) performance at the next skill attempt e.g. 'pass it earlier next time'
Question	Coach asks a question
<b>Secondary Behavioural Detail Classification</b>	
<i>Performance states (Step 2):</i>	
Physiological	Physiological aspects of the game e.g. warm-up, cool-down, conditioning
Technical practice	Individual or group activity covering isolated technical skills under limited or no pressure
Skills practice	Individual or group activity covering technical skills under pressure from opponent(s)
Functional practice	Re-enacting isolated simulated game incidents
Phase of Play	Attack vs. defence play involving only one team scoring or the two teams scoring in different ways
Possession Game	Retention of possession rather than scoring is primary objective
Conditioned Game	Restrictions / variations to rules, goals or area, both teams scoring in the same way
Small Sided Game	Two goals, realistic to regulation rules
Full Sided Game	Two goals, regulation rules and players (11 vs. 11)
State - Other	Time when coaches are managing / addressing the team of players to explain practices or transition to a different practice state, and time when players are taking a break
<i>Recipient (Step 3):</i>	
Individual	Talking or responding to a single player
Group	Talking or responding to more than one player, up to half of the team of players
Team	Talking or responding to more than one half of the team of players
Other	Talking or responding to an assistant, spectator etc.
<i>Timing (Step 4):</i>	
Pre	Information given before a performance episode
Concurrent	Information given during a performance episode
Post	Information given after a performance episode
<i>Content (Step 5):</i>	

Technical	Related to individual techniques e.g. passing, shooting
Tactical	Patterns of play, formations, shape, player movement and connections etc.
Other	Not fitting any other behaviour category
<hr/>	
<i>Type of Questioning (Step 6):</i>	
Convergent	Limited number of correct answers / options, closed responses (often yes or no answer) e.g. 'which is the best passing option from here, forward or back?'
Divergent	Multiple responses / options, open to various responses e.g. 'what options do you have available in that position?'
<hr/>	

## Appendix G – Example stimulated recall interview script

Chat about Friday's session, which was based on Midfield play – support and movement. I'm interested in finding out what you're thinking about when you're coaching.

- We will go through a few of the things that happened in the session and I'll ask you to think back to the situation
- **'think aloud' just like you were thinking at the time.**
- To start with I'll try and describe the situation I'd like to hear more about, but I have the video clips to help jog your memory of how it happened at the time.
- You can just verify what you've already said or add to it if anything comes to mind. The reason for doing it this way is to get you to talk about what you were thinking *at the time*, rather than what you're thinking when you view the video.
- I'm not judging or rating your coaching or your choices, I'm just interested in how you're thinking when you're coaching, and why you do what you do.

Please feel free to elaborate on any element of your actions or decisions, **say whatever comes to mind**, don't hold back any hunches, and don't worry about speaking in complete sentences e.g. if we're using the video clips.

Equally I'd rather you were honest and say little about an incident rather than make up an explanation. If there's anything you don't want to answer or if you want to stop, just let me know.

Do you understand? Do you have any questions?

### Planning

Starting at the beginning, any reasons why you chose this topic for the session?

- Can you remember what you were thinking about when you planned it?
- Anything you took into consideration when planning?
- Why did you plan it in this way? E.g. progression from skill - game
- Where did you learn to plan in this way?
  - Were any of the factors you took into account learned from somewhere? (where?)

Did the session go to plan?

- How did you think it went / what did you think of the session overall?
- How do you judge that and why do you evaluate it in this way?

### Start of session

You started with a warm up (circle) - Could you talk me through why? **(Clip1)**

Moved into passing in pairs / 3s, some questioning with one of the groups **(Clip 2)**

### Keep Ball

Going into the first activity, can you remember how you set it up? e.g. players, area, sizes **(Clip 3)**

Can you remember what you were doing and thinking as it started running?

