Coach education, coaching behaviours and the implications for athlete and coach development

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Coach Education, Coaching Behaviours and the Implications for Athlete and Coach Development

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Abstract

The research investigates coach education, how this education and learning is applied in practice and athlete perception of coaching behaviours. A mixed methods approach was used throughout the research which initially examined coaches' academic and coach education backgrounds through an online survey followed by a semi-structured interview. The next phase of this research examined how high performance coaches applied their learning through observation of the coach in both training and competition over the course of one season. Coaching behaviour was both quantitatively and qualitatively analysed to examine the total number and rate of instructions per minute and questioning by the coach. Furthermore, data were also collected to analyse the athletes' perceptions of the coaching behaviour at three different time-points over the course of the same season. The results showed coaches preferred an *informal* rather than *formal* coach learning situation and that the current coach education system does not meet the demands of all coaching levels. These findings have enhanced the understanding of coach education and preferred learning environments and may contribute to future coach education courses. Furthermore, the findings revealed significant changes in athletes' perceptions of coaching behaviour at different time-points providing evidence of coaches adapting their methods to address the different contexts and challenges faced over the course of the season. Taken together the implications for this research indicate that additional content on *how to coach* should be included in the coach education process. Such a focus should enable a shift away from *what to coach* towards a more coach and athlete centred environment that will enhance both coach and athlete development.

Declaration

I declare that this thesis and the work presented is my own. Results and findings have been generated as a result of my own original work and I have made due acknowledgement to the contributions of others. This work has not been submitted for academic award elsewhere. Chapter 4 formed the basis of an original research article accepted for publication in *European Journal of Sport Sciences,* in September 2016 and below is a more detailed list of where the findings of this thesis have been presented to national and international audiences.

PUBLICATIONS

- **Sherwin, I**., Campbell, M. J., & MacIntyre, T. E. (2017). Talent development of high performance coaches in team sports in Ireland, *European Journal of Sport Sciences, 17*(3), 271-278 http://dx.doi.org/10.1080/17461391.2016.1227378

CONFERENCE PAPERS

- **Sherwin, I.,** MacIntyre, T. E., and Campbell, M. J. (2017). The use of questioning by coaches to engage athletes during training sessions and matches in team sports (Accepted for oral presentation at International Council for Coaching Excellence (ICCE) Global Coach Conference, Liverpool, August 2017)
- **Sherwin, I.,** Campbell, M. J., and MacIntyre, T., E. (2016). Coaching behaviours and their impact on athlete development. Proceedings of the 19th Annual National Coaching Conference for SHAPE America, 21-23 June, 2016 (published)
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List of Abbreviations

ASUOI Arizona State University Observation Instrument

CAIS Coach Assessment Instrument for Sport

CAICS Coach-Athlete Interaction Coding System

CART-Q Coach-Athlete Relationship Questionnaire

CBAS Coach Behaviour Assessment Scale

CBQ Coach Behaviour Questionnaire

CBS-S Coach Behaviour Scale for Sport

CET Coach Education Training

CGS Centimetres, Grammes and Seconds

DMSP Development Model of Sport Participation

FAI Football Association of Ireland

HP High Performance

ICCE International Council of Coaching Excellence

ISCF International Sport Coaching Framework

IRFU Irish Rugby Football Union

IHA Irish Hockey Association

LSS Leadership Scale for Sport

LTAD Long Term Athlete Development

NGB National Governing Body

RCABI Rugby Coaches Activities and Behaviours Instrument

TGfU Teaching Games for Understanding

Chapter 1
Introduction

1.1 Introduction Outline

The following introduction will briefly describe the connection and background to this research that influenced the undertaking of a PhD. The introduction will then give an outline to the role of the coach before providing a brief introduction to some of the factors that influence coach and athlete development. Following this, the coach in practice will be discussed and how coaching behaviours impact the coach athlete relationship. Next the methods used to measure the effectiveness of coaching practice will be discussed in an attempt to give an understanding to the complex nature of team sports. Finally, the aims of this thesis will be described and an outline of the thesis will be provided.

1.2 My Connection to the Research

Sport and physical activity was always part of life growing up, from the earliest family photos eliciting memories that no longer exist of balls of all sorts on a beach somewhere. Sports were encouraged and introduced by parents who played sports, at least five each, to university level and continue their participation into their late 70s. Two brothers and a sister all within six years ensured competition started early and still remains at whatever sport (or pastime) in which we engage. Dinner table discussion was about sport, who was playing where at the weekend and more importantly how are we going to get there. College life brought new challenges and lifelong friends and another level of competitive sport. Sport and exercise science was a relatively new discipline at the time and presented novel ways of approaching training and competition. I was eager to apply my learning in practice frequently drawing unwanted attention from coaches that just wanted me to conform to play the way the team plays, train the way the team trains and socialise the way the team socialises. I took various aspects of this in disproportionate ways and learned to work with others more and on my own interests outside of team-time. Working life brought work as a development officer with the Irish Rugby Football Union (IRFU) the national governing body for rugby in Ireland. I spent thirteen years

coaching and developing players and teams at various levels from minis (U6-U12) to professional elite athletes. Each level brought new and ever-growing demands on time and knowledge and a recognition that I needed to learn more in order to contribute more effectively. The curiosity brought many questions such as, what makes a particular athlete so good? What did the coaches do that they were able to get a group of men, not always the best athletes, to a level of winning on a consistent basis? Circumstances contrived to present an opportunity to satisfy the curiosity and a career in research began.

1.3 Definition of Coaching and the Role of the Coach

The research began with a question; what is the role of the coach? This appeared straight forward until I probed a little deeper until there were more questions than answers! Do sports need coaches? Or just someone to organise and facilitate athletes? How do coaches learn? Do athletes need coaches? The common denominator was learning and development not just athletes but coaches too. Old prophecies refer that the young learn from the aged and wise, and that knowledge is passed on to the next generation. Whether that is in a classroom, everyday life in general or in sport there is an undeniable passing of the baton from generation to generation, from coach to athlete. Understanding the role of the coach was fundamental in furthering our knowledge about this research. Effective coaching has been defined as "The consistent application of integrated professional, interpersonal and intrapersonal knowledge to improve athletes' competence, confidence, connection and character in specific coaching contexts" (Côté & Gilbert, 2009). Ultimately, an athlete's competence in their sport is the most obvious outcome of coaching. Coaches must look beyond the athlete on the field and provide guidance that builds the persons' confidence and character outside of the sporting context. Even at the highest level of competition, research has shown that successful coaches operate from a coherent and robust philosophy built on a genuine desire to do well for others (Lara-Bercial & Mallett, 2016). As well as this, coaches have been identified as the most prevalent provider of

social support to athletes (Sheridan, Coffee, & Lavallee, 2014). As such, coaches are in a position of privilege and influence with responsibility for not just the technical and tactical development of each sport but also the development of the athlete as a person. The development methods used by coaches to impart their knowledge varies widely depending on the context. Coaching interventions never work indefinitely, in the same way, in all circumstances or for all people (Pawson & Tilley, 2004, p. 3).

1.4 Player and Coach Development

The research area surrounding player and coach development has generated considerable interest over the last three decades and has identified that numerous factors (e.g., coaching, psychological characteristics, specialist services, socio-economic background) have a significant and multiplicative effect on the initiation, trajectory, and rate of development in athletes (Côté, Baker, & Abernethy, 2007; Hassell, Sabiston, & Bloom, 2010; Phillips, Davids, Renshaw, & Portus, 2010). Among the many influences and contributing factors that lead children into sport are the opportunities presented to them by their parents in their early years and encouragement from their significant others throughout their lives. The facilities available around the area where children grow up often has a significant impact on how often they will engage in sport (Côté et al., 1999). Availability, or lack, of these facilities will often determine the type of activity in which children engage for example in almost every town in Ireland there is a GAA pitch which presents an opportunity for children in the community to play. It does not mean they will play but the opportunity is there. Conversely the weather in Ireland is not cold enough often enough for lakes to freeze over presenting a natural ice rink for skaters and future ice hockey stars. In contrast, arguably the most successful ice hockey and ice skating countries, Canada and Russia have natural ice rinks that are in place for six months of the year to complement the purpose-built facilities that also exist.

Sport policies suggest that most national sports have long-term athlete development and performance strategies (Bailey, Collins, Ford, MacNamara, Toms, & Pearce, 2010). These strategies are often presented in the form of models, which set out what their architects consider being the most appropriate pathway and level of involvement at various stages of a person's development. Balyi's Long Term Athlete Development (LTAD) and Côté's Developmental Model of Sport Participation (DMSP) are two examples of models that are used to guide practice and policy in youth sports development (Balyi & Hamilton, 2010; Côté, Baker, & Abernethy, 2007; Côté, Yardley, Hay, Sedgwick & Baker, 1999). The models outline a relatively simple and generic, staged approach that describes how athletes are proposed to progress as they move from first introduction to sport, through novice participation and on to elite levels of performance (Balyi & Hamilton, 2010; Gulbin, Croser, Morley, & Weissensteiner, 2013). These models provide some good guidelines but the progression through the stages is not always going to be a smooth transition. There is considerable evidence in research which has highlighted that the pathway to elite success will follow a non-linear trajectory and is likely to be more complex and dynamic than the relatively linear pathways depicted by LTAD or DMSP models (Abbott, 2005; MacNamara, Button, & Collins, 2010; Ollis, Macpherson, & Collins, 2006). For example, the models do not take into account the level of coaching competency at any stage. As such, there is a need to look beyond these models to consider the context in which athlete development takes place and the impact of coaching behaviours on how the athlete will develop the skills required to successfully negotiate the challenges and opportunities of their sporting development.

A growing body of research contends that longer practice will lead to enhanced performance and may lead to achieving success through winning games, leagues, cups or trophies (Ericsson, Krampe, & Tesch-Römer, 1993). However, the process of sport and high performance development is multifaceted and dynamic. Not all promising or winning junior

athletes will maintain the same level of performance into adulthood and follow up promising junior careers with medals, Grand Slams and major tournaments into their senior careers. In fact, there is a high proportion of elite junior track and field athletes who do not progress to senior grade (Hollings, Mallett, & Hume, 2014). In a novel study on athletics by Zelichnok (2005) it was surprising to note that over 70% of World Junior Championship medallists or finalists did not progress to represent their country or compete at elite senior level once transitioning from the junior ranks.

Similarly, there is no guarantee that coaches who have achieved success at junior or age-grade competition will have the same success at adult level. Naturally, some people will show a greater aptitude for coaching sport than their peers and some will make the transition from junior to senior levels. However, there is no definitive model or pathway upon which coaches can progress through each level to high performance. Findings from Erickson, Côté, & Fraser-Thomas, (2007) indicated that there was a minimum threshold of necessary total sport experiences needed to become a high-performance coach, although having this experience and achieving certain milestones was no guarantee of progression, and appointment, to high performance coaching positions.

What is apparent from Erickson et al., (2007) is that coaches will develop knowledge through practice and this knowledge and experience can be passed on to other coaches. The coaches may have gained this knowledge having attended coaching courses that helped them prepare and organise material to be delivered to athletes and they learned *what* to coach. The coaches' experiences playing sport over numerous years will have built a bank of knowledge that can be passed on to their athletes (Cushion, Ford, & Williams, 2012; Jones, Armour, & Potrac, 2002; Stoszkowski & Collins, 2016; Werthner & Trudel, 2006). Coaches value and learn from their experience playing and from coaching with other coaches, find out how to deal with certain situations and continue to develop *their* sport (Williams & Kendall, 2007).

However, there is a great deal of individuality about *how* coaches learn and how coaches *learn* to coach (Irwin, Hanton & Kerwin, 2004). Furthermore, the principles of experiential learning and reflective practice should be promoted to enhance coach development (Kolb, 1984; Schon, 1991).

Unlike the athlete development models few coaching development frameworks exist. The International Council for Coaching Excellence (ICCE) developed their International Sport Coaching Framework (ISCF, 2013) with the aim of giving support and guidelines to sporting organisations, federations and countries. The choices made in the implementation of these guidelines will be influenced by the unique objectives, circumstances and context within each body. Similarly, through knowledge and adaptation, the choice of coaching methods may change and may be influenced by the context in which the training or competition takes place (Collins, 2012). Overall, there does not appear to be any consensus on the *best* way to learn *how* to coach or, indeed, the *best* way to coach. Each training session, match and competition are unique and demand a variety of coaching methods to achieve the desired outcome of the particular context. This demands a great deal of coaching knowledge of the sporting situation (professional knowledge), the participating athletes (interpersonal knowledge), and the coaches' own characteristics (intrapersonal knowledge) to coach effectively in different contexts.

1.5 Coaching Behaviours and the Coach-Athlete Relationship

The sporting environment creates an opportunity for relationships to develop between coaches and athletes. Over time the interpersonal coach-athlete relationship will become inter-reliable and inter-dependent (Fraser-Thomas, Côté, & Deakin, 2005; Jowett & Cockerill, 2002). Coaching behaviours, coach and athlete motivation will likely influence this relationship that will need to be mutually challenging and stimulating. The coach will use their position to affect change that influences the younger (in most cases) athletes and nurtures their participation to

help them develop (Felton & Jowett, 2012). The relationships that are fostered and cultivated between the coaches and athletes serve as a platform for interaction to take place in unique ways to bring about performance accomplishments, success and satisfaction (Jowett & Cockerill, 2002). However, if a coach can stimulate the athlete to perform on a consistent basis the level at which the sport is played is irrelevant. What is relevant is both athlete and coach will be operating in a trusting environment that is safe and fun to be a part of, all important contributors to a positive coach-athlete experience (Côté, Lidor, & Hackfort, 2009).

It is important to understand the various learning opportunities and experiences that lead to the coach instructing in a particular way around, and with, the athletes. It is also important to understand the ways in which different athletes respond to the coach. Learning about the coaches' academic and coach education experience is a key aspect of this research and will help us to understand the preferred ways of learning, how much, and within which situations, coach learning and education took place. However, coach athlete relationships are not just about coaches and crucially athlete perception is often overlooked (Cope, Partington, & Harvey, 2016; Kahan, 1999). The impact of coaching behaviour on the athlete is fundamental in the athlete's development and sustained participation in sport. It is highly likely that the coach has the best intentions in mind when coaching their athletes but sometimes the interpretation of the coaching behaviours by those at whom they are intended, mostly the athletes, may differ significantly from the intention. The magnitude of the difference of interpretation may have an influence on both the coach-athlete relationship and performance. This research was carried out in team sports, a complex and difficult area to research given the multi-faceted nature of teams (Jones, Armour, & Potrac, 2004; Jones & Wallace, 2005; Saury & Durand, 1998). Individual sports are often measured in centimetres, grams and seconds (CGS) and thus rudimentary observations of coaching ability are frequently based on performance improvements by the athlete, for example, how high an athlete jumps, how much

they can lift or how fast they can run. Fair or not, accurate or not, judgements are made. Metrics in team sports are difficult. Often, a trophy, given to winners and interpreted as defining a successful season or competition, is the only way in which success is measured in team sports. At the highest level of every sport, results, placing first, is the standard on which careers are determined. However, without examining the process of the outcome of any coaching programme it is difficult to determine the ability of a coach because even a trophy cannot explain the journey undertaken to get there.

1.6 Methods

A mixed methods approach was used in this research. Rather than just assessing the value a better understanding of the processes, and the specific contexts of training sessions and matches was gained by using a mixed methods approach. Firstly, the coaches academic and coach education backgrounds were quantitatively assessed through responses to a questionnaire followed by a qualitative semi-structured interview with each coach. Secondly, a subsequent study used quantitative methods during observations of the coaches in action which measured frequencies and rates of a range of behaviours which revealed a variety of different coaching styles. Coaches were observed in both training and competition environments. To get a more in-depth analysis of coaching behaviours transcripts of each of the coaches' training sessions and competitive matches were qualitatively assessed to present a greater understanding of with whom, how often and the type of interactions of the coaches. Athlete feedback was also invited to get their perception of the coach behaviours at various stages (early, middle/during and end points of the season) over the course of this longitudinal study and conclusions determined based on the findings.