- 4 observations on the board
- 1<sup>st</sup> Observation / Intervention **(Clip 4)**
- 2<sup>nd</sup> Observation / Intervention / Challenge to win both footballs **(Clip 5)**
- Challenge / rule short-long passes **(Clip 6)** – “proud of your learning”
- George what’s your observation? **(Clip 7)** – Learn from mistake
- Individual challenge for George **(Clip 8)** Paper & pencil

### Target Players Game

Get into teams for chat - Questioning **(Clip 9)**

### Game Related Practice

2<sup>nd</sup> Coaching point – what’s going on? Playing like you’re 2-0 up or 2-0 down? 4 passes rule **(Clip 10)**

### **Questions or probes for each clip / issue:**

- What were you thinking about?
- What did you notice?
- What information did you take into account?
- What was this coaching point about, and why?
- Why did you intervene at this point?
- Why did you do that as opposed to anything else?
- What knowledge did you use?
- Can you trace where you gained the knowledge used (in this coaching point)?
- Where did you learn to do this?
- **Where did you learn these things?**

Overall, how would you say you learned to coach?

What experiences or things have been valuable to your coaching development?

Anything to add?

What was it like taking part in the interview?

## Appendix H - Course Observation Inventory

Name of observer	<b>AS &amp; WF</b>
Name of course & date	<b>YAM3 18/19<sup>th</sup> June (Days 3 + 4)</b>
Names of tutors	<b>JA &amp; AF</b>
Number of course participants	<b>21</b>
Course component observed	<b>All day (practical sessions)</b>
Location of observation	<b>Wokefield Park</b>
Time of observation	<b>From: 09:00, 18/06/11- 15.30, 19/06/11</b>

### General descriptive notes & specific examples

<p><b>Content, e.g.</b></p> <ul style="list-style-type: none"> <li>• Timings allotted to each topic or section</li> <li>• Structure</li> <li>• Summary of section content</li> <li>• Topics ascribed importance &amp; emphasis</li> <li>• Content of discussions</li> <li>• Clarity</li> <li>• Level – pitched correctly for participants?</li> <li>• Pertinent research included?</li> <li>• Knowledge covered: <ul style="list-style-type: none"> <li>○ Technical, Tactical</li> <li>○ Pedagogical, generic</li> <li>○ 'how' and 'why' of coaching</li> </ul> </li> </ul>	<p>20 mins delivery per coach, around 5 minutes feedback / discussion with tutor in group. Total of 10 minutes group discussion on day 4.</p> <p>11 sessions day 3; 10 sessions day 4 = 8 before lunch, 2 after Coaches in pairs to give feedback ~ 5 minutes.</p> <p>No breaks apart from lunch – went against course schedule. Candidates deliver topic of their choice in 'whole' or 'part' or both</p> <p>What questions to ask to get at different topics Superficial content – not much on day 4 Personal opinions and tips – 'strategies' Linking questions in a logical order Challenges &amp; questions – nothing about types of questions (c.f. MSc sport coaching) or types of answers and the effect on the player Lines on the pitch / restrictions vs. challenge to pass less than 12 yards = passing through midfield Keep practices game related Core courses and Youth are more similar than different Evaluating sessions with players at any point Coaching position – enter pitch 'like referee' to talk to individuals during play Pick up on things players are doing well rather than on mistakes Get players to evaluate by giving themselves marks &amp; challenge to improve by 1 Flexible - content depends on what comes up in sessions and group discussions Liked Lewis' session.</p> <p>Good – flows well. Good to take part in - interesting Unclear on method vs. style Hard to tell as tutors don't know their level – 1 session was poor. Candidates seem to understand &amp; claim this is the case but tutor says they don't. Some don't get whole-part-whole Coaching position is not really addressed and contradicts A + B licence</p>
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<ul style="list-style-type: none"> <li>○ Social / Interpersonal</li> <li>○ Intrapersonal e.g. ethics, reflective skills</li> </ul>	<p>Level is linked to clarity</p> <p>No. Autoethnographical research e.g. drummer story to show importance of motivation to learn.</p> <p>Superficial principles of play. No technical detail. Bit about changing the environment to address different areas e.g. certain practices to help with technique of passing.</p> <p>Course is based around a way of coaching – W-P-W, and getting points across via challenges &amp; supporting questions.</p> <p>Coach the player – don't just stand back</p> <p>Lots of suggestions for different questions, opportunities for command style not utilised,</p> <p>No 'why' is this a good way to coach. Don't explain the why of the how and why of the what. Maybe this is why everyone's confused.</p> <p>Discussions about managing mistakes in front of the rest of the team etc. Nothing about grouping children and differentiation.</p> <p>Nothing about thinking. Plan-do-review seems to have been forgotten about! Perhaps learn skill of reviewing with another coach? Review sessions and evaluate with players rather than emphasis on how to do this as a coach.</p> <p>Logbook – not really reflection just ticking boxes. Lots of variability in completion.</p>
<p><b>Candidates' Learning, e.g.</b></p> <ul style="list-style-type: none"> <li>• Candidates' participation and involvement – frequency &amp; extent</li> <li>• Levels of engagement</li> <li>• Candidates' autonomy</li> <li>• Addressing &amp; linking to candidates' prior ideas, experience, beliefs &amp; assumptions</li> <li>• Active responses</li> <li>• Questioning &amp; Answers</li> <li>• Teaching within small groups</li> <li>• Role play</li> <li>• Any evidence of improved learning or</li> </ul>	<p>Reasonably high – only 25 minutes' participation as a coach however. Could've coached for longer.</p> <p>Spending time reviewing – maybe biew example video sessions with tutor showing what they want and don't want. This would give equality in review process and cut down on variable learning.</p> <p>Varies in peer feedback section, varies in questioning tutors and engaging in debates</p> <p>Fair – as a player you're not thinking about coaching and learning from the other coach.</p> <p>Quite high. Can do own practices, set own topic and use different styles as appropriate. Not autonomous to ask challenging questions – all bounded by what JA thnks and if you're an academy coach. Elitist setting perhaps emphasises elite sport.</p> <p>None</p> <p>Mentioned and justified the link with mainstream courses on both days.</p> <p>Assumed understanding of the game</p> <p>Not much questioning from tutors, especially day 4. Rushing through?</p> <p>Lots of questioning of tutors, however not very challenging. Not</p>