1.7 Aims and Outline of the Thesis

The aims of this research were to a) examine coaching academic and coaching education background (Chapter 4), b) observe the coach in action during training and competitive

matches using systematic observational analysis of coaching behaviours (Chapter 5), c) examine the coaching behaviours in more detail to investigate the coaches' use of questioning during training and competitive matches (Chapter 6), d) determine athlete perception of coaching behaviours (Chapter 7), and e) make recommendations that may enhance the coaching education process and lead to better sport experiences for both coaches and athletes (Chapter 8). The next chapter, a review of the literature will extend and give further insight into points raised in this introduction. Methodological considerations are discussed in more detail in Chapter 3. The subsequent chapters outline the studies undertaken including Chapter 4 on coach education which was a study published in the European Journal of Sport Sciences. Chapters 5 and 6 present a longitudinal study on the coach in action and Chapter 7 will discuss the findings while the final chapter will make recommendations for implications and application of this research.

Chapter 2

Review of the Literature

2.1 Introduction

This chapter will discuss the background literature on the conceptual framework of the coaching environment, the role of the coach, coach and athlete development and how this can be observed and finally mechanisms for gathering athlete feedback. Section 2.2 will discuss the conceptual framework to depict the environment in which coaches and athletes operate before discussing in section 2.3 the important role of the coach and how coaching effectiveness is defined. The coach's role will discuss in particular, the interactions that coaches' experience, most notably with their athletes. Section 2.4 will then address the learning opportunities coaches' have encountered throughout their careers as athletes and coaches and how this influenced their coaching education development. This section will also discuss the different types of learning environments in which coaches learn. A critical aspect of the overall discussion of the literature and the thesis was the method used and the contexts in which coaching behaviours were observed. The penultimate section (2.5) will consider the various systematic observation instruments used to observe coaches' application of their knowledge. The final section (2.6) of this chapter will consider previous research on the athletes' perceptions of coaching behaviours and how their feedback has been gathered to inform coaching practice.

2.2 Conceptual Framework

Over the course of the next few paragraphs the argument for this research nesting in the conceptual framework of *realist evaluation* (Pawson & Tilley, 1997) will be presented. Coaching behaviour can be conceptualised through a number of different approaches, theories or frameworks, among them *chaos* and *holism* (Jowett, 2017). The basic tenet of *chaos* theory is that simple systems with simple laws can result in complexity (Gleick, 1987). Despite the name of the theory suggesting *disorder*, Gleick (1987) found that chaos theory *predicts* order in a complex and chaotic system. Though exact outcomes of the interactions between factors

at different points in time remain unpredictable, distinguishable patterns may emerge (Mack, Huddleston, Dutler, & Mintah, 2000). A practical application of *chaos theory* in the field of sport psychology allows researchers to focus on the *how* and not just the *why* events occur (Mack et al., 2000). *Chaos theory* is based on the principle that something occurred because of another event, for example, in the context of this research, a coaching behaviour as a reaction to an athlete's action. As such, *chaos theory* is aligned with the context of this research.

According to Cassidy (2010), it is impossible to construct a simple definition of *holism* but it is influenced by cultural norms. *Holism* theory relates to the overall concept of an entity rather than the nature of its constituent parts. While a number of disciplines are influencing our understanding of *holism*, humanistic psychology has primarily informed the discussion in terms of holism in sports coaching (Cassidy, 2010). Whilst humanistic psychology identifies a strong phenomenological and experiential orientation it also identifies that "human nature can never be fully defined" (Schaffer, 2007, p. 17). Humanism in sports coaching has been described as an ideology or "belief system" and without necessarily knowing or believing in their values, people can adopt practices that reflect humanism (Lyle, 2002, p. 184). The *Humanistic Model of Coaching* was described by Lombardo (1987) as being an educational model that develops the whole person, is athlete-centred with humanistic coaches that asked questions to challenge athletes and develop their strategy and decision-making skills (p. 4-5). An athlete's ability to learn is dependent on the *whole* person and is culturally specific to that person (Kidman, 2010). Thus, being humanistic ensures that those culturally specific needs are met and *holistic coaching* is the ability to understand that cultural context (Kidman, 2010). When considering the underpinning framework against which this research could be assessed, along with the theories of *chaos* and *holism* relevant comparisons were investigated between sports coaching and business executive coaching. In both instances, the coaching objectives are about influencing behaviour to effect change (Felton & Jowett, 2012; Joo, 2005) Coaching is about

conveying to a person where they are and getting them to where they want to be. In business, executive coaching aims to assist an individual or group of individuals with additional development so that they may advance their position in an organisation (McCauley & Hezlett, 2001). Similarly, in sport, coaching may include the development of sport specific, intrapersonal and interpersonal skills (Vella, Oades, & Crowe, 2011). Executive coaching is one of the few areas where practice is, arguably, ahead of the theory and potentially, sports coaching could also be described in this way (Joo, 2005). Consequently, sports coaching could be considered in the framework against which the concept of realist evaluation was developed. This framework was developed from the social theory of critical realism (Duffy, 2012) a philosophical framework for social science research which originated in the 1970's through the work of Bhaskar (Bhaskar, 1978; Fletcher, 2017). Realist Evaluation, as outlined in Pawson and Tilley (1997) and expanded further in studies by the same authors (Pawson, 2000; Pawson & Tilley, 1997; Pawson & Tilley, 2004) considers programmes as a set of theories, essentially ideas about how complex, real-life social interactions are conducted and why and how the consequent results evolve or can be repeated. North (2013a, 2013b) specifically examined the philosophy of critical realism in relation to programmes such as coach education and development with a view to research in coaching practice and behaviour in sport (North, 2016).

Against the backdrop of coach education and coaching practice and considering the real-life social interactions, it is important to interpret how this realist evaluation may be implemented. There is a high level of complexity in this domain, centred on human interaction and influenced by both internal and external factors beyond the control of the participants. For example, a coach may arrive at a training session having spent three hours in traffic, a frustrating experience that may have a negative impact on the mood and the performance of the coach in the training session. Conversely the athlete may be experiencing an excellent run of form, is in a jovial mood which can translate across the training squad, even to the coach,

thus acting as a calming influence over the running of the session. Such a variance in human behaviour adds to the complexity of coaching with challenges and specific situational issues that are unique to each group dynamic. A solution to these challenges that has proven to be effective in one group may not necessarily work in another similar group. Pawson & Tilley (2004, p. 3) described this as "Interventions never work indefinitely, in the same way and in all circumstance, or for all people". As a result, it can be said that realist evaluators do not seek a definitive answer rather they investigate a number of different situations, establish what worked, for whom, why and under what conditions. What may work in one situation, may not be applicable in another, irrespective of the fact that similar conditions may pertain (Abraham & Collins, 2011). The realist evaluators will try to understand the result or outcomes (O) of particular interactions, through what mechanisms (coaching methods, for example, a constraints-led approach) (M) they were achieved and the context (C) in which these interactions took place. How the CMO come together are the basis for the development of an evaluative process that facilitates the assessment of, and comparisons with other programmes. It is useful to understand the basic concept of the realist evaluation process while also being fully cognisant that each process must probe further within itself to produce a solution that relates specifically to the process being assessed.

2.3 The Role of the Coach and Defining Coaching Effectiveness

There are many levels at which coaching takes place and many roles which a coach must adopt (Short & Short, 2005). However, despite the level at which they are coaching there are fundamental roles of the coach which will be explored in this section and propose that irrespective of the level, a primary role of the coach is to develop the athlete. In some instances, coaches' abilities may be inaccurately described. For example, coaches may be termed *high performance coaches* because they are coaching high performance athletes. As such the athletes are involved in high performance competition and by association the coaches have

been defined as high performance coaches. However, it might be more appropriate, and accurate, to describe them as coaches of high performance athletes rather than high performance coaches. Coaches are one of the primary influences on athletes in sport (Erickson & Côté, 2015). Research emphasises that coaches have a critical role in conducting developmentally appropriate programmes that focus on the enhancement of strengths and personal resources (Côté & Gilbert, 2009; Fraser-Thomas et al., 2005). Developmental research also consistently highlights the impact of supportive relationships with adults and role models as essential in bringing about positive developmental outcomes (Benson, Scales, Hamilton, & Sesma, 2007). Furthermore, in a youth sport context, Peterson (2004) concluded that although developmental programmes such as sports have the potential to drive positive youth development, it is the personal characteristics of group leaders (e.g., coaches) that are an essential ingredient for the success of all youth development programmes. In a review of the literature on coaching effectiveness, Horn (2008) proposed the following definition which was based solely on athletes' outcomes and psychological responses:

> "*Effective coaching results in either successful performance outcomes (based on win-loss percentages, individual player development or success at national or international level) or positive psychological responses on the part of the athlete (based on high self-esteem, high perceived ability or high level of sport enjoyment)*" (p. 240)

More recently, Côté & Gilbert (2009) defined effective coaching as "The consistent application of integrated professional, interpersonal and intrapersonal knowledge to improve athletes' competence, confidence, connection and character in specific coaching contexts" (p. 316). This definition has also been adopted by the International Council of Coaching Excellence (ICCE) and included in the International Sport Coaching Framework (ISCF, 2013). The ISCF document has been designed to give support and guidelines to sporting organisations, educational institutions and international federations on the design, benchmarking and

refinement of coaching education and development programmes. Ultimately, an athlete's competence in their sport is the most obvious outcome of coaching but coaches must look beyond the athlete on the field and provide guidance that builds the persons' confidence and character. As such, a coach has many roles, teacher, organiser, competitor, learner and friend (Short & Short, 2005). Short & Short (2005) expanded on these roles by outlining that the teaching aspect involves the transfer of knowledge from the coach to the athlete to prepare them for their sport, similar to that identified in Côté & Gilbert (2009). An essential aspect of the organiser role is planning and scheduling so that the coach is prepared for each session or match with the athlete. Planning must look beyond the immediate future into the long-term development of the athlete. The coach must understand the different demands placed on both athletes and coaches in the differing contexts of training and competition (Cushion et al, 2010; Trudel, Côté, & Bernard, 1996). While constantly increasing their knowledge-base the coaches must develop a strong relationship with their athletes by being a positive role model, sharing success and offering support when necessary (Jowett, 2005). The Coach-Athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004) has been used to assess coaches' and athletes' interpersonal feelings, thoughts and behaviours. The CART-Q measured the coach-athlete relationship via the constructs of *closeness* (e.g., interpersonal feelings of trust, respect, and appreciation), *commitment* (e.g., interpersonal thoughts and intentions that aim to maintain the relationship over time), and *complementarity* (i.e., interpersonal behaviours of cooperation, such as responsiveness, easiness, and friendliness) (Jowett, 2007; Jowett & Ntoumanis, 2004). In light of the three constructs above, Jowett (2007) defined a positive coach-athlete relationship as a state reached when coaches and athletes are mutually and causally interconnected.

Previous research by Baker, Côté, & Abernethy, (2003) indicated that team sport athletes preferred, and the sport expected, a more autocratic coach. Given the multiple

personnel (coaches and a squad of athletes) involved, the findings of Baker and colleagues (2003) identified a need for a *figurehead* who assumed all the responsibility and made all the decisions for the team. Different team sports take different approaches but fundamentally the autocratic approach prevailed – you do what the coach says. Coaches who use *hustle* (section 2.6, p. 35) to motivate their athletes may be creating a *win-at-all-costs* mentality at the expense of their athlete's development (Rieke, Hammermeister, & Chase, 2008). However, in some contexts, *hustle* is a vital coaching behaviour and, anecdotally, has proven effective in terms of winning trophies and had therefore been deemed *successful.* Nevertheless, if the only measure of success is based on winning a trophy then teams may overlook the process that brought them success without fully understanding *how* or *why* they won, or, in most cases, why they *didn't* win (Martindale, Collins, Douglas, & Whike, 2013). Subsequent seasons will bring different challenges and teams will have to evolve and adapt to meet them if they are to be *successful* again. As such, *successful* or *effective coaching* should not be measured on winning alone and should consider the personal development and enjoyment of all parties, coaches and athletes. Shared responsibility gives more autonomy to the athletes and as such they become the owners of their team. More recently, research has shown that the coach should no longer be the sole driver of performance and teams in which athletes share in the decision-making process are more likely to have a better training environment and a more common goal (Vella & Perlman, 2014). Deci and Ryan (2010) suggested that the development of highly motivated, self-determined, and invested individuals in any domain requires an environment that provides opportunities to make autonomous decisions. By investing in an environment of shared responsibility there is a higher likelihood of positive rapport between the stakeholders creating a positive and mutually beneficial coach-athlete relationship (Vella & Pearlman, 2014). Coaches who demonstrate calm and inquisitive behaviours also consistently stimulate and value athlete input (Bass, 1985). Athletes' have also indicated these qualities as preferred

coaching behaviours in studies on athletes' perceptions of coaching behaviours (Rieke, Hammermeister, & Chase, 2008).

As shown above, the coach-athlete relationship is at the heart of coaching (Jowett, 2017). However, research has shown that poor relationships with the coach can have a significant impact on athletes' motivation to participate or drop out of sport (Amorose & Horn, 2000; Deci & Ryan, 2010). Smith, Smoll and colleagues developed a Coach Effectiveness Training (CET) programme (Smith & Smoll, 1997; Smith, Smoll, & Curtis, 1979). This programme was designed to develop the coaches' education by training them to be more supportive, instructive and less punitive with their athletes. A number of controlled intervention studies (Smith & Smoll, 1997; Smoll, Smith, Barnett, & Everett, 1993) were carried out and the results of which showed that the trained coaches' behaviours could be changed from a previous prevalence towards punitive coaching behaviours to more positive behaviours. Furthermore, they found that athletes with trained coaches had more fun, were less likely to drop out and evaluated their coaches, teammates and their sport more positively than athletes with untrained coaches. These results were found even though there were no differences in performance records of the coaches indicating that the CET programme did have an effect on coaching behaviour.

To better understand the nature of coaching we must therefore examine the coaches' behaviours with respect to both the context in which it takes place and the impact of these behaviours on the athletes (Cushion, Harvey, Muir, & Nelson, 2012). The objective of this line of research was to develop a clearer picture of the coach in action and the predominant behaviours of the coach in both training and competitive situations. It has been shown that even the perception of being involved in a team will encourage people to work harder (Carr & Walton, 2014). This research by Carr and Walton gave participants a puzzle and a time-limit to solve it. Half the participants were asked to complete the puzzle on their own, 25% were put

into a team and the final 25% were told that they were part of a team even though they would be working on their own. The findings showed that the participants who believed they were part of a team worked for 50% longer on the puzzle than the individuals working solo even though they were working in similar circumstances, on their own in a room. This research found that cues that evoke this form of social interaction itself inspire intrinsic motivation, causing people to work harder on challenging tasks for their inherent satisfaction. This tendency may help bring humans together to address common objectives and solve common problems (Carr & Walton, 2014). Accordingly, coaches have a crucial role in providing optimal environments in which athletes feel supported (Côté, Saimela, Trudel, Baria, & Russell, 1995). An effective sporting environment also supports the basic need of every athlete to belong to a social group whose members are mutually supportive. As Carr & Walton (2014) have demonstrated it is this belief of duty to other team members that strengthens a team, creates shared responsibility and reinforces the team to strive to achieve their collective goals.

2.4 Coach and Athlete Development

As mentioned earlier in the introduction (p. 6), how coaches learn is an important consideration for their overall development. An often under-emphasised factor is the need to provide quality and effective coach development programmes at all levels (Greenleaf, Gould, & Dieffenbach, 2001; Irwin, Hanton, & Kerwin, 2004). Furthermore, it is important to acknowledge that high quality coach education programmes are required to improve the professionalisation and quality of coaching (Callary, Werthner, & Trudel, 2012). However, the means by which coaches are supported along their developmental journey has become an area of increasing interest to researchers who have started to provide greater insight into how *parts of the puzzle* come together (Abraham, Collins, & Martindale, 2006; Irwin, Hanton & Kerwin, 2004; Jones et al., 2004; Rynne, Mallett, & Tinning, 2006).

Coaches who attend formal coaching courses as part professional development programmes, are often critical of the nature of the formal courses as being 'fine in theory' but divorced from reality (e.g., Cushion, Armour, & Jones, 2003; Saury & Durand, 1998). The advice given is simply not considered practical, applicable or actionable as it ignores the many real-life situations such as tensions and social dilemmas which characterise their practice. Indeed, formal coaching courses focused more on providing information on the development of athletes through the *drilling* of technical skills. Post-course evaluations, taken from rugby union in Australia, indicated that the coaches seemed less interested in broader, declarative or pedagogical aspects of coaching such as planning, communication skills and pedagogy or understanding athletes' needs (Light & Robert, 2010). While National Governing Bodies (NGBs) such as the Irish Rugby Football Union (IRFU), the Irish Hockey Association (IHA), the Football Association of Ireland (FAI), have indicated a desire to improve standards of coaching and coach education as part of their strategic plans, that the emphasis has been placed more on increasing the *numbers* of coaches attending courses and getting them accredited rather than on the *quality* of coach being developed. Despite numerous coach education processes being in place for decades such as the Coaching Association of Canada's National Coach Certification Program, the American Sport Education Program and the Australian National Coach Accreditation Scheme, there is still little research evidence available on the effectiveness of these programmes (Werthner & Trudel, 2006).

Information gathered to judge the effectiveness of the programmes is often indirectly obtained through end-of-course surveys or interviews on coaches' perceptions of the strengths and weaknesses of the programme with the results often kept *in-house* or only used if positively skewed (McCullick, Belcher, & Schempp, 2005). Ultimately, there is very little known about how coaches experience such programmes (Chesterfield, Potrac, & Jones, 2010). This is particularly so in terms of their structure, content and assessment, and the value that coaches

attach to them (McCullick et al., 2005; Campbell & Sullivan, 2005; Cassidy, Potrac, & McKenzie, 2006). Literature on physical education trainee teachers has found that the trainees approach their teaching education with some pre-conceived ideas about what it takes to be an effective teacher (Doolittle, Dodds, & Placek, 1993; Curtner-Smith, 1996; Anderson, 1997). Furthermore, it has also been noted that trainee teachers often keep reports during their training that are in keeping with the views and methods promoted by their teacher educators even though they may differ from their own beliefs (Anderson, 1997). As such, the trainees are presenting a façade in order to satisfy their examiners and often they revert to their own beliefs post-accreditation. Similarly, it has been suggested that coaches adopt particular strategies in relation to their certification process (Cushion et al., 2003). Further evidence of this was found by Chesterfield et al., (2010) whose coaches, while initially positive and excited about the course, found the content fell below their expectations. The participants in the study also reported "massively" adapting their coaching style to pass the assessment.

In their paper on enhancing coach education, Nelson, Cushion, and Potrac (2006) highlighted the need to focus on several considerations when researching the impact of such programmes; these were:

(i) coaches' perceptions about the content, delivery, and assessment of a given course

(ii) whether learning occurs as a result of course attendance

(iii) if the course assists learners in positively changing their coaching philosophy and practices

(iv) whether the experiences and development of athletes working with the coaches being educated alters following their coaches' completion of the coach education programme (p. 216).

While evaluating the effectiveness of formal coaching education programmes is a worthy and important undertaking, coaches also must take responsibility for furthering their own education

through other means. In this context, Stoszkowski and Collins (2016) found that coaches often prefer self-directed, *informal* and not standardised learning opportunities with coaches primarily participating in self-initiated experiential and observational situations to enhance their understanding and coaching education. This concept highlights the range of disparate and non-standardised learning environments, contexts, and settings that contribute to coach education.

Coaching is influenced by three – *formal, non-formal* and *informal* - basic sources of learning situations (Nelson et al., 2006). The learning situations in which knowledge is gained, how the learning situations interact with other coaching contexts to coaches' education are other prominent areas of research over the last two decades (e.g., Erickson et al., 2007; Irwin, Hanton & Kerwin, 2004; Lemyre, Trudel, & Durand-Bush, 2007; Stoszkowski & Collins, 2016; Williams & Kendall, 2007) specifically the methods of *learning* to coach. Findings in these studies failed to reach a consensus as to the perceived importance of *formal* coach education in the development of coaching knowledge. As with other aspects of this research, the context of the learning situation and the subsequent application of this knowledge must be specific to the coaching context, e.g., learning in a practical setting. It is important to consider that just because a certain method worked for a *successful* coach does not mean that it will transfer to every situation (Abraham & Collins, 2011). However, Irwin, Hanton and Kerwin (2004) found that the most important resource identified by the participants in their study was "mentor coaches". The coaches felt that they had a higher level of competence and understanding following their engagement with their mentor coaches. Another important finding from Irwin, Hanton and Kerwin (2004) was attendance at training sessions improved the knowledge base of the coaches. The reflective experiences of these squad sessions were found to be greatest when run as clinic-based sessions with opportunity for discussion, evaluation and experimentation. In saying that, the observations of squad sessions and more

experienced, mentor coaches were ineffective for the development of reflective practice if no interaction took place. Irwin, Hanton and Kerwin (2004) concluded that there is a great deal of individuality about *how* coaches learn and how coaches *learn* to coach. Furthermore, the principles of experiential learning and reflective practice should be promoted to enhance coach development (Kolb, 2014).

Cushion et al., (2010) used prior work from Coombs and Ahmed, (1974, p. 8) to provide a description of *formal* learning that has been categorised as something that takes place in an "institutionalized, chronologically graded and hierarchically structured educational system". Usually there are admission prerequisites and attendance is compulsory for a standardised curricula that culminates in certification (La Belle, 1982). In the sporting context, large-scale coach certification courses are examples of *formal* learning activities that conform to Cushion and colleagues' (2010) definition of a *formal* learning situation. These courses regularly take the form of short blocks such as weekends, with minimal, or no, follow up from the course instructors. However, despite the coaches departing the *formal* course better equipped with new-found tactical and technical knowledge of their sport they are likely to leave without the necessary *how to coach* tools to transmit this knowledge to their athletes (Cassidy, Jones, & Potrac, 2016). In contrast to *formal* learning settings, a *non-formal* learning situation would include seminars, workshops or any other organised gathering outside of the *formal* setting (Nelson, Potrac & Jones, 2006). The *informal* learning situation is arguably the most important as it is a lifelong process where knowledge is accumulated over time and the person actively participates in their learning (Werthner & Trudel, 2006). Coaches learn from their previous involvement as an athlete, from working with other coaches and interacting with their peers (Wright, Trudel, & Culver, 2007). The magnitude of learning gained from daily experiences is determined by the person's degree of receptiveness and willingness to learn from peers or specialists (Collins, 2012).

Chapter 1 briefly alluded to the complexities of sports participation and coaching. In this regard, development pathways while desirable and easy to follow did not always fully explain the complex nature of the journey that is not always smooth as there were some challenges to be overcome along each road. Athletes play and learn from the experiences in and out of the arena in which they operate and the people whom they encounter during their career (Côté, Ericsson, & Law, 2005). Some athletes will take the decision to coach, some coaches will never have played the sport in which they are involved. As such, some pertinent questions that arise may be:

i) What makes coaches coach the way they do?

ii) Are there necessary experiences that a coach must have to be effective in helping the athletes under their care?

iii) Are particular types of athletes pre-disposed to certain coaching methods?

Considering these questions, the importance of coach education is arguably critical for athlete development. As the interest in coach learning has grown significantly as an area of study several theoretical approaches have recently been proposed that identify with and utilise the three different learning situations discussed above. The theoretical approaches include behaviourist and social cognitivist (Groom, Nelson, Potrac & Coyles, 2016) experiential (Day & Newton, 2016) and constructivist (Potrac, Nelson, Greenough, & Groom, 2016; Toner, Moran, & Gale, 2016) and will serve to deepen the understanding of learning. Consequently, as there are different ways to learn, different learning goals and different learners, there is no solitary setting in which all coach learning takes place (Kilgore, 2001). The importance of experiential learning is posited to be critical to coach development, to serving an apprenticeship and starting from the bottom, as it were (Watts & Cushion, 2016). However, frequently novice coaches are appointed at youth sport levels to gain experience and learn their trade (McIlroy, 2015). This may be beneficial for the coach but may be detrimental for athlete development.

The positioning of high quality coaches within a club is a key strategy for development. Arguably, high quality coaches should be retained with development level athletes "since the majority of youth sport coaches are volunteers and coaches have received very little training relating to athlete development" (Holt & Neely, 2011, p. 309). Furthermore, the vast majority of training received by youth sport coaches tends to focus on practice design and skill development, rather than on the promotion of positive youth development-based outcomes (Evans, McGuckin, Gainforth, Bruner, & Côté, 2015). Chapter 4 of this thesis will discuss the nature of coach education in a high-performance context in team sports in Ireland and reflect many of the topics discussed in this section. Chapter 4 formed the basis of an article which was published in the European Journal of Sport Science online in September 2016 and more recently in the printed version Vol 17(3), April 2017.

2.5 Systematic Coaching Observation and Observation Instruments

The purpose of coaching observation is primarily to i) evaluate how coaches communicate with athletes (Becker & Wrisberg, 2008) ii) to analyse coach interactions (Bloom, Crumpton, & Anderson, 1999) and iii) to examine the overall effectiveness of the coaching process (Potrac, Jones, & Cushion, 2007). Evaluating the work of coaches should consider more than result-based criteria, such as win-loss records (Mallet & Côté, 2006). The foundations of coaching research, unsurprisingly, are linked to education and teaching effectiveness methodology (Kahan, 1999). It was the innovative development of systematic observation instruments that enabled research to progress from the early indirect measures such as self-reports of behaviour or questionnaires (DeMarco, Mancini, & West, 1997). However, progression in this domain was not swift. Reference to coaching and the recognition that coaching was an important area of future research had been largely overlooked (Metzler, 1989).

The development of new observation instruments brought sport and specifically coaching into the spotlight and was able to give coaches legitimate feedback on coaching

practice. There has been a significant focus over the last 40 years on observing teaching and coaching behaviours using descriptive-analytical systems (Cushion et al, 2010; Gilbert & Trudel, 2004; Smith & Cushion, 2006). Systematic observation instruments allow a trained observer to use a set of guidelines and procedures to observe, record and analyse observable behaviours during training sessions and matches (Franks, Hodges, & More, 2001). In the sporting domain, systematic observation has become a recognised methodology and observation systems have been used in a variety of sports such as basketball (Tharp & Gallimore, 1976), baseball (Smith, Smoll, & Hunt, 1977), ice-hockey (Trudel et al., 1996), rugby (Brewer & Jones, 2002) and soccer (Potrac et al., 2007).

In an early systematic review of research into coaching behaviours, Kahan (1999) analysed published research from 1975-1997, that used systematic observation instruments to directly observe coaching behaviours. Of the 56 included studies, only 17 of them were published in the first decade of the review with the remaining 36 studies published in the years from 1984 to 1996. In one of the most significant contributions to this type of research, Smith, Smoll and colleagues (Smith & Smoll, 1990; Smith, Smoll, & Christensen, 1996; Smith et al., 1977; Smith, Zane, Smoll, & Coppel, 1983) used observational methods to collect data on coaching behaviours and to examine the interactions between the coach and their athletes. To observe coaching behaviours, Smith and Smoll designed the widely-used Coach Behaviour Assessment System (CBAS; Smith et al., 1977). This systematic observation system consists of twelve coach behaviour categories divided into two sections. The behavioural categories were derived from content analyses of numerous verbal "play-by-play" reports of coaches' actions during practices and matches using a time-sampling procedure. Both the measurement approach and the categories derive from social-behavioural orientation and the categories incorporate behaviours that have been shown to affect both children and adults in a variety of sporting settings (Bales and Slater, 1955; White 1975; Smith et al., 1977). As such, content

validity of the categories was confirmed through literature research and engagement with expert coaches.

The first section categorises eight (8) coach behaviours in response to athlete behaviour while the second section categorises four (4) coach behaviours, spontaneously initiated by the coach and not in response to athlete behaviour. An example of the category outline can be found in Appendix 5 (p. 205-208). During the design phase of the CBAS several studies were performed to assess reliability of the behaviour categories and agreement levels between the observers. The reliability of the behaviour categories was assessed by measuring the agreement in the scoring of the categories which returned an average agreement of 97.8%. The inter-rater reliability was assessed by computing the reliability coefficients (171 possible pairs) between two of the authors and 19 trained observers who had coded 91 minutes of sports footage. The mean inter-rater reliability coefficient for the 171 possible observer pairs was 0.88 (Smith, Smoll & Hunt, 1977). The research coded coaching behaviours using the CBAS and generated behavioural profiles for coaches by calculating the relative frequency of each of the behaviour categories. In connection with this, data were also collected through interviews and questionnaires with the athletes to establish their interpretation of their coach and their sport experience. As the CBAS only measures direct styles of coaching, it does not differentiate between expert and less expert coaches (Abraham, Collins, Smethurst & Collins, 1997; Sherman & Hassan, 1984). Furthermore, as there is no specific category for the use of questions, CBAS has been shown to include high usage of the *general communication* category (Abraham & Collins, 1998). As such, this behaviour-tallying approach necessitates additional methods to establish the *context* of the coaching behaviours and is crucial if an evaluation of coaching effectiveness is to be accurately assessed (Abraham & Collins, 1998). Coaches' who demonstrated high levels of supportive and instructional behaviours were rated most positively by the athletes (Smith, Shoda, Cumming, & Smoll, 2009). Furthermore, these coaches were

also rated by their athletes as creating a more pleasant environment where the athletes had more fun and liked their teammates more than athletes of coaches who had a tendency towards more punitive behaviours.

The two most widely used systematic observation instruments reported in Kahan's (1999) review were the CBAS and the Arizona State University Observation Instrument (ASUOI; Lacy & Darst, 1984). While a variety of instruments were used in the 56 studies in review by Kahan (1999), almost half used either CBAS (12) or ASUOI (14). Frequent use of a few instruments helps to promote a common technical language and methodological uniformity during data collection (Kahan 1999). The ASUOI has evolved from an 11-category systematic observation instrument (Lacy, 1983) based on refining a 10-category instrument from Williams (1978), and Dodds and Rife (1981) to the existing 14-category (13 behaviour and 1 "other") instrument. Among the existing categories are three sub-categories which require dual coding, i.e., an extra code must be implemented to identify whether the coded behaviour was "higher" or "lower" level. Also, the "use of first name" category is always coded in conjunction with another category. Content validity for ASUOI was confirmed through literature research and interaction between specialists in the relevant field (Cheffers, 1977). The authors also carried out further validation assessments through comparisons to completed research and related articles in the area of coaching behaviour which supported the selection of the specific behaviour categories used in the instrument (Rushall, 1977; Tharp & Gallimore, 1976). Among the key findings from Kahan's (1999) review was that no single behaviour observation session can distinguish between effective and ineffective coaching (Graham & Heimerer, 1981). Furthermore, multiple data collection sessions and methods, to include athlete feedback, should be used to provide additional insight into the coaches' behaviours and the context in which the observations take place, namely both training and competitive matches.

Systematic observation research is descriptive by nature and provides an understanding of coaching behaviour that allows researchers to accumulate knowledge about what the coaches actually do. It has been argued that there is a need to study beyond the pedagogical content into the more diverse range of coaching activities and behaviours to further our understanding of the coaches' influence on athlete development (Cushion et al., 2010). There is also a distinct need for a more complex analysis of the observed coaching behaviours (Smith & Cushion, 2006). The focus of trying to establish a coaching observation instrument centred on capturing coaching behaviours so that *best practice* could be passed on to the next generation of coaches. More specifically, this *best practice* was interpreted as replicating what the most successful (winning) coaches did so that it could be applied elsewhere. However, as I referred to earlier in this chapter (p. 16), due to the variation in context, it is unlikely that the same interventions can be repeatedly implemented to the same success (Pawson & Tilley, 2004, p. 3). With previous research, there was a tendency to be prescriptive and generally ignored the *context* under which the coaching was taking place. The topic of *context* remains, to this day, the greatest limitation in coaching observation methods. Although the observation systems provide a wealth of information they may be limited to the scope of the instrument as they only measure certain behaviours at particular times and therefore do not allow for the context of each situation to be considered (Cushion, Ford, & Williams, 2012). Without context, the observation systems are too simplistic and, when used in isolation, do not contribute significantly to further our understanding of coaching effectiveness.