<p>expertise</p> <ul style="list-style-type: none"> <li>• Changing conceptions of learning &amp; knowledge</li> </ul>	<p>sure why, as what and how they are coaching is superficial.</p> <p>Yes in pairs and whole group</p> <p>Not really – role play a young player, but this was not emphasised apart from once (Del – 9 year old)</p> <p>No – can't tell as don't know start point.</p> <p>Not sure – doubt it.</p> <p>Assumptions about learning and coaching all the same but don't ask why.</p>
<p><b>Tutors' teaching, e.g.</b></p> <ul style="list-style-type: none"> <li>• Explanation of session structure, content &amp; outcomes</li> <li>• Learning theory / philosophy</li> <li>• Modeling of pedagogy etc</li> <li>• Level of experiential learning</li> <li>• Problem based learning</li> <li>• Time / opportunity for reflection</li> <li>• Encouraging questioning, challenging</li> <li>• Links to other topics, wider issues and practice</li> <li>• Pacing &amp; momentum</li> <li>• General behaviour</li> </ul>	<p>Quite clear – powerpoint and whiteboard introduction</p> <p>Content of discussions was not made clear as this depended on situation (reactive)</p> <p>Not on day 4. Assumed same structure and outcomes as day 3. Always same pattern.</p> <p>“You'll learn to do it by doing it – if you want to” (Drummer anecdote)</p> <p>Learning is intentional / conscious</p> <p>Learn from doing, (JA says they won't learn this on a wet weekend in Reading – need to put into practice)</p> <p>Learn from peers and feedback</p> <p>Players learn from positive re-enforcement and thinking about challenges etc.</p> <p>JA – learn from chunking and adding stuff – course does not reflect this (W-P-W)</p> <p>Positivistic (and a bit of constructivist)</p> <p>Ideas on learning not based on anything</p> <p>Yes with feedback in peers &amp; questions, however some got no positive feedback</p> <p>Debriefs are 'telling' – this is what we want to see (behaviourist)</p> <p>Different assumptions on child and adult learning (latter = didactic) What are JA's beliefs on this?</p> <p>Fair – lots of doing, but not realistic</p> <p>Portfolio helps but most struggled with this as they're not coaching at the moment</p> <p>No</p> <p>No – debrief straight away. Assumed they will reflect after course</p> <p>Question the group and encourage debate, then stepped in to contribute</p> <p>Killed awkward debate e.g. Jamie's coaching point after a play that worked.</p> <p>Open to challenging but not encouraging it. Any challenges are quickly dealt with or not entered into.</p> <p>Player development, academies, policy, nature vs. nurture.</p> <p>Course focuses on elite, despite tutors not working in this</p>