Since Kahan's (1999) seminal review, multiple new observation systems have been developed with a trend towards modifying or adapting existing instruments (Cope et al., 2016). However, this in itself presents an issue of validity. Also, studies that have claimed to use a modified version of an instrument have not included original primary behaviours thus presenting the possibility of ambiguity on the instruments they actually used (Luján, Francisco,

& Calpe Gómez, 2012). A case in point here would be the Coach Analysis and Intervention System (CAIS; Cushion, Harvey, Muir, & Nelson, 2012) which has been the reported instrument used in eight studies since 2012. In fact, in six of the eight studies a modified version was used (Cope et al., 2016). Another example of adaptation or modification is the use of the ASUOI (Lacy & Darst, 1984). This instrument has subsequently been adapted to form the basis for the Rugby Union Coaches Observation Instrument (RUCOI; Brewer & Jones, 2002) and more recently, further adapted to become the Rugby Coaches Activities and Behaviours Instrument (RCABI; Hall, Gray, & Sproule, 2016). Each sport has fundamentally unique contexts and precludes identifying a systematic observation instrument that will satisfy *all* coaching behaviours for *all* sports. As such, refinement of instruments will continue to be a necessary requirement of future research. The evolution of the ASUOI to the RUCOI to the RCABI is a perfect example of specific adaptation of an instrument to a single sport, in this case rugby union. This may underline the need to have a sport-specific observation instrument. It is likely that the practice of modifying existing instruments will continue as the context of each session changes to meet specific session outcomes. By refining and validating new instruments, it will avoid the *force-fitting* of behaviours into discrete categories (Zakrasjek, 1990).

CBAS has led the way for research designed to enhance the systematic observation of coaches and positive athlete development. The Coach-Athlete Interaction Coding System (CAICS; Erickson, Côté, Hollenstein & Deakin, 2011) and the Para Coach-Athlete ICS (Turnnidge, Côté, Hollenstein, & Deakin, 2014) have been modelled on the CBAS for the purpose of examining the interactions between coaches and athletes in able-bodied and adapted sport contexts. While the focus has been on the content of coaching behaviours, various other techniques can be applied to discover a deeper contextual meaning of these behaviours. For example, CBAS data has been used by some of the original authors to establish *behavioural*

signatures of little-league baseball coaches (Smith, Shoda, Cumming & Smoll, 2009). More recently, researchers who are developing new observation instruments are designing them to be more sensitive to the context of the different coaching situations and the assessment of the coaches' *tone*. The CAIS (Cushion et al., 2012) is one such observation instrument which addresses the context issue by examining the activity, recipient, timing, content and nature of each behaviour. Another innovative observation system, the Assessment of Coaching Tone (ACT; Erickson & Côté, 2015) specifically assesses the *tone* in which these coaching behaviours were delivered by the coach to the athletes. Erickson and Côté (2015) define *tone* as the "psychological meaning conveyed by a given coach interactive behaviour". The ACT system uses nine different behaviour categories and three *tone* categories. Each coach behaviour is classified by a combination of a content code and one or two corresponding intervention tone modifiers, depending on which content code is selected. Specifically designed to be utilised in youth sports' contexts, the ACT evaluates the motivational tone and autonomy support given by coaches to athletes that may have important implications for sustained athlete involvement in sport and coaching practice. Coaches' tone may be interpreted as an articulation of their state of emotion and may have a profound effect on their own thought and behaviours and importantly on the behaviours of their athletes (Friesen et al., 2013).

Continuing the thread of developing observation instruments such as the ACT in youth sport, the context in which the research takes place is also of critical importance. As Kahan (1999) identified, coaches' behaviour in both training and competition (matches) over time must be included in any research to give a more complete picture of *trait* rather than *state* coaching behaviours. However, a recent systematic review by Cope et al., (2016) found that many of the recommendations by Kahan (1999) continue to be overlooked. Cope et al., (2016) reviewed the use of systematic observation methods in coaching from 1997 to 2016 and included 26 studies. Among their findings were that researchers continue to separate coaching

behaviour observations into categories of training sessions and matches. Furthermore, researchers have failed to consider the need for sustained observation of a longitudinal nature and the addition of qualitative measures to support the quantitative findings. For example, in the first 20 years of systematic observation in coaching research, only seven studies combined both training and match observations. Of the seven studies, only three studies (Chaumeton & Duda, 1988; Horn, 1984; Wandzilak, Ansorge, & Potter, 1988) specifically compared the coaching behaviours and found that certain coaching behaviours differed under the different situations. In the 20 years between these reviews, Cope et al., (2016) found only two studies (Hall et al., 2016; Webster, Hunt, & LaFleche, 2013) had observed coaches in both training and competitive situations. The importance of conducting research in both training and competition is that coaches have more control over their behaviour in their own training environment and may be more reactionary in competitive situations (Cushion 2010; Trudel et al., 1996). In Kahan's (1999) review the mean length of time in minutes of each observation was 45.67 minutes. While the duration of time has increased somewhat since – e.g., 87 minutes for each of the 28 coaches in (Pereira, Mesquita, & Graça, 2009) - fewer than 50% of the 26 studies observed the coach on more than five occasions with ten studies observing coaches on three or fewer occasions. To put this in context, Brewer & Jones (2002) found that 270 minutes (3x90minute sessions) was necessary to observe the full scope of coaching behaviours and provide vital information on the overall coaching profile. When only a "one-off" observation takes place, the stability of observed behaviour is suspect as coaches may adapt their behaviour to satisfy the observation period (Partington & Cushion, 2012). Hence there is a need for a more longitudinal study covering multiple observations in both training and competitive situations and in different *contexts*. Longer observations will also provide a platform for an intervention to take place that may result in a change of coaching behaviour that would not be evident, or indeed possible to implement, in shorter time-frames (Potrac et al., 2007).

In addition to this, Kahan (1999) recommended that researchers should incorporate alternative strategies and theoretical frameworks to study coaching behaviour and its relationship with athletes as early research had focused on coaches and mostly ignored any involvement of athletes. Researchers should also consider the nature of each observation, the *context* in which the coaches and athletes interact and shifting the focus from solely studying the coach to also examining the athlete contribution to the coach-athlete dynamic/dyad. By including as many *context* variables as possible a broader more illuminating picture will develop of coach and athlete interactions. This research has attempted to bridge the gap in coaching observation research by including coaching in both training and competitive situations. Furthermore, qualitative methods have been used to give a richness to the *context* of each coaching situation. Significantly, this research is the first of its kind to include coaching observations in Gaelic Football in both training and competitive situations.

2.6 Athlete Feedback

In the context of athlete development, coaches have numerous opportunities to significantly influence athletes' lives and their progression in sport. Any coaching situation involves the interaction of three fundamental variables; the coach, the athlete and the environment (Côté, Yardley, Hay, Sedgwick, & Baker, 1999). Furthermore, theoretical models specify that, among other things, coaching behaviour was influenced by coaches' perception of athletes' attitudes and also by athletes' perception of coaching behaviours (Chelladurai, 1984). It is important to consider the impact of coaching behaviours on athlete development and thus a crucial element of this study was to give the athletes a platform upon which they can register their feedback on their coaches' behaviours. Coaches who have been trained in humanistic principles have learned to communicate effectively to promote athletes' development (Falcao & Bloom, 2016). As such, one might expect to see this reflected in the feedback from the athletes.

Given the influential role of the coach in developing athletes (Fraser-Thomas et al., 2005) coaches' emotions may manifest themselves in pre-match/training or match/training-interval speeches and influence athletes' perceptions of the coach (Becker, 2009). In an interesting study by Allan and Côté (2016), their findings differentiated coaches into two groups 1) *hustle* – coaches who used verbal statements to activate or intensify effort in athletes, and 2) *questioning* - coaches who posed questions to draw information, thoughts, and opinions from athletes. Coaches from group 2 were found to have a calm and inquisitive nature which promoted corresponding, more sociable behaviours in their athletes. Athletes' have also indicated these qualities as preferred coaching behaviours in studies on athletes' perceptions of coaching behaviours (Rieke, Hammermeister, & Chase, 2008).

For an effective coach-athlete relationship, the emotions, thoughts and behaviours of all parties should be closely aligned (Jowett, 2007). Therefore, establishing the athletes' perception of coaching behaviours would be an important factor in furthering our understanding of the coach-athlete relationship (Jowett & Cockerill, 2002; Mallett & Côté, 2006). As mentioned above (p. 24) previous research (Kahan, 1999; Côté et al., 1999; Cope et al., 2016) had identified that athletes' perception of coaching behaviours has received little consideration when measuring coaching effectiveness.

While the Coach-Athlete Relationship Questionnaire (CART-Q; (Jowett & Ntoumanis, 2004) has contributed much to our understanding of the coach-athlete relationship it is primarily concerned with the affective, cognitive and behavioural interpersonal aspects of *closeness, commitment* and *complementarity*. Several instruments have been designed to specifically measure athlete perception of coaching behaviours and coaching effectiveness for example, the Leadership Scale for Sport (LSS; Chelladurai & Saleh, 1980) and the Coaching Behaviour Questionnaire (CBQ; Williams et al., 2003). Both the LSS and CBQ focused on specific aspects of coaching and were not grounded in coaches' and athletes' experiences

(Mallet & Côté, 2006). The LSS, because of its nature, was limited to examining leadership behaviours that mainly take place in the training environment while the CBQ concentrated on behaviours most commonly seen in the competitive environment. As such, this limits the use of the LSS and CBQ when the goal is to assess overall coaching behaviours in both of these contexts. Another instrument devised to specifically address athlete perception of coaching behaviour is the Coach Behaviour Scale for Sport (CBS-S; Côté et al., 1999). The design of the CBS-S was influenced by several qualitative studies conducted with coaches and athletes (Bloom & Durand-Bush, 1997; d'Arripe-Longueville, Fournier, & Dubois, 1998; Gilbert & Trudel, 2000). These studies, among others, had used the Coaching Model (CM; Côté et al., 1995) as a framework to examine coaches' personal characteristics, athletes' characteristics, and the context in which coaching occurs. There are a number of distinguishing features of the CBS-S from the LSS and CBQ in that it takes into account the athlete perception of the coaches' Mental Preparation skills, Goal Setting skills and Personal Rapport with the coach. While the LSS was designed for use with adults the CBS-S was designed to be used across a variety of levels and sports and thus has a broader range of application. Furthermore, the CBS-S has been applied in an international context with findings consistent to previous research that used CBS-S (Baker, Côté, & Hawes, 2000; Baker, Yardley, & Côté, 2003; Koh, Mallett, & Wang, 2009).

This literature review has identified some critical gaps in the field of coaching observation research, for example, the different contexts in which coaching takes place and the methods used to collect and analyse the data. This has provided a clear rationale and justification for the context in which this research took place, the need for multiple observation sessions and the use of a mixed methods approach. The Methodological Considerations will be discussed in greater detail in the next chapter.

Chapter 3

Methodological Considerations

3.1 Introduction

The previous chapters have presented an introduction to the overall thesis and a detailed account of the previous research in coach education, observational coaching instruments and coach and athlete development. This chapter will give an overview of methodological processes, discuss these processes in the context of observational research in sports coaching and finally outline the rationale for choosing a mixed methods approach. The application of knowledge, gained during the coach education process, to practice is a key area for researchers to investigate (Nelson, Cushion, & Potrac, 2006). The research takes place in a real-life situation where the application of knowledge in a practical setting is examined. Measuring the effectiveness of the coach in practice or the relevant necessary experiences a coach may need to become an expert coach is difficult from both a quantitative and qualitative perspective. However, while examining the coach education backgrounds it became evident that a gap existed in how the coaches learned *how* to coach. Having attended formal coach education courses, engaged in informal peer discussion groups and learned through experience as both an athlete and novice coach this research sought to examine the application of this learning in practice and how this may affect coach and athlete development. In organised sport, it has been argued that the dominant interpersonal interactions take place between coaches and their athletes (Fraser-Thomas et al., 2005). As a consequence of these interactions, the coach can have a significant influence on the athlete (Horn, 2008). By using a number of different methodological approaches including direct observation of coaches behaviours (Smith et al., 1977), questionnaires targeting relative perception of coaches' behaviours (Côté et al., 1999) and qualitative examinations of the meaning behind these behaviours (Keegan, Harwood, Spray, & Lavallee, 2009) this body of literature demonstrates that coaches have a significant opportunity to influence the nature of the athlete experience and development over the course of their interactions. This chapter will discuss the various methodological considerations used

in sports coaching research and outline the rationale for selecting a mixed methods approach to undertake this research.

3.2 Qualitative vs Quantitative

It has been proposed that researchers tend to favour one research paradigm over another, i.e., those that align themselves to qualitative methodology rather than quantitative methodology, and thus overlook the potentially beneficial contributions that the other paradigm may offer (Kelle, 2006). Furthermore, Kelle (2006) argues that by steadfastly committing to one paradigm over another then one will neither acknowledge nor exploit the benefits of another research method. Both social constructionists (qualitative researchers) and critical theorists (quantitative researchers) agree that there are multiple realities in operation but disagree about the goals of inquiry and the researcher role. Qualitative researchers follow the line of inquiry to understand the natural setting whereas according to Guba and Lincoln (2005), the quantitative researcher remains somewhat detached from the participants and associating themselves merely with data. As such, quantitative researchers can be described as adhering to a *realist* or *external* view of reality where measurable quantities are of critical importance (Krane, Andersen, & Strean, 1997). In contrast, the same authors referred to qualitative researchers as adopting a *relativist or internal ontology* where the concept of *how many* is not relevant.

For Avis (2005, p. 3) 'almost every aspect of qualitative research, what it is, what it is for, how it is done, and how it is to be judged, is the subject of controversy'. Lincoln (2010) described the position of qualitative researchers as "postmodernists, interpretivists, phenomenologists and critics" who attend to the richness of data and elaborate on the finer details whilst, at the same time "may add to the confusion of the explanation by being broad enough to encompass a variety of themes". As such, Denzin and Lincoln (2011) emphasise that there is no *one* way to do qualitative inquiry and speak of multiple interpretive projects. It is

not uncommon for research fields to have a certain amount of overlap with many features in common (Madill & Gough, 2008). Conversely in an ideal world there would be an easy description of a phenomenon to be researched. In one corner, you may have the quantitative research enthusiasts who discuss *structural variables, causal models* and *precise measurement.* In contrast in the other corner are the qualitative researchers who are more concerned with discussing what is more *experientially* relevant to the research topic. Qualitative researchers discuss *meaning* especially about what certain lived experiences mean to the participants in the research. There is no talk of precise or predictive models only what is actually *happening* or *has happened* relative to the questions being asked (Gubrium & Holstein, 1998). How qualitative and quantitative researchers go about their work is often termed the *paradigms approach* (Sparkes & Smith, 2014). Subsequently, what the researchers actually *do* when they conduct their research is called the *practical approach* (Sparkes & Smith, 2014).

According to Guba & Lincoln (1994) paradigms evolve based on basic beliefs and assumptions, learned through social interactions about what is worthy of study that guide action. From paradigms, questions emerge and will be answered in a particular way based on the researchers' standpoint. The research question however does not emerge from just the paradigms but also from the researchers who are influenced by multiple factors including experiences, training and their immediate surroundings. It is a pitfall of some researchers that they get so ingrained, comfortable or committed to a particular methodology that they fear the concept of adopting an alternative approach (Gill, 2011). This is somewhat understandable as change can be difficult to embrace. However, referring to the researcher's role within quantitative research as being that of *disinterested scientist* is somewhat harsh. In contrast, for the constructivist, qualitative researcher, the researcher's role becomes that of *passionate participant* (Sparkes & Smith, 2014). The contrast here is between the person dedicated to the

cold hard science as opposed to the person who, frequently, designs their research around a particular topic with which they may have a certain amount of empathy.

When considering the topic of this research selecting the most appropriate approach leaned more towards the qualitative approach given the diversity of the human interactions. This would also fall into a more *practical approach* where the researcher gets very close to the participants, or *entering the phenomenon* to discover what is significant to the participants (Charmaz, 2004). It is through this immersion in the subject that qualitative researchers can uncover meaning, subjectivity and a deep understanding of the context in which the research is taking place. However, the quantitative approach provides a tool to link these interactions and investigate if a connection exists between the different *contexts* in which they occur. Although it would be essential to have the quantitative data on numbers of interactions between the coach and the athlete, what cannot be interpreted from this data is the *context* of the interaction. By combining both qualitative and quantitative methods we have a far clearer understanding of a dynamic coach-athlete relationship that may change from time to time depending on the *context* in which it takes place. This *context* may not always be within the control of either the coach or the athlete. For example, an injury to the athlete, and interactions other than technical or tactical instruction from the coach may occur during a training session or match. Much like the environment that exists in team sports, Guba & Lincoln (1994) argue that realities are constructed based on the social and experiential nature that is local and specific to the individuals or group members (p. 111). The job of qualitative researchers, therefore, is to discover and report these varying realities by engaging and accurately reflecting the views and perceptions of the participants (Creswell, 2012, p. 44).

3.3 Mixed Methods Approach

No single method can grasp the subtle variations in ongoing human experience (Denzin & Lincoln, 2011). Combining methods is not a new practice. It has been used to explore the design

of studies, corroborate findings and to provide an explanation for observed associations or linking data to particular findings from another method (Creswell, 2012). A mixed methods approach has been used to compensate for the perceived shortcomings of certain methods or instruments with the aim of providing a more complete picture and greater depth and understanding of *context* that may not have fully emerged from the original investigation (Greene, Caracelli, & Graham, 1989; Kelle, 2006). As such it is important to have well thought-out research questions so that using mixed methods is part of the process of the research and not carried out retrospectively to compensate for a lack of foresight in the design phase of a study. There is a recognition of the value of using mixed methods approach (Moran-Ellis et al., 2006; Sparkes, 2015) and a new breed of researcher has evolved whose principle orientation is a pragmatic, mixed methods approach rather than an affiliation to either qualitative or quantitative traditions (Tashakkori & Teddlie, 2010). However, concerns have been raised about the legitimacy of a mixed methods approach (Mason, 2006, p.3). Mason argued that it is important for researchers to underpin their practical strategy for choosing a mixed methods approach and, also, to link the data analytically. This can be achieved by outlining the ontological and epistemological assumptions of the research. Herein lies an important distinction. Onwuegbuzie and Leech (2005) found that purists and pragmatists exist at either end of a spectrum. Purists contend that quantitative and qualitative approaches cannot and should not be mixed" (p.376). In contrast, pragmatists believe that the research question should drive the method and advocate for using both quantitative and qualitative methods in research as "epistemological purity does not get research done" (Onwuegbuzie & Leech, 2005, p.377). By adopting a pragmatic approach to this research, the real-life situations in which the research takes place are more truly reflected than only using either quantitative or qualitative methods in isolation. A pragmatic research philosophy is incorporated throughout this research due to its compatibility with the chosen area of study. Consequently, the methods used for data

collection (observation of coaching behaviours in natural settings) and a small sample size is congruent with a pragmatic approach (Moran, Matthews, & Kirby, 2011). Coaching, coach education and development programmes have often been criticised for not always developing the practice of coaching, overlooking the vital aspect of *how* coaches communicate and by failing to employ effective pedagogical approaches from both the teaching and coaching domains (Roberts, 2011). It may also be said that researchers should develop more applied practices and principles rather than theories of practice, highlighting a discord between the theory and practice in the coaching domain (Jones & Turner, 2006). A pragmatic research philosophy operates from the position that academic research should make a difference to the specific groups it studies, in this case high performance coaches and their athletes. As such, pragmatists look to use methods that are appropriate for answering applied problems to understand the process (Giacobbi Jr, Poczwardowski, & Hager, 2005). In accordance with this, the methods used in this research were determined by specific objectives. For example, in Chapter 4, where the objective was to discover the coaches' academic and coaching education backgrounds, a quantitative questionnaire was followed up by semi-structured interviews to provide a greater depth of understanding of the information provided in the online questionnaire. Pragmatic research was also appropriate in the overall context of this research as it recognises that researchers can be actively involved in the study area. As an active coach, my practice was informed by the knowledge gained from the research, with knowledge and action considered by Corbin and Strauss, (2008) to constantly feed into each other. To grasp and understand the social *reality* of which we are a part, we must *observe* (Ronglan, 2011). *Reality* can be established through the use of many tools – questionnaires, interviews, observation, textual analysis - and the data in this research has been collected in a practical way. Therefore, there was minimal interference with the context that involves both quantitative

and qualitative approaches to analysis which aligns with the definition of pragmatic approach as outlined by Lincoln, Lynham and Guba, (2011).

3.4 Research Methods in Sports Coaching

There has been a significant focus over the last 40 years on observing teaching and coaching behaviours using descriptive-analytical systems (Cushion et al., 2010; Gilbert & Trudel, 2004; Smith & Cushion, 2006). In the sporting domain, systematic observation has become a recognised methodology and observation systems have been used in a variety of sports such as basketball (Tharp & Gallimore, 1976), baseball (Smith et al., 1977), ice-hockey (Trudel et al., 1996), rugby (Brewer & Jones, 2002) and soccer (Potrac et al., 2007). However, although the observation systems provide a wealth of information they may be limited to the scope of the instrument as they only measure particular behaviours at particular times and therefore may not allow for the context of each situation to be considered. Without context, the observation systems are too simplistic and, when used in isolation, do not contribute significantly to our understanding of coaching effectiveness (Mallet & Côté, 2006).

Content analysis was used for the qualitative aspect of this research. Specifically, content analysis was used in favour of thematic analysis as it afforded the opportunity for quantification of data (Vaismoradi, Turunen, & Bondas, 2013). Essentially, this means that measuring the frequency of different categories and themes was possible through content analysis which also complemented the qualitative aspect of the research. Indeed, the case may be that observation coding during a session may only indicate state behaviours and not truly reflect the trait behaviours of the coach. Furthermore, single observations or limited time spent observing coaches may cause the coach to act or behave in a particular way to satisfy the observation period (Partington & Cushion, 2012). A strength of this research is the longitudinal nature, given data were collected during both training and competitive matches at six (6) different time-points over the course of a season. The rationale for this type of data collection

was to capture the real-world nature of the coach in practice in their domain ensuring context-rich data. To further strengthen the research, data was also collected through questionnaires to determine athlete perception of the coaching behaviours at different time-points over the course of the season as recommended by Côté et al., (1999). The *context* in which the data were collected was also specifically considered. Some sessions had a focus on technical development and usually took place earlier in the training week. Tactical and team organisation sessions tended to take place later in the week and closer to a competitive event. Finally, the matches in which data collection also took place had a particular significance given that they were in the mid-stage and towards the end of the season, allowing for a possible fluctuation in performance throughout the season that may affect the teams' position in the table or the importance (friendly game or competitive match) of the matches.

As mentioned in Chapter 2 one of the most significant observation tools used to collect data on coaching behaviours is Coach Behaviour Assessment System (CBAS; Smith et al., 1977). Despite using qualitative methods to establish the current context of youth sport coaching in the preliminary design of the CBAS, Smith and Smoll describe themselves as committed quantitative researchers who use a logical positivist approach to research (Smith, Smoll, Nelson, Groom, & Potrac, 2014). This systematic observation system consists of 12 coach behaviour categories which take into account both reactive coaching behaviours in response to athlete actions and spontaneous behaviours initiated by the coach and not in response to an athlete behaviour. An example of the category outline can be found in Appendix 5 (p. 205-208). The system was developed through detailed content analysis of coaches in a number of youth sports. The research coded coaching behaviours using the CBAS and generated behavioural profiles for coaches by calculating the relative frequency of each of the behavioural categories. In connection with this, the Coach Behaviour Scale for Sport (CBS-S; Côté et al., 1999) questionnaire used to collect feedback on athlete perception presented more

data of their experiences with the coach. Coaches' who demonstrated high levels of supportive and instructional behaviours were rated most positively by the athletes. By using both the observation and questionnaire data over a longitudinal period a clearer picture of coaching behaviour emerges. A more detailed analysis and discussion on athletes' perceptions of coaching behaviours can be found in Chapter 7.

Systematic observation has a fundamental role in establishing what a coach is doing at a particular time in a particular context which aligns with the *practical approach* mentioned earlier in this chapter. It also provides a description of what a coach is doing, also alluded to earlier, without providing a definitive picture of coaching effectiveness. This descriptive research does provide an understanding of coaching behaviour and allows the researchers to accumulate knowledge about what the coaches actually do. It has been argued that there is a need to study beyond the pedagogical content into the more diverse range of coaching activities and behaviours in order to further our understanding of the coaches' influence on athlete development (Cushion et al., 2010). There is also a distinct need for a more complex analysis of the observed coaching behaviours (Smith & Cushion, 2006) which would favour looking beyond the quantitative data and using a more interpretive standpoint to establish greater meaning of *context* from the data.

When selecting a systematic observation instrument, it is important to understand its limitations. As such it may be necessary to employ complimentary methods that can expand on the data collected through a more extensive data analysis process. As yet, there is no published research providing information on a definitive systematic observation instrument which covers all levels of every sport. One of the strengths of the CBAS is the simplicity of the coding structure and the quantitative data that emanates from it. Coupled with the qualitative analysis of the transcripts of each event which were coded using the qualitative software NVivo, a rich dataset was provided. This dataset generates a detailed analysis, not

only of the coaching behaviours, but to whom each coaching behaviour was directed – individual player, groups of players, assistant coaches, management, officials and others throughout each event.

As such this research is both exploratory and descriptive in nature. Firstly, the research examines the coaches' academic and coach education background in an attempt to gain some familiarity with how coaches learn how to coach. The research also examined if any preference for learning emerged from the data. Secondly, as a follow up to the exploratory first phase of this research further research was carried out to examine the application of coaching knowledge through observing the coaches' in action. In this phase coaching behaviours were quantified by number to describe how they coached in a team setting.

Chapter 4

Coach Education and Talent Development of High Performance Coaches in Team Sports in Ireland

This chapter is based upon the following published work:
Sherwin, I., Campbell, M. J., & MacIntyre, T. E. (2016): Talent development of high performance coaches in team sports in Ireland, *European Journal of Sport Science 17*(3) 271-278 http://dx.doi.org/10.1080/17461391.2016.1227378

4.1 Introduction

In one of the most prominent early studies on Talent Development, Bloom (1985) found that coaches are central to the development of expert performers and to continued participation in sport. There is an increasing amount of research into coaching practice and how coaches learn how to coach (Cushion et al., 2010). Coaching is influenced by three – *formal, non-formal* and *informal* - basic sources of learning (Nelson et al., 2006). The sources of this knowledge, how they interact and contribute with other coaching contexts to coach education are other prominent areas of research over the last two decades (e.g., Erickson et al., 2007; Irwin, Hanton & Kerwin, 2004; Lemyre et al., 2007; Stoszkowski & Collins, 2016; Williams & Kendall, 2007) specifically the methods of learning to coach. Findings in these studies failed to reach a consensus as to the perceived importance of formal coach education in the development of coaching knowledge. For instance, Stoszkowski & Collins, (2016) highlighted that coaches "prefer and mostly acquire coaching knowledge from informal self-directed learning sources" (p. 7). A survey undertaken in 2014 of over 3,700 coaches found the most common source of learning in coaches is "on the job, observing other coaches and reflecting on their own coaching" (McIlroy, 2015). This survey also reported that lower qualified coaches *learned their trade* at youth levels which may be more beneficial for coach development than athlete development. Although 1739 (47%) of those surveyed had undertaken a coaching qualification in the previous 12 months and from this sample 1356 (78%) reported that it made an impact on their coaching, coaches are now using a wider variety of more informal learning sources. Furthermore, Wright et al. (2007) investigated the learning environments of ice hockey coaches in Canada and their findings pointed to seven different types of learning situations – National Coaching Certification programmes, Clinics, Seminars, Formal mentoring, books/video, face-to-face interactions with peers and the internet. Considering that coaches learn through so many different situations, all having a role in the development of the coach the authors recommended

coach education programmes should include a combination of all seven learning situations. It is important to consider that just because a certain method worked for a "successful" coach does not mean that it will transfer to every situation (Abraham & Collins, 2011). There are also differences between coaches in their degree of receptiveness and willingness to learn from peers or specialists (Collins, 2012).

The acquisition of coaching knowledge follows a consistent pattern, the foundations of which are laid in the coaches' early athletic experiences (Bloom, 2002). Coaches accumulated thousands of hours of *pre-coaching* experience while playing or observing sport. Furthermore, coaches with multi-sport experience are typically exposed to a broader range of coaching styles and competencies (Gilbert, & Côté, 2003; Gilbert, Niino, Wahl, & Conway, 2003). Learning expertise involves continuous refinement of skills and attitudes towards learning (Bransford, 2009). Research indicates that there are different levels of expertise even within the same context (Nash, Martindale, Collins, & Martindale, 2012). For example, some coaches may be adept at coaching developing athletes but cannot coach performance athletes (Nash & Collins, 2006).

Coaching is fundamentally a decision-making process (Côté et al., 1995; Cushion, Armour, & Jones, 2003). Moreover, Nash & Collins (2006) concurred with this, highlighting the nature of expertise, across a variety of disciplines, includes decision-making routines developed over a prolonged period. The decision-making and problem-solving process of expert coaches are based on a greater level of personal and contextual knowledge than that of non-experts. Research into expert coaching is a relatively new domain with the majority of the studies carried out since 2000 (Nash et al., 2012). In their review of the literature, Nash et al., (2012) found there were 27 different explanations of coaching expertise that fell into four categories; a) coaching qualifications combined with experience, development of participants and the level at which they were coaching, b) selection by others (peers, NGB), c) position held

(E.g., an Olympic Coach) and d) no explanation. It is difficult to base a judgement solely on any of these criteria and whether there is any consensus in defining coaching expertise from research between 1993 and 2009 is open to debate (Nash et al., 2012). While the pathway of development of the expert coach is varied, the job of coaching is also complex due to the fluidity of activity, endless decision making and constant planning and evaluation (Jones & Wallace, 2005). Being an expert coach also does not guarantee a position in a high performance environment. Recent research by Rynne et al., (2006) found that many former elite athletes are *fast-tracked* - "special concessions offered to former elite athletes so that their progress through *formal* accreditation structures is expedited" (p. 300) - into high performance coaching roles within their sport. Using the definitions above, high performance coaching roles are usually the realm of *expert coaches* who have developed their coaching styles over time through their experiences as coaches whereas the *fast-tracking* approach would indicate a much shorter time-frame and less coaching experience. However, *fast-tracked* coaches tend to gain valuable coaching experience during their playing careers which is highly regarded by club directors (Blackett et al., 2015). The same authors found that 90/92 head coaches of the men's professional English and Welsh association football league teams and 20 head coaches of the 22 men's professional rugby union teams in England had previous experience as professional athletes in their sport. Both former *elite athletes* and club directors place a high value on the contribution made through playing at *elite* level to the *informal coaching* education of these athletes and their field-specific coaching knowledge (Cushion et al., 2003; Jones, Armour & Potrac, 2003). Furthermore, this knowledge has been described by Nash & Collins (2006) as *tacit* knowledge of sport and coaching practices. However, the actual impact of the tacit knowledge has not yet been fully conceptualised (Cushion et al., 2010). Nevertheless, in the eyes of the club directors and coach recruiters, the credibility gained through an *elite-level* playing career outweighs the lack of *formal* coaching education or coaching qualifications. As

such, the *formal* coach education system appears devalued and the practice of appointing former *elite athletes* to high-performance coaching positions is likely to perpetuate.

Given the critical role of the coach it is interesting to note that there is a lack of consensus on a definitive pathway for coaches to reach high performance level. Coaching is a highly complex environment and trying to create a definitive pathway or model may oversimplify the coaching process and will not fully grasp the concept of coaching practice (Cushion, 2007). Schinke (1995) highlighted the differences in coaching practices depending on athlete level where coaches were predominantly focused on creating a safe sporting environment for the athlete during the novice athlete stage before experiencing a shift in coaching orientation where results were prioritised at elite level. The findings from Erickson, Côté, and Fraser-Thomas (2007) suggest that high performance coaches reported a varying amount of *necessary experiences* in their general development but these *necessary experiences* do not guarantee a successful or *expert* coaching programme. They can however be used to formulate and increase the effectiveness of coaching programmes. While the appeal of a model or pathway may be desirable it will not generate a complete understanding of the functional complexity behind it (Jones & Wallace, 2005).

As can be seen above coaching is about creating change in order to ensure an environment exists that facilitates team and people development (Felton & Jowett, 2012). Such change is complex and warrants further investigation. With little consensus on the most effective methods for the development of coaches the goal of the current research was to engage with highly experienced coaches in team sports in Ireland and qualitatively investigate their learning sources and educational backgrounds that may help identify potential gaps in the coach development process.