	<p>environment or believing in academies. Not really on Day 4.</p> <p>Good although no break in morning session. No review / evaluation mid way through as mentioned regarding coaching. Quick pace, carried momentum through the practicals. Need to get day 4 done and get away, not too enthusiastic. Shot off at the end.</p> <p>Approachable and relaxed. JA tainted / disheartened? Pessimistic about the FA. Personal integrity – don't care you know until they know you care.</p>
<b>Feedback &amp; Assessment, e.g.</b> <ul style="list-style-type: none"> <li>• Individualised</li> <li>• Content of feedback</li> <li>• Progress emphasised</li> <li>• Feedback on learning outcomes</li> <li>• Feedback from peers</li> <li>• Consistency</li> <li>• 'Signposted' by tutors</li> <li>• Nature of assessment feedback</li> <li>• All candidates have similar conditions for assessment</li> </ul>	<p>Yes, tailored to sessions</p> <p>Unsure – depends on coach &amp; session. Varied depending on who it was – emotions towards certain people may have had an influence.</p> <p>No – only 1 episode – no reference to portfolio. Don't know – general comment about picking it up more &amp; progress None</p> <p>Yes but 'shabby' – don't want to offend, as partner is coaching tomorrow. Influenced/governed by Tutor (e.g. one peer with a tutor either side of him while watching session)</p> <p>Some, as everyone receives feedback, however varied in length from 5 to 20 minutes Judged against what JA thinks. Consistently superficial feedback.</p> <p>No</p> <p>Verbal, face to face in the place. Immediately after the event</p> <p>Yes</p>
<b>Coaching practice, e.g.</b> <ul style="list-style-type: none"> <li>• Ample opportunity for candidates to participate</li> <li>• Content &amp; delivery related to real practice</li> <li>• Relevance &amp; realism</li> <li>• Examples given &amp; explained by tutors</li> <li>• 'How' aspects emphasised</li> <li>• Decision making</li> </ul>	<p>Yes - although 20 minutes is not much compared to playing time</p> <p>No</p> <p>Not much – lacking Don't interfere with session. No demos</p> <p>Yes, tips e.g. lines on the pitch. Questions and challenges – nothing on how you would integrate this method as one of many. Mentioned as one type of coaching 'strategy', others are not discussed.</p>



(when & why) emphasised	Decision on when to leave mistake or intervene Don't 'dig out' children – wait for them to correct themselves.
<b>Atmosphere, e.g.</b> <ul style="list-style-type: none"> <li>High expectations &amp; standards</li> <li>Dress</li> <li>Names used</li> <li>Interactions and communication style</li> <li>Humour</li> <li>Efficient organisation</li> <li>Attractive resources</li> <li>Delivery quality</li> <li>Venue &amp; equipment appropriate</li> <li>Inclusion</li> <li>Equality</li> </ul>	<p>No. Slick, high standard of venue and facilities. High expectation in low bracket. Standards slipped on Day 4 because wanted sessions to be done. Some candidates late for start of sessions.</p> <p>Football kit. Tutors are better dressed this time. Apart from AF's stubble! Casual but good.</p> <p>Not really – call 'em all Trevor! Name badges not used but mentioned by participant. More so on Day 4.</p> <p>Command in classroom, tutor at front presenting with candidates around 3 tables of 7. Gets involved on pitch Relaxed – almost too relaxed – don't soak in as much info as not being assessed. More open and less laddish humour this weekend (No Anthony) Less cliquey with more involvement from quieter coaches (maybe because they have to &amp; are more familiar with everyone) AF has a good relaxed manner with everyone, nice humour. JA more sarcastic, not as appropriate Less than last time – no banter!</p> <p>Yes. Yes Fine. Not great by the coaches – confused.</p> <p>Yes</p> <p>Everyone participates – questions only benefit asker. Must be some questions left unasked and unanswered. Anyone can take part in sessions Some candidates get into tutors more than others – informal chats dominated by certain candidates Laura – WPW – don't want to ask for clarification as feel stupid. Very little group feedback on Day 4 – unequal compared to Day 3 No feedback at end of course – no evaluation form.</p>