4.2 Method

4.2.1 Participants

A total of 159 high performance coaches in five team sports received the online questionnaire. Despite a thorough recruitment process no female coaches responded to the questionnaire. Following the completion of the initial questionnaire, 19 high performance coaches – see Table 1 for participant demographics - meeting the inclusion criteria were invited to attend a semi-structured interview that examined in more depth their development and education as a coach. Inclusion criteria were that the coach had more than 10 years' experience coaching in their sport and were currently coaching more than four hours per week. The four hours coaching time contains two on-field practice sessions of 90mins which include contact and one other non-contact session of 60mins per week. A *contact session* could include normal game-like situations with attack and defence in contrast to a *non-contact session* which could include, among other things, shooting, kicking or throwing practice and specialist individual skills. The coaching time of four hours does not include review of practice or games, session preparation or team/individual meetings. For the purpose of this study, and similar to that used in Erickson et al., (2007) a high performance coach was defined as someone coaching highly skilled athletes in a sport environment which focused primarily on outcomes. Institutional ethical approval was received prior to proceeding with this study.

Table 1 Participant demographics

Age	Mean 47.2 years *SD* ± 8.36
Gender	All Male
Primary Sport	Rugby (*n* = 10) Gaelic Football (*n* = 4) Hurling (*n* = 3) Hockey (*n* = 1) Basketball (*n* = 1)
Highest standard of coaching achieved	Club Assistant Coach (CAC) (*n* = 1), Club Head Coach (CHC) (*n* = 4), National Assistant Coach (NAC) (*n* = 2), National Head Coach (NHC) (*n* = 5) Professional Assistant Coach (PAC) (*n* = 1), International Assistant Coach (IAC) (*n* = 1), International Head Coach (IHC) (*n* = 5)

4.2.2 Procedures

Participants were emailed pre-interview information and signed an informed consent form. The purpose of this was to familiarise the participants with the research area, the procedures involved and to clarify the purpose of the study (Wagstaff, Fletcher, & Hanton, 2012). The questionnaire used in this study was a modified version of the "Tracing the development of Elite Athletes" questionnaire designed by Côté et al., (2005) and similarly by Erickson et al., (2007) for tracing the development of high performance coaches. The format and structure of the interview guide was derived from reviewing previous studies with an exploratory content (Sarkar & Fletcher, 2014; Wagstaff et al., 2012).

The initial part of the interview was based on guidelines for conducting retrospective interviews (Côté et al., 2005) and the coaching process (Côté et al., 1995) and began by confirming and verifying the responses to the online questionnaire (Appendix 2, p. 187-196). The interview proceeded with a series of semi-structured, open-ended questions designed to probe for a deeper insight into the coaches' career development (Creswell, 2012, p.163-166). Sample questions from the interview include:

Q *"Describe the criteria you use to judge effective coaches"*

Q *"How has NGB policy influenced the direction you have taken as a coach"?*

Prior to the study the interview questions were piloted with three coaches and based on their feedback the sequence of questions was amended and "leading" questions were omitted to add refinement to the interview. All interviews were conducted in person at a location convenient to the participants. On average, the interviews lasted for 44 mins, ranged between 35 mins and 60 mins and were audio recorded on a Philips Voice Tracer LFH0662.

4.2.3 Data Analysis

Given the exploratory nature of this study the most suitable approach was deemed to be content analysis (Green & Thorogood, 2013). The data was prepared by transcribing all interviews

verbatim, resulting in a transcript of 126,649 words. All data were open-coded before being divided into categories that corresponded to the main categories of the interview. As analysis of each transcript continued and content emerged from the data more categories and subcategories were created to give a description of the essential structure of the participants' experience, thus following the principles of inductive content analysis within a broader deductive analysis (Elo & Kyngäs, 2008). The trustworthiness of the data were assured through a variety of triangulated means. Firstly, each participant received a copy of their transcribed interview within a week of the interview for verification and given the opportunity to amend any data that they felt did not accurately reflect what they intended to say (Miles, Huberman, & Saldana, 2013). Secondly, periodic meetings took place within the research team to discuss the emergent categories and reached agreement through constructive debate (Sarkar & Fletcher, 2014). Thirdly, inter-rater reliability was established with analysis of a selection (16%) of the interviews which were sent to an independent researcher. Following a familiarisation period with the classification system more sub-categories were added to further refine the coding matrix after which an agreement above 70% (LeBreton & Senter, 2008) was reached with the independent researcher.

4.3 Results

Presentation of the results will focus specifically on categories and subcategories that influenced the coaches' academic and coaching background and the sources of learning they found most beneficial. With the exception of the section on Academic and Sporting background the results are presented using quotations from the interviews.

4.3.1 Academic and Sporting Background

The majority of coaches (17/19) were educated to degree level and above with some specialisation (8/19) in sport or physical education. Multi-sport experience at an early age prior to specialisation in one sport through their teenage years was commonly reported with all 19

coaches participating in at least three sports up to the age of 19. Furthermore, six of the coaches played at the highest level of their sport, two of whom played at International level. Table 2 outlines a detailed description of the playing and coaching education backgrounds of the coaches. It is interesting to note that all coaches had leadership experience in their own sport and more than half (12/19) held leadership roles in other sports.

4.3.2 Sources of Coaches' Education

4.3.2.1 Formal Coach Education

All participants reported attending formal coach education courses through their National Governing Body (NGB) however 17/19 of the coaches reported it was more than 10 years since they attended any formal coach education courses. The coaches also reported that attending courses was more beneficial for the opportunity to network than the value of the content delivered. The quotes below highlight coaches' opinions on some sport's NGB's coach education courses:

Table 2 Participant academic and coaching education backgrounds

Item Description	**Mean**	***SD***	***f***
Number of seasons playing own sport	25.05	5.91	19/19
Number of leadership experiences	9.32	7.33	19/19
Number of seasons coaching own sport	26.31	8.95	19/19
Number of seasons playing other team sports	14.31	10.71	19/19
Number of leadership experiences in other team sports	3.52	4.11	12/19
Number of seasons coaching other team sports	5.95	9.38	8/19
Number of seasons playing individual sports	18.16	18.33	14/19
Number of seasons coaching individual sports	2.37	8.49	3/19
Number of seasons as Head Coach in own sport	18.53	10.30	19/19
First introduction to coaching (age)	20.84	5.38	19/19
Attended formal National Governing Body training courses			19/19
Highest Level achieved as a player			
International			2/19
Provincial			4/19
County			4/19
Club			9/19
Highest Level achieved in Academic education			
Secondary School			2/19
Bachelor Degree			12/19
Masters Degree			3/19
Doctorate Degree			2/19
Physical Education or Sports & Exercise Science Specialists			8/19

Coach 19 “I think they are excellent for people who don’t know the sport or need to learn the sport at a base level…basically I formed a community of practice, the qualification was a by-product”.

Coach 9 “I would still be very critical of the course even though they’ve adapted and changed it. The whole thing is developed around training U10s or U8s. There is nothing that would have prepared me for what I have learned over the past 15 years and the hurdles that I would have come across”.

Coach 11 “…there are people on that course that have never coached so you can by-pass that…they don’t want you sitting the exam until they know you can pass but that’s not making you better…”

4.3.2.2 Non-Formal Coach Education

Overall the coaches in the present sample reported a range of *non-formal* learning experiences. Among these experiences were discussion groups within workshops which promoted problem solving and sharing of ideas and peer-support groups

Coach 16 “they’d have discussion groups so you’re broken into maybe groups of 15 or 10 and sit around the table…they’ll start off the conversation but a lot of the time it’s actually yer man from (Unnamed Country) will say, “this is how I’d solve this problem…”

Coach 2 “…we’ve a meeting in two weeks’ time which we kinda sit and we discuss different themes, different situations…kind of grounding ourselves, bringing ourselves back to basics, back to what we should be doing, back to how we interact and I suppose you need that peer group…”

Coach 7 “…you’re at different coaching seminars or clinics, you get talking to people and you see what they do and you’d ask them how do they do this…what do they find

difficult…you'd find that from talking to different people, even at a professional level like that you found changing a culture, which is what you're trying to do as a coach…"

Coaches' education was not confined to learning from their parents sporting involvement. The participants also reported examples of where pre-coaching learning took place during their playing careers. As the accounts below show, significant learning took place in this manner.

Coach 18 "I was sitting on the end of the bench watching a lot of what was going on and I've seen some of the mistakes the coach was making"

Coach 19 "he (the coach) just let us play…he joined in…we probably just learned from some of the stuff he did, I can see some of the techniques I would have used were ones he would have used"

4.3.2.3 In-Formal Coach Education

There was also some evidence that coaches learned from a mentor or coaches who became mentors that the participants encountered as athletes or during their coaching careers.

Coach 18 "he (the coach) gave me so much information but then he gave me lots of responsibility it gave me great confidence…a huge thirst and hunger for getting more information"

Coach 14 "…when I came in to the job I met with a mentor…I would say that my coaching is now a reflection of the way he coached"

Coach 4 "I describe myself as a bit of a magpie when I'm talking to people in the sense that I always say "what do *you* think?" and try to pick up an idea"

Collins et al., (2012) described coaches as being either "Vampires" or "Wolves", the latter being "veracious in their search for and assimilation of, any idea, technique or person who they felt would provide an edge" (p. 262). The end of the above quote by Coach 18 displays an eagerness to learn and an apt example of "wolf-like" behaviours. The comment by Coach 4 would also concur with Collins et al., (2012) albeit with different terminology.

Learning experiences from previous coaches are not always examples of good practice. Tradition and historical precedence will often guide the information and practices that are passed on to those inheriting coaching positions (Cushion, Ford, & Williams, 2012; Werthner & Trudel, 2006). Coaches value experience and practical knowledge that is acquired from other coaches (Williams & Kendall, 2007) and a certain amount of learning takes place through imitation. However, not all coaches imitate what they have been coached and are able to distinguish what should be and what shouldn't be coached, "I learned…from…even the bad guys, I learned what not to coach" (Coach 8).

Not only do coaches learn from an early introduction to sport, multi-sport playing experiences and from previous coaches but they also continue to develop through learning while coaching, an example of "learning on the job".

> Coach 19 "I self-developed through going to matches, watching other training sessions, video analysis, you could only get the odd game on VHS but I'd spend 6 hours dissecting it and going to watch national teams training sessions"
>
> Coach 13 "I would be in contact with a few friends who would be heavily involved in coaching in other (areas) and there'd be an exchange of ideas".
>
> Coach 18 "I went over to their training camp and shadowed the team for the week…listened in on everything, spend ten days touring around different colleges, sitting in on practices, taking notes"

Coaches also felt that self-directed learning with reflection and guided learning were beneficial whether this took place in a formal coach education course or in a more informal manner. Reflective practice was a common tool used by the coaches.

> Coach 15 "I'm going to reflect within our coaching group about things we can do better and I think whenever I finish in that job I need to think…about…what can I do better".

Coach 19 "…reflecting on my own experience, I wouldn't have known what it was up until now and the transformation that can come through learning when you're reflecting is phenomenal".

4.3.3 Fast-tracking of Recently Retired High Performance Athletes

While the high-performance coaches in this research were of the opinion that the *formal* coach education system addressed the needs of novice coaches through introductory level courses, access to further coaching courses for ongoing education of coaches at the performance end of the coaching ladder was limited. The coaches also expressed concern that less experienced, recently retired high performance athletes yet to complete the coaching accreditation process are frequently preferred for coaching positions ahead of more experienced, accredited coaches, a point highlighted in Blackett et al., (2015).

Coach 17 "…the system…is not a progressive one…you don't do well with a team and progress to a better team…you could be…given a (high level) team as a head coach just because you were a good player…have no coaching experience, I was overlooked because…the presumption was…they were going to make better coaches"

Coach 10 "…as I'm not a recently retired pro player…I probably won't get a position in a pro set-up…"

Coach 15 "…the…coach education structure, I'm an award 2 coach…there is no…higher education that I can get in that system"

Coach 6 "…and the problem is…he may be the most qualified coach but the problem is credibility, and professional players have the credibility but they don't have the knowledge"

4.4 Discussion

This study set out to examine the coach education backgrounds and sources of learning of experienced team sports coaches in Ireland. Only 2/19 coaches had undertaken any accredited

coaching courses in the last 10 years highlighting a downward trend towards *formal* coach learning. Coaches were using more self-directed learning methods such as reflective practice through the use of video (Irwin, Hanton, & Kerwin, 2004) and interaction with peers and indicated a preference for informal sources of learning which concurs with previous research (Cassidy et al., 2016; Stoszkowski & Collins, 2016). Furthermore, the coaches indicated their learning was greatly enhanced by the development of communities of practice another example of an *informal* learning situation highlighted by previous research (Wright, Trudel, & Culver, 2007). The coaches contributed a significant part of their coach education to pre-coaching experience gained through their playing careers. Coaches in this research sample also indicated it was unlikely that they would undertake further qualifications or *formal* courses in the future. However, the rationale behind this may be explained by the calibre of coaches in the current sample and the fact that 6/19 coaches frequently deliver the content on national and international courses such is the level of their experience and standing within their sport. The findings from the current research reported similar information to the downward trend towards *formal* education as found by McIlroy (2015).

Coaching is about creating change in order to ensure an environment exists that is conducive to coach and athlete development (Felton & Jowett, 2012). Such change is complex and involves further investigation to focus on the mechanisms used in coach education processes in teaching the coaches how to coach. The social complexities of coaching lead to an unpredictable environment and demand a variety of educational approaches to build a broad range of knowledge. There will always be some doubt surrounding the decisions taken by coaches as even the coaches may not be 100% certain of why they made particular decisions. This display of tacit knowledge is a reason that expert coaches do not necessarily make the best coach educators (Nash et al., 2012). The findings of this study support the three domains of

coaching knowledge proposed by Côté and Gilbert (2009) and underline their importance for effective coaching.

There might be an advantage in conducting research on coaching effectiveness in an individual sport due to the availability of objective metrics for performance. By using these metrics, it allows one to judge the performance level of athletes for whom the coaches had been responsible, and thus rudimentarily judge the skill level of coaches. There are no such measures in team sports upon which the competency and skill of the coach can be measured. Assessing the competency of a team sport coach based solely on winning will not adequately explain the reasons for success or how the programme can be improved (Martindale et al., 2010). There are many ways in which coaches learn - *formal, non-formal* and *informal* - but to advance coaching competencies and effectiveness the sport specific context and best learning environment remain as further areas for research. This concurs with the findings of Lemyre et al., (2007) who found differences in coaches' learning between sports but was not evident in the findings of this study.

The results show a perceived gap in the coaching education system in that it does not adequately cater for coaches at high performance level. Once any NGB accreditation process had been completed there was minimal further contact with the coaches. Despite the fact that all the coaches in this research attended *formal* coach education courses the majority of them attribute their progression to the highest level in their sports to knowledge attained from self-directed learning. This included peer discussions, observation and feedback, reflective practice and accessing literature on current developments in coaching science. Our results also show that progression to high performance coaching roles is difficult and the perception is that recently retired high performance athletes are frequently preferred by coaching directors and appointment boards which concurs with the findings of Blackett et al., (2015).

4.5 Conclusion

From the findings and discussions presented above the current coach education system does not appear to meet coaching needs of high performance coaches with an overreliance on traditional *formal* education courses. Continuous professional development of coaches in team sports in Ireland appears to come solely from self-directed learning and practical coaching experience. While the participants in this research accepted that previous experience as a high-performance athlete was a valuable source of coaching knowledge, they voiced concerns that the fast-tracking of these athletes into high performance coaching roles, based solely on coaching knowledge gained through their playing experience, should be avoided. It is also important to recognise that coaching knowledge is acquired in different ways and not exclusively through a *formal* coach education system. The findings of this study support the three domains of knowledge – professional, interpersonal and intrapersonal – proposed by Côté and Gilbert (2009) but the perception of the coaches in this study do not believe that the current coach education system provides adequate learning opportunities or resources in this area. Chapters 5 and 6 will discuss the application of coaching knowledge through the systematic observation of coaching behaviours during training sessions and matches and the use of questioning by coaches in similar contexts. These chapters will also reinforce the gap in the *formal* coach education system meeting the needs of all coaches, specifically addressing the lack of *formal* education on *how to coach.*

Chapter 5

Coaching Behaviours during Training Sessions and Competitive Matches

5.1 Introduction

After demonstrating the different coach education methods and coaches' learning preferences in Chapter 4, this chapter examines how coaches applied their coaching knowledge in practice. Central to this study was a systematic observation system used to investigate coaching behaviours. This is a multi-sport, single coach study providing critical detail on individual coaching behaviours. Most importantly, the coaches were observed during both training and competition over the course of one season and their behaviour analysed against a pre-defined template of coaching behaviours. This chapter precedes a more in-depth analysis of coaches' use of questioning in the same context in Chapter 6 before consulting the athletes to get their perception of the coaching behaviours in Chapter 7.