<p><b>Other notes / Comments, e.g.</b></p> <ul style="list-style-type: none"> <li>• Non-occurrences</li> <li>• Critical incidents</li> <li>• Significant issues</li> <li>• Impression management &amp; studentship</li> <li>• Purpose – do activities have prime purpose of learning, designed to meet learners' needs, or the needs of others with more power e.g. the FA</li> <li>• Programme theory (what are the outcomes?)</li> </ul>	<p>Cut short – total of 5 hours less than original timetable (£24 an hour – value for money?)</p> <p>W-P-W not explained Coaching method vs. coaching style Why? Debate at low level No decent coaching No coaching youth players (other than Del's role play) No candidate feedback on course</p> <p>Candidate asking about youth modules vs mainstream courses Tutor asking observer how candidates are doing (confused) but dismissed response Logbooks were hardly mentioned / glossed over, last thing addressed on the last day – this was a significant issue for the candidates and a missed opportunity to get into their minds and assess stages / progress</p> <p>Lots – Reading candidate needs his bit of paper for the wall so people can look at it. W-P-W vs must be game related Coaches who are connoisseurs – introduced to various styles earlier in their career</p> <p>Needs of FA – can't judge the needs of the coaches. Intention is to help the learner but its JA's way of seeing it and putting it across Needs of elite sport – producing elite players and winning world cups. Nothing about keeping kids involved, happy and healthy Producing world class players via the production of world class coaches (Future game)</p> <p>Nobody knows! Confused.</p>
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### Informal Discussions with Participants

Won't ask on unclear areas because don't want to annoy the assessor. Heard that another candidate got only negative feedback because he wasn't 'liked' by JA.

Won't use W-P-W because its not realistic (as they often report) to game and hasn't been explained why to use it.

Candidates who just use game (whole) practices seem to get better feedback – these are easier to coach because its simply getting your coaching points across in a different way.

Children need to be told then can find the answers afterwards

Would be good to coach more than 20 minutes

Tutor 1 saying to candidates over lunch that he struggles with coach education and is only after his pay packet. Candidates not too impressed, want some 'personal integrity'

### **Running Order – Saturday 18<sup>th</sup> June**

**09.00 – Introduction and preparation for practical sessions (JA)** – “What we want to see from you”: practice with challenges and questions, coach the players using a range of styles. Pair off and tell partner what you want them to look for.

**09.10 – Running order / preparation time**

**09.30 – Practical sessions start** (20 minutes' coaching; ~5 minutes tutor led discussion with group; ~10 minutes peer feedback with one tutor while next session begins)

**12.30 – Lunch**

**13.30 – Practical sessions**

**15.20 – Tutor led debrief**

**15.30 – Depart**

### **Running Order – Sunday 22<sup>nd</sup> May**

**09.00 – Practical sessions** – structured as yesterday

**12.15 – Lunch** – 2 coaches receive peer feedback in classroom

**13.30 – Practical sessions**

**14.30 – Tutor led classroom debrief**

**14.35 – Explain Portfolios & Assessment** (10 mins of questions & discussion)

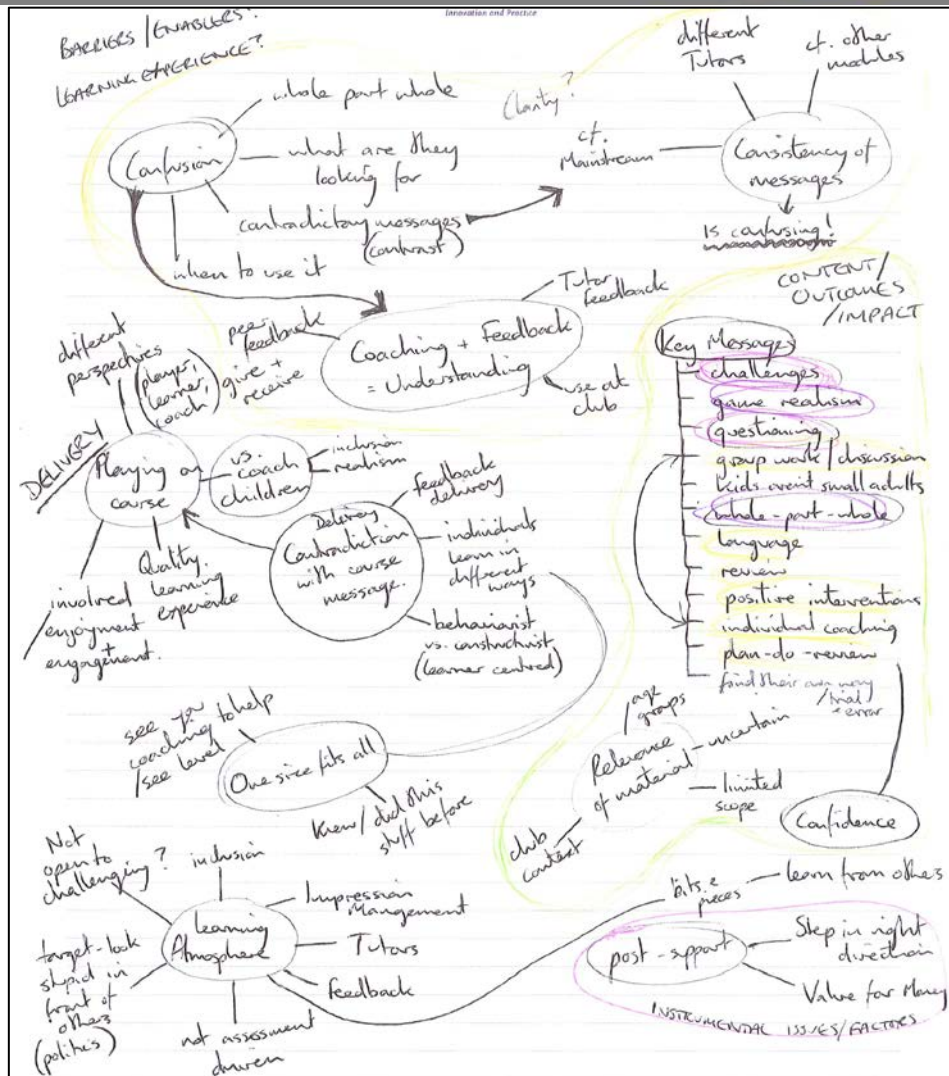
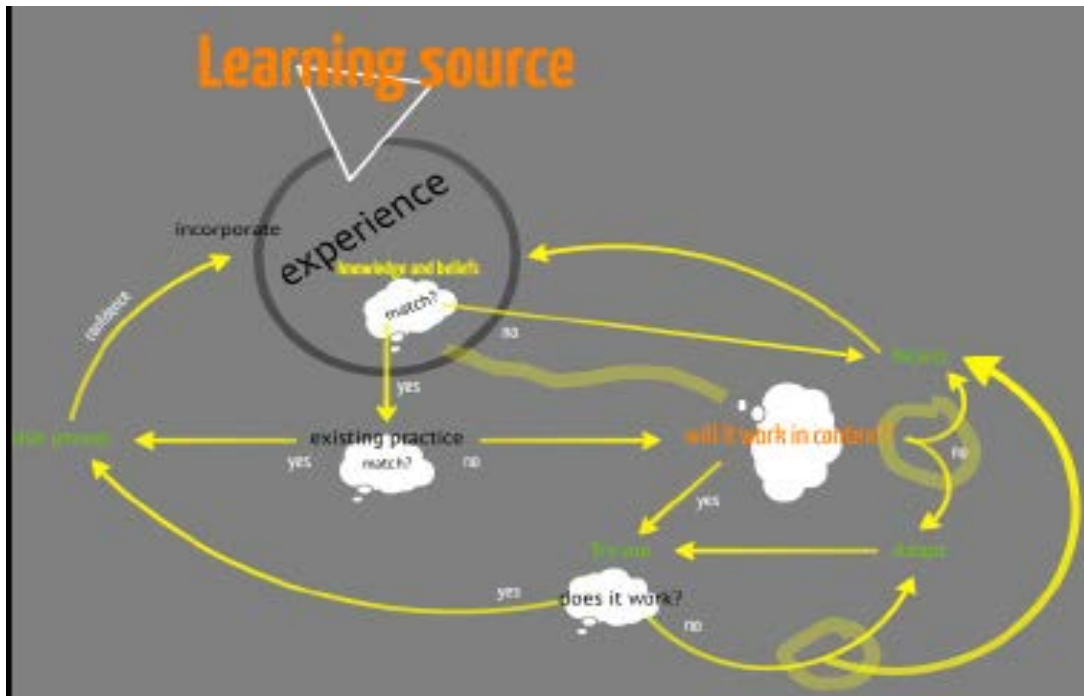
**14.55 – Depart**