A high-quality interdependent coach–athlete relationship is central to effective coaching and athlete development in sport (Jowett, 2007). A strong coach-athlete bond allows coaches and athletes to think "outside the box" whereas a weak coach-athlete bond can be limiting, distracting and consuming (Jowett & Shanmugam, 2016). Furthermore, ambiguity in both coaching roles and coaches' expectations of the athlete can create an athlete perception of a lack of coaching competency. This may have a negative impact on athlete development and an effective coaching and learning environment (Bosselut, Heuzé, Eys, Fontayne & Sarrazin, 2012). Coaches who are supportive and demonstrate more democratic behaviours have been shown to increase intrinsic motivation in athletes (Hollembeak & Amorose, 2005). In contrast, the same authors found that athletes' who perceived their coaches as more autocratic in nature had lower levels of intrinsic motivation. The development of the coach-athlete relationship is built over time (Fraser-Thomas, Côté & Deakin, 2005; Jowett, 2005) and is highly influenced by numerous factors, among them coach behaviour (Deci & Ryan, 2000) team and individual performance (Jowett & Chaundy, 2004; Mageau & Vallerand, 2003) and training and playing environment (Olympiou, Jowett, & Duda, 2008).

5.1.1 Team Sports and Coaching Styles

The primary role of the coach is to create change in order to ensure an environment exists that is conducive to athlete and coach development (Felton & Jowett, 2012). Team sports are high intensity ever changing dynamic situations where effective communication between coach and athlete is crucial to facilitate change and positive progress. Baker et al., (2003) found that team sport athletes preferred a more autocratic rather than a democratic coach as some sports and tasks may require more control over structure than others. Furthermore, in some team sports "traditional" coaching practice has been characterised by high levels of directive, autocratic and prescriptive behaviours (Harvey, Cushion, & Massa-Gonzalez, 2010; Potrac et al., 2007; Williams & Hodges, 2005). However, Vella and Pearlman (2014) would argue for a somewhat different approach. They propose that the coach and athlete work with, and lead, each other towards objectives and the coach should no longer be the sole driver of performance. This approach would involve considerable collaboration between coach and athlete including discussions, questioning, feedback, peer coaching and athlete input to shape practice sessions and to influence team preparation and game performance.

However, due to the nature of the dynamic environment in which a match takes place it is not always possible for the coach to get a message to the athletes. In some sports, the coach has the benefit of taking a time-out and in some field hockey competitions, the match is played in quarters rather than two halves. Previous research into systematic coaching observation frequently took place in either training or competitive contexts (Kahan, 1999; Cope et al., 2016). Only two studies in the last 20 years have examined coach behaviour in both contexts (Cope et al., 2016). The aim of previous coaching observation research was to understand and interpret good practice so that these methods can be passed on to future coaches. However, it is accepted that just because a certain practice proved successful for one coach does not mean that this practice can, or should, be applied to all situations (Abraham & Collins, 2011) due to

the specificity of coaching context (Jones et al., 2002; Potrac, Brewer, Jones, Armour, & Hoff, 2000) between different sports and at different levels within the same sport.

Previous research has also shown that coaches have a low self-awareness of their behaviour with statements of intent not being matched by knowledge or action (Partington & Cushion, 2013). Coaches also coach in different ways and display different behaviours and methods of instruction. Whether this is adapted through their understanding of learning situations or the ways their athletes learn has not been established but it is apparent that some coaches communicate more than others with their athletes. It is the manner in which coaches communicate with their athletes that is of interest in this research. As a result, it is important to examine the coaches' behaviours in different coaching contexts, both training and competition over the course of a season.

5.1.2 Observation Tools

Previous coaching observation research has tended to focus on behaviours and used a number of observation instruments such as the Coach Behaviour Assessment Scale (CBAS; Smith, Smoll, & Hunt, 1977), the Arizona State University Observation Instrument (ASUOI; Lacy & Darst, 1984), and the Assessment of Coaching Tone (ACT; Erickson & Côté, 2015). While these observation instruments are designed specifically to observe coach behaviour in youth sport there are others that are specifically designed for use in a particular sport such as the Rugby Union Coach Observation Instrument (RUCOI; Brewer & Jones, 2002) and its adapted version Rugby Coach Activities and Behaviours Instrument (RCABI; Hall et al, 2016). This study will highlight the differences between coaching behaviours not only *between different sports* but also *between training sessions* and *matches* for the same coach. There is a shortage of research that specifically addresses both training and matches over the course of the season and compares it to other team sports. With the exception of Webster et al., (2013) and Hall et al., (2016) few published papers have investigated this area. Briefly, Hall and colleagues (2016)

in a single case study design, observed one high-performance coach in training and competitive matches over the course of a 14-week season and found that the coach's behaviour during matches did not differ significantly from that during training sessions. Furthermore, this coach spent the majority of training and match time, (37.5%) involved in observation and conferring with associates. Observation of coaches has frequently taken place over short periods of time which is not overly surprising given the time-consuming nature of the data collection and analysis process (d'Arrippe-Longueville et al, 2001; Cope, Partington & Harvey, 2016). Thus, studies of a more longitudinal nature would give a better overview of a coaching context which would take into account the changes that may take place within the team and club over the course of a season.

The aim of this research was to observe and examine coaching behaviours during training and competitive matches. This study will highlight the difference between coaching behaviours not only *between different sports* but also *between training sessions* and *matches* for the same coach.

5.2 Methods

5.2.1 Participants

The participants in this study were high performance coaches (n = 4) from three team sports (Rugby, Hockey, Gaelic Football) and their athletes (n = 52) who volunteered to participate in this longitudinal study during training sessions and competitive matches. For the purpose of this study, *high performance* coaches were defined as coaches involved with teams where coaching objectives tend to focus on outcome, with the results in games being more important than having fun (Erickson et al., 2007). All athletes were male between the ages of 18 and 35. The athletes with whom the coaches worked were playing in an *elite context.* This is characterised by intensive preparation and involvement from athletes, highly structured and formalised competition and coaches who work with the same group in a full-time capacity

(Trudel, Gilbert, & Kirk, 2006, p. 521). All coaches were male between the ages of 35 and 63 with an average of 19.8yrs sport-specific coaching experience. All teams were considered senior adult (Over 18) male teams playing at the highest level in their respective national leagues. At the time of data collection, all athletes had been working with their respective coaches for at least six months.

5.2.2 Procedure

Institutional ethical approval was attained prior to the commencement of this study. Each coach had indicated their interest in participating in the research after responding to a recruitment email which had been distributed through clubs in Ireland. Following an initial telephone call to outline the nature and aim of the study, a face to face meeting was arranged with each coach to finalise the processes involved as well as the date and time of the initial data collection session. A participant information sheet (Appendix 9, p. 217-219) and an informed consent form (Appendix 10, p. 220-222) were sent to each coach one week in advance of the first data collection session to give each coach adequate time to make a decision whether or not to participate.

Approximately 1 hour prior to each training session (n = 4) and match (n = 2) the coaches were fitted with a microphone (*Sennheiser ew112-p G3*) which was attached to the lapel of their training top. The microphone transmitted to a receiver on a video camcorder *(Canon Legria FS200)*, placed on a portable tripod in the stand, where available, or at the side of the pitch which was used to record the coaches' movements, behaviours and interactions to give greater depth of *context* to the data. The focus of the camera was zoomed-in on the coach only and did not capture the footage of the event. The video footage also served to triangulate and further verify certain behaviours, for example non-verbal communication, and in the unlikely event of the audio being unclear or ambiguous. Recording began approximately five minutes prior to the beginning of the event, usually as the coaches and athletes emerged from

the changing rooms to take the pitch. Recording was completed as the coaches and athletes left the pitch at the end of each event. In total, 1,746.26 minutes, (ave 441.01 minutes, for each coach) of behavioural observation was recorded over the course of the season which exceeds the 270 minutes (three observations of 90mins each) Brewer and Jones (2002) concluded was sufficient to observe the full range of coaching behaviours.

5.2.3 Observation Instrument

Coaching behaviours were assessed using the Coach Behaviour Assessment System (CBAS). An account of the origin and development of the CBAS is outlined earlier in this thesis, in Chapters 2 (p. 20) and 3 (p. 35). This systematic observation system consists of 12 coach behaviour categories divided into two sections. The first section categorises eight (8) coach behaviours in response to athlete behaviour while the second section categorises four (4) coach behaviours spontaneously initiated by the coach and not in response to an athlete behaviour. An example of the category outline can be found in Appendix 5 (p. 205-208). A full description and examples of all 12 behaviours, can also be found in Appendix 5 (p. 205-208). There are two behaviours, Non-Reinforcement (NR) and Ignoring Mistakes (IM) which were not coded in this research. Coding for these two behaviours, in conjunction with the other ten codes, was trialled as normal in two pilot studies. Due to the dynamic nature of the team sports being observed in this research there are a multitude of athlete behaviours taking place simultaneously. Frequently these behaviours occur great distances apart and may not have been seen by the coach, or in all honesty, the researchers. This presents a difficulty for the research team in knowing what the coach has seen or hasn't seen and subsequently what was ignored or not. The team sports in this research do not monitor, record or list *errors* in the same manner as some US team sports, for example baseball, upon which this observation tool is based. As such the non-reinforcement of a positive behaviour by an athlete may simply have been because it was not seen by the coach.

Also, mistakes do not necessarily cause a disruption in play and not all of these simultaneous behaviours have to be executed with precision for the outcomes of plays to be successful. Furthermore, in some cases, particularly in team organisation training sessions, coaches commenting each time an athlete made a *mistake* may turn out to be unhelpful and has been shown to have a negative impact on athlete performance (Badami, Kohestani, & Taghian, 2011). Continuously stop-starting plays for instructional purposes can also interrupt the flow of the team's organisation. This can have a detrimental effect on player learning of crucial *problem-solvin*g skills on situation specific challenges that commonly occur during competitive matches. The research team also attempted to code these two behaviours from the recorded footage post data-collection. However, as the camera was focused solely on the coach and did not capture the overall event footage it was not possible to link the coach behaviours with the athlete behaviours to any degree of certainty from memory alone. Future research may wish to include a second camera to capture the overall playing field that can be digitally linked with specialist software to the coach camera. Thus, the decision was taken to exclude these two behaviours when the data collection period began with the coaches. The remaining ten codes, Reinforcement (R), General Encouragement (EG), Mistake-contingent Encouragement (EM), General Technical Instruction (TIG), Mistake-contingent Technical Instruction (TIM), Organisation (O), Punishment (P), Punishment with TIM (TIM+P), Keeping Control (KC) and General Communication (GC) were used to capture the coaching behaviours.

5.2.4 Data Analysis

Each behaviour category was entered onto a template designed on *Easytag* software, a mobile application version of the *Darftish* © software. This application, installed and coded on a Samsung Tab2 S tablet using android 6.0.1 operating system, allowed the research team to record the total number of behaviours and duration of each event. The software also recorded the quantities of each behaviour, the order and time in the session at which they occurred. This

data facilitated the calculation of the rate and frequency of each behaviour. A sample of one of the coaches' behaviour templates can be seen in *Figure 1*.

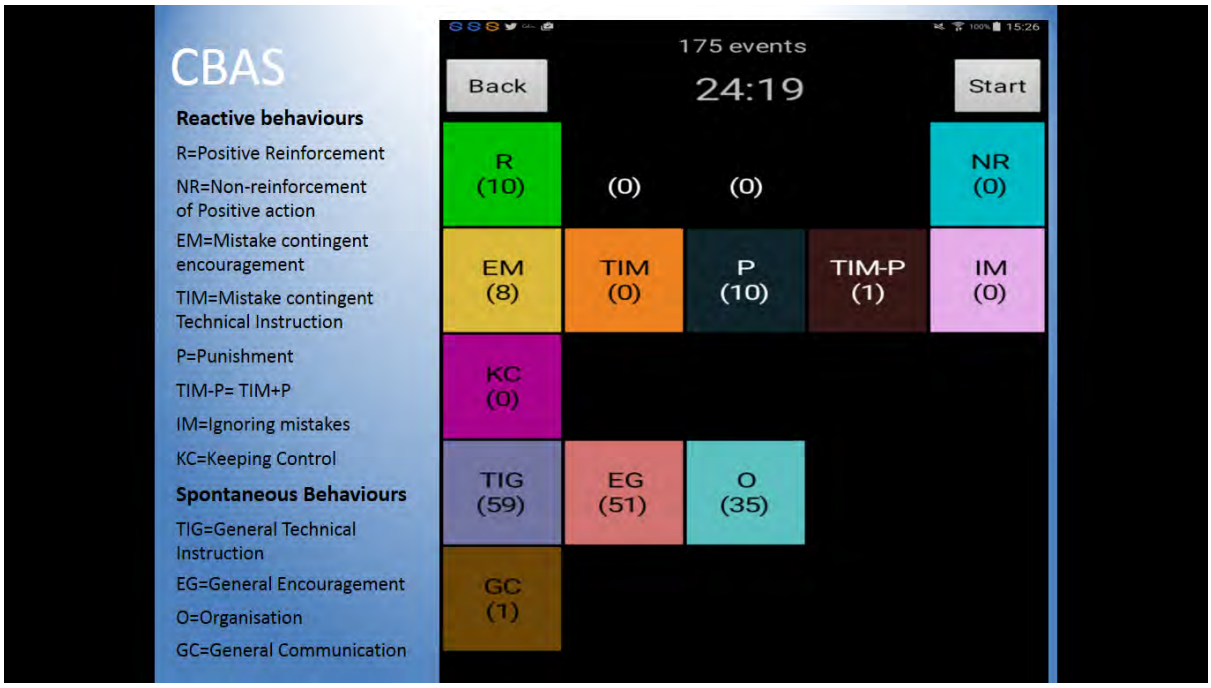

Figure 1 Coach behaviour template used to capture the quantity of each behaviour and duration of session.

Each coach behaviour was coded by touching the code button on the mobile device once until a new behaviour was observed. Use of names were coded as new behaviours even if the coach behaviour was the same. For example, if a coach was observed saying "well done, well done, well done, well done" it would be coded as one behaviour. In contrast, if the coach was observed saying "well done *John*, well done *Paul*, well done *George*, well done *Ringo*" this would be coded as four distinct behaviours as the intended recipient of the behaviour changes. Similarly, if technical feedback was being given during a break in play (Coded as "O" as it was not intended to make immediate strategic impact on the outcome of the play) it was coded as one behaviour until the technical feedback changed to another aspect of play or the intended recipient of the feedback changed. Prior to the study the research team undertook two pilot studies to assess the most preferred method of data collection and coding procedures. Credibility of the data is essential when using a systematic observation method (McKenzie & Van Der Mars, 2015). A familiarisation period with the coding system subsequently took place,

which included analysis of the video footage from the pilot studies. The process of inter-rater agreement was conducted during observation of *live* practice sessions and by coding from pre-recorded footage. Achieving inter and intra rater agreement necessitates the researchers to observe the same practice sessions or pre-recorded footage twice (or more) at different points in time (McKenzie & Van der Mars, 2015). The analysis was then repeated two weeks later and inter-coder and intra-coder agreement measured. The average inter-coder agreement was 89.2% (SD = 2.37%) and intra-coder agreement was 91.6% (SD = 3.19%). The average of the three coders' agreement percentages exceeded the accepted level of 85% or above to provide a robust reliability level in line with previous research (McKenzie & Van der Mars, 2015). Although the frequency of instruction may vary due to the variation in duration of training sessions and games, presenting the frequency as a percentage and rate per minute (*rpm*) of total behaviour gives consistency to the reporting of these results. Percentages have been used in a number of other coach behaviour studies (Potrac et al., 2002; Smith & Cushion, 2006; Potrac et al., 2007) and have been recommended as a reliable variable (Ford, Yates, & Williams, 2010). For reporting purposes, and similar to Smith, Shoda, Cumming and Smoll, (2009), the ten coded coaching behaviours have been grouped as follows: *positive* behaviour (R+EM+EG), *negative* behaviour (P+TIM-P), *technical instruction* (TIG+TIM), *organisation* (O) and *general communication* (GC+KC). Coaching behaviours are represented as a percentage of total coaching behaviours for each session and was calculated by dividing the total number of coded coaching behaviours by the number of grouped coaching behaviours then multiplying this number by 100. Percentage of time spent by the coaches in the different coaching behaviours is represented as a percentage of total session duration and was calculated by dividing the total duration of the session by the number of grouped coaching behaviours then multiplying this number by 100.