### **Rough Timings:**

Practical work (as player):	440 mins, <b>59%</b>	
Practical work (as coach):	20 mins, <b>3%</b>	
Practical work (observing peer):	20 mins, <b>3%</b>	500 mins
Feedback (receiving):	10 mins, <b>1.5%</b>	
Feedback (giving):	10 mins, <b>1.5%</b>	

Lunch:	135 mins, <b>18%</b>	
Tutor presentation:	50 mins, <b>7%</b>	250 mins
Tutor led group discussion:	45 mins, <b>6%</b>	
Other:	<u>20 mins, <b>3%</b></u>	
	<b>750 mins = 12.5 hrs</b>	
<b>Course Total = 24.1 hrs</b>		
<b>Cost = £24.90 per hour</b>		

## Appendix I – Diagrams used during theoretical integration process



**Appendix J – Table of individual coach CAIS profiles pre- and post-intervention**

Coach	Intervention stage	Behaviours (Rate Per Minute)									Practice States (% Time)				
		Questioning	Divergent Question (percentage)	Convergent Question (percentage)	Technical Question (percentage)	Tactical Question (percentage)	General Reinforcement (+)	Specific Reinforcement (+)	Specific Reinforcement (-)	Corrective Reinforcement	Individual Recipient	Game	Playing	Training	Other
A1	Pre	1.33	27.5	72.5	37.3	52.0	0.54	0.03	0.03	0.13	1.11	26.3	19.8	21.0	33.0
	Post	1.39	27.0	73.3	11.2	60.1	0.86	0.16	0.16	0.29	1.97	38.6	3.5	38.0	19.5
A2	Pre	0.76	20.9	78.4	25.9	42.0	1.28	0.05	0.05	0.18	1.82	14.3	6.8	64.7	13.8
	Post	0.72	10.8	88.5	23.1	30.8	1.66	0.02	0.07	0.27	2.02	14.5	0.0	66.2	19.5
S1	Pre	1.50	20.8	79.2	24.5	53.4	0.62	0.07	0.07	0.22	1.53	0.0	35.0	42.2	22.9
	Post	1.07	18.4	81.6	9.9	58.5	0.25	0.07	0.07	0.27	1.30	12.6	62.6	8.5	15.2
S2	Pre	0.64	13.0	87.0	30.1	55.9	1.60	0.30	0.30	0.57	2.18	10.2	49.7	25.5	14.9
	Post	1.79	19.2	78.8	1.9	90.4	1.72	0.48	0.48	0.97	4.31	14.1	38.1	21.4	25.3
S3	Pre	2.11	17.1	82.9	9.6	70.3	0.58	0.03	0.03	0.18	1.93	39.6	17.7	18.3	24.2
	Post	1.41	26.3	74.7	5.4	72.5	0.75	0.19	0.19	0.43	2.25	0.0	18.8	56.5	24.0
C1	Pre	0.51	21.3	76.9	8.7	45.1	1.72	0.02	0.02	0.12	0.72	24.2	28.4	18.3	27.5
	Post	1.09	10.3	89.7	26.1	36.5	0.92	0.01	0.01	0.13	1.37	25.0	27.3	18.2	29.7
C2	Pre	0.57	6.6	93.4	18.5	20.8	1.01	0.08	0.08	0.36	3.01	27.1	9.6	43.3	21.4
	Post	0.95	10.2	88.1	27.5	9.4	1.16	0.15	0.15	0.34	2.19	20.2	7.5	43.6	28.8
C4	Pre	0.85	11.2	88.8	16.4	32.3	0.80	0.63	0.63	0.11	1.88	12.3	29.8	34.7	23.5
	Post	0.76	10.8	88.5	19.5	18.0	0.60	1.16	1.16	0.07	2.03	19.2	61.6	0.0	19.4