5.3 Results

This is a multi-sport, single coach study providing critical detail on individual coaching behaviours in training and matches over the course of a season. This section presents individual coach data which will show behavioural patterns for each coach rather than grouping all coaches behaviours together. However, each individual coach data will be used to draw comparisons between coaches' behavioural patterns. Overall totals, percentages and average rate per minute for each event coaching behaviour will be presented for each coach in Tables 4 to 13.

5.3.1 Coach 1 (Rugby)

Individual training and match results for the observation of coach 1 are displayed in Table 3 and represented as percentages of total coaching behaviours for each event in Figure 2. Total training session (n = 4) duration was 215.34 minutes (M = 53.84, SD = 7.56) and match (n = 2) duration was 181.5 minutes (M = 90.75, SD = 0.42) during which there were 1164 and 485 coaching behaviours respectively. The largest combined number of coaching behaviours was *organisation* (M = 102.86, SD = 21.34) followed by *positive* behaviour (M = 82.75, SD = 40.31). The results identify a number of changes in behaviours from training to matches. The overall *mean* coaching behaviours decreased from training (M = 291, SD = 110.39) to matches (M = 242.5, SD = 4.95). However, *negative* behaviours increased from training (M = 1.5, SD = 0.58) to matches (M = 48.5, SD = 6.36). *General communication* also increased from training to matches. The rate per minute (*RPM*) of all coaching behaviours decreased from training (M = 5.41, SD = 14.59) to matches (M = 2.67, SD = 11.67).

Table 3 Coach 1 Rugby - Individual Training, Match and Combined Coaching Behaviours

Coach 1 Rugby	Training Behaviours							Match Behaviours					Combined Behaviours		
	T1	T2	T3	T4	Total	Mean	SD	M1	M2	Total	Mean	SD	Total	Mean	SD
Positive	76.00	194.00	50.00	106.00	426.00	106.50	62.66	63.00	55.00	118.00	59.00	5.66	544.00	82.75	40.31
Negative	2.00	1.00	1.00	2.00	6.00	1.50	0.58	53.00	44.00	97.00	48.50	6.36	103.00	25.00	4.09
Technical	30.00	91.00	13.00	43.00	177.00	44.25	33.50	4.00	29.00	33.00	16.50	17.68	210.00	30.38	11.19
Organisation	74.00	138.00	135.00	142.00	489.00	122.25	32.29	85.00	82.00	167.00	83.50	2.12	656.00	102.88	21.34
General	16.00	17.00	20.00	13.00	66.00	16.50	2.89	34.00	36.00	70.00	35.00	1.41	136.00	25.75	1.04
Total	198.00	441.00	219.00	306.00	1164.00	291.00	110.39	239.00	246.00	485.00	242.50	4.95	1649.00	266.75	74.56
Duration (mins)	49.47	47.55	64.47	53.85	215.34	53.84	7.56	90.45	91.05	181.50	90.75	0.42	396.84	72.29	5.05
RPM	4.00	9.27	3.40	5.68		5.59	2.64	2.64	2.70		2.67	0.04	4.16	3.69	1.84

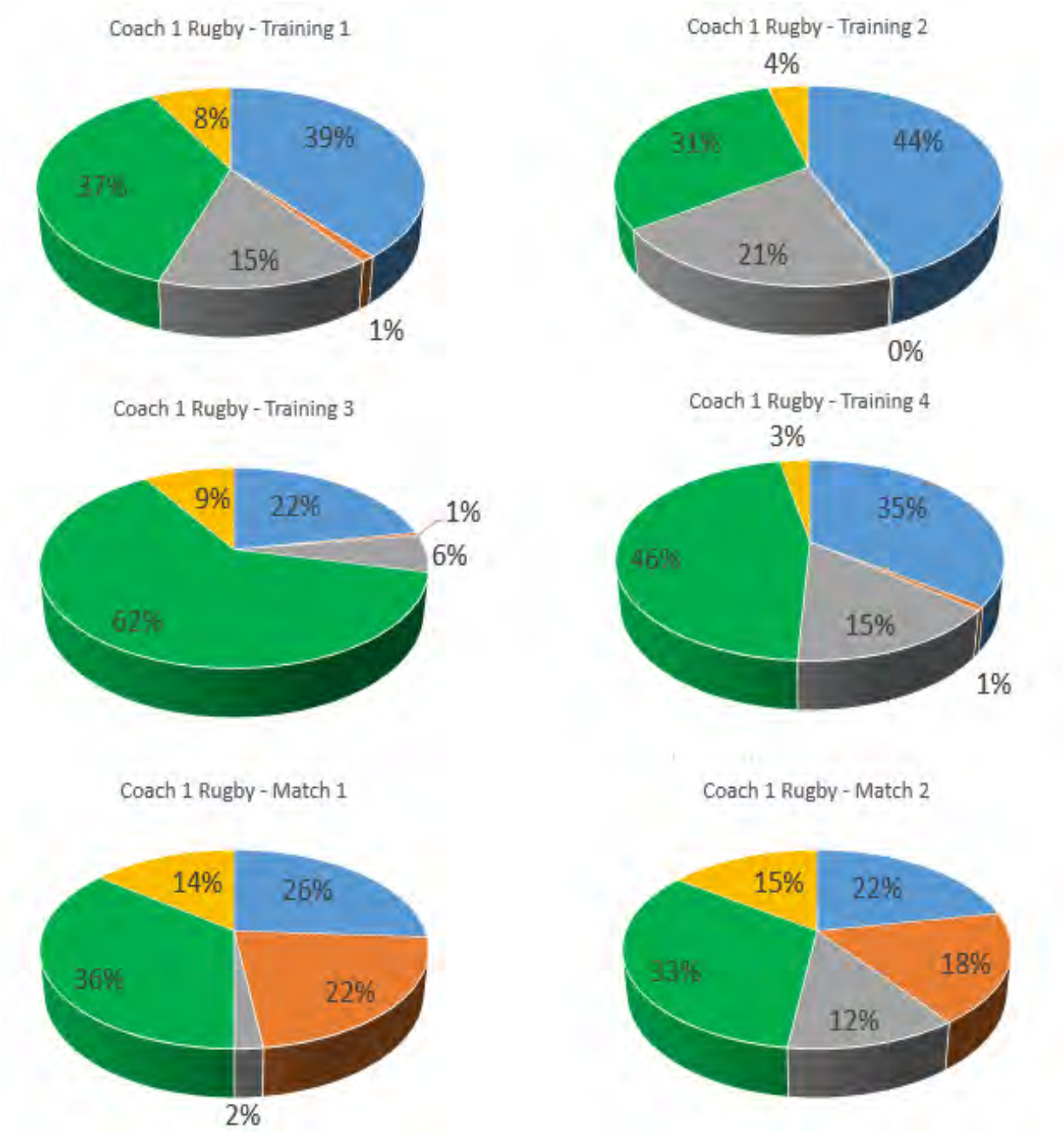

Figure 2 Coach 1 Rugby 1 Individual Training and Match Behaviours represented as a % of Total Coaching Behaviours for each event

5.3.2 Coach 2 (Hockey)

Each training session and both match observations results for coach 2 are displayed in Table 4 and represented as percentages of total coaching behaviours in Figure 3. Total training session (n = 4) duration was 359.91 minutes (M = 89.98, SD = 8.22) and match (n = 2) duration was 172.95 minutes (M = 86.48, SD = 0.81) during which there were 1098 and 593 coaching behaviours respectively. The largest combined number of coaching behaviours was *positive* behaviour (M = 103.38, SD = 11.06) followed by *organisation* (M = 99.75, SD = 13.04). The results identify a number of changes in behaviours from training to matches. The overall *mean* coaching behaviours increased from training (M = 274.5, SD = 70.65) to matches (M = 296.5, SD = 14.85). The *mean* for both *organisation* (M = 100.5, SD = 32.58) and *general communication* (M = 99, SD = 14.14) decreased from training to matches. Also, the *RPM* of all coaching behaviours increased from training (M = 3.05, SD = 8.59) to matches (M = 3.43, SD = 18.26).

Table 4 Coach 2 - Hockey Individual Training, Match and Combined Coaching Behaviours

Coach 2 Hockey	Training Behaviours							Match Behaviours					Combined Behaviours		
	T1	T2	T3	T4	Total	Mean	SD	M1	M2	Total	Mean	SD	Total	Mean	SD
Positive	100.00	77.00	138.00	82.00	397.00	99.25	27.66	116.00	99.00	215.00	107.50	12.02	612.00	103.38	11.06
Negative	2.00	0.00	6.00	0.00	8.00	2.00	2.83	17.00	18.00	35.00	17.50	0.71	43.00	9.75	1.50
Technical	52.00	22.00	83.00	28.00	185.00	46.25	27.72	59.00	41.00	100.00	50.00	12.73	285.00	48.13	10.60
Organisation	96.00	60.00	107.00	139.00	402.00	100.50	32.58	89.00	109.00	198.00	99.00	14.14	600.00	99.75	13.04
General	29.00	21.00	17.00	39.00	106.00	26.50	9.71	26.00	19.00	45.00	22.50	4.95	151.00	24.50	3.37
Total	279.00	180.00	351.00	288.00	1098.00	274.50	70.68	307.00	286.00	593.00	296.50	14.85	1691.00	285.50	39.47
Duration (mins)	88.90	79.10	93.51	98.40	359.91	89.98	8.22	87.05	85.90	172.95	86.48	0.81	532.86	88.23	5.24
RPM	3.14	2.28	3.75	2.93		3.02	0.61	3.53	3.33		3.43	0.14		3.24	0.33

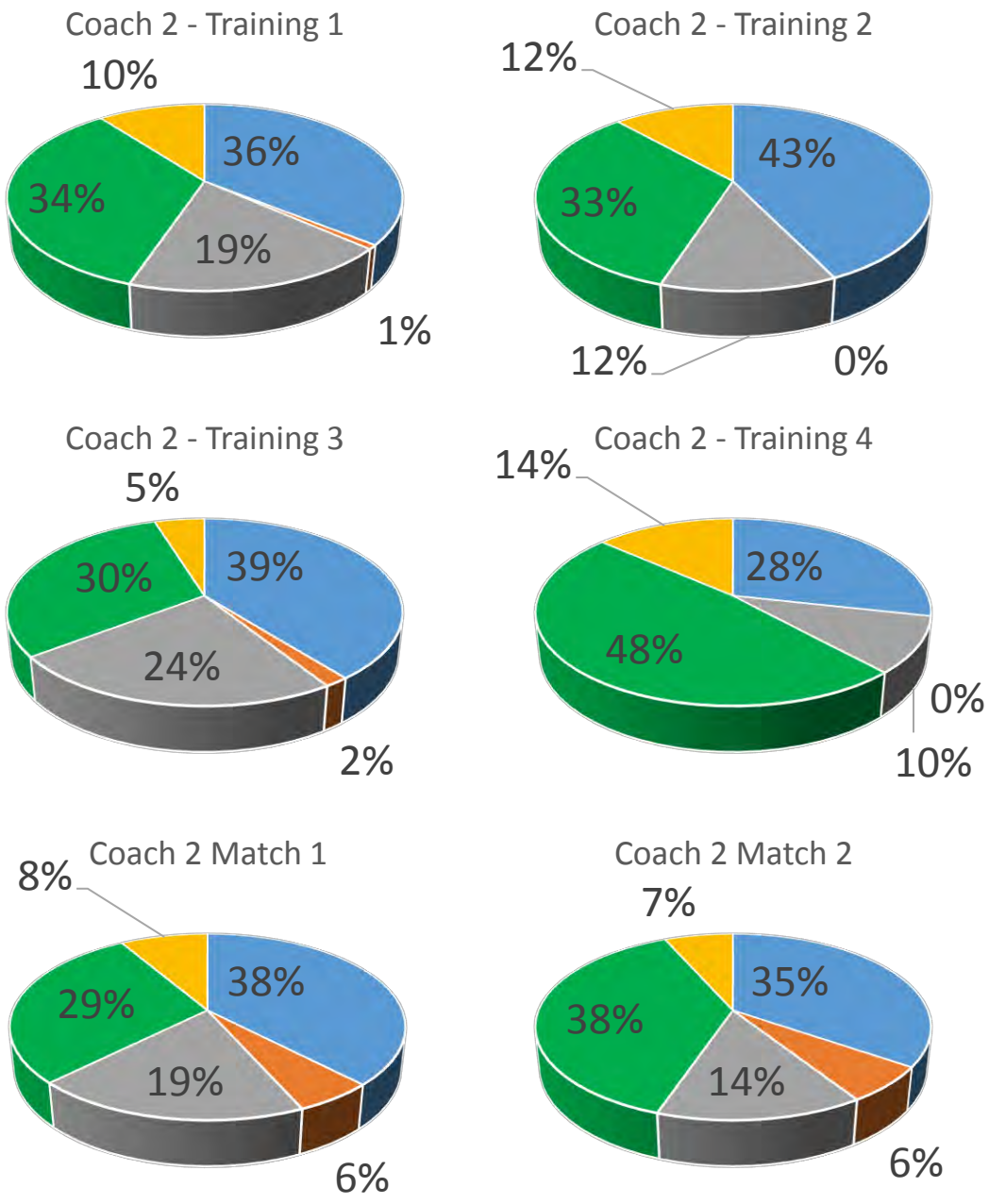

Figure 3 Coach 2 Hockey - Individual Training and Match Behaviours represented as a % of Total Coaching Behaviours for each even

5.3.3 Coach 3 (GAA)

The results for all training sessions and match observations for coach 3 are displayed in Table 5 and represented as percentages of total coaching behaviours in Figure 4. Total training session (n = 4) duration was 247.05 minutes (M = 61.76, SD = 26.78) and match (n = 2) duration was 179.31 minutes (M = 89.66, SD = 3.43) during which there were 982 and 899 coaching behaviours respectively. *Positive* behaviour (M = 125.13, SD = 34.56) followed by *organisation* (M = 94.75, SD = 40.76) again recorded the largest combined number of coaching behaviours. Notably, the *mean* score for *technical instruction* was the highest score for all the coaches (M = 74, SD = 7.85) and increased from training (M = 30, SD = 15.34) to matches (M = 118, SD = 4.24). In line with the other coaches, the *mean* for *organisation* decreased from training (M = 103.5, SD = 76.03) to matches (M = 86, SD = 18.39). However, all other *mean* scores increased from training to matches. Subsequently, *RPM* also increased from training (M= 3.97, SD = 5.65) to matches (M = 5.01, SD = 9.28).

Table 5 Coach 3 - GAA Individual Training, Match and Combined Coaching Behaviours

Coach 3 GAA	Training Behaviours							Match Behaviours					Combined Behaviours		
	T1	T2	T3	T4	Total	Mean	SD	M1	M2	Total	Mean	SD	Total	Mean	SD
Positive	168.00	14.00	100.00	95.00	377.00	94.25	63.02	166.00	146.00	312.00	156.00	14.14	689.00	125.13	34.56
Negative	10.00	1.00	1.00	6.00	18.00	4.50	4.36	50.00	67.00	117.00	58.50	12.02	135.00	31.50	5.42
Technical	50.00	17.00	19.00	34.00	120.00	30.00	15.34	121.00	115.00	236.00	118.00	4.24	356.00	74.00	7.85
Organisation	209.00	28.00	83.00	94.00	414.00	103.50	76.03	99.00	73.00	172.00	86.00	18.38	586.00	94.75	40.76
General	6.00	16.00	13.00	18.00	53.00	13.25	5.25	36.00	26.00	62.00	31.00	7.07	115.00	22.13	1.29
Total	443.00	76.00	216.00	247.00	982.00	245.50	151.23	472.00	427.00	899.00	449.50	31.82	1881.00	347.50	84.43
Duration (mins)	92.59	32.75	74.22	47.49	247.05	61.76	26.78	87.23	92.08	179.31	89.66	3.43	426.36	75.71	16.51
RPM	4.78	2.32	2.91	5.20		3.80	1.40	5.41	4.64		5.02	0.55		4.41	0.61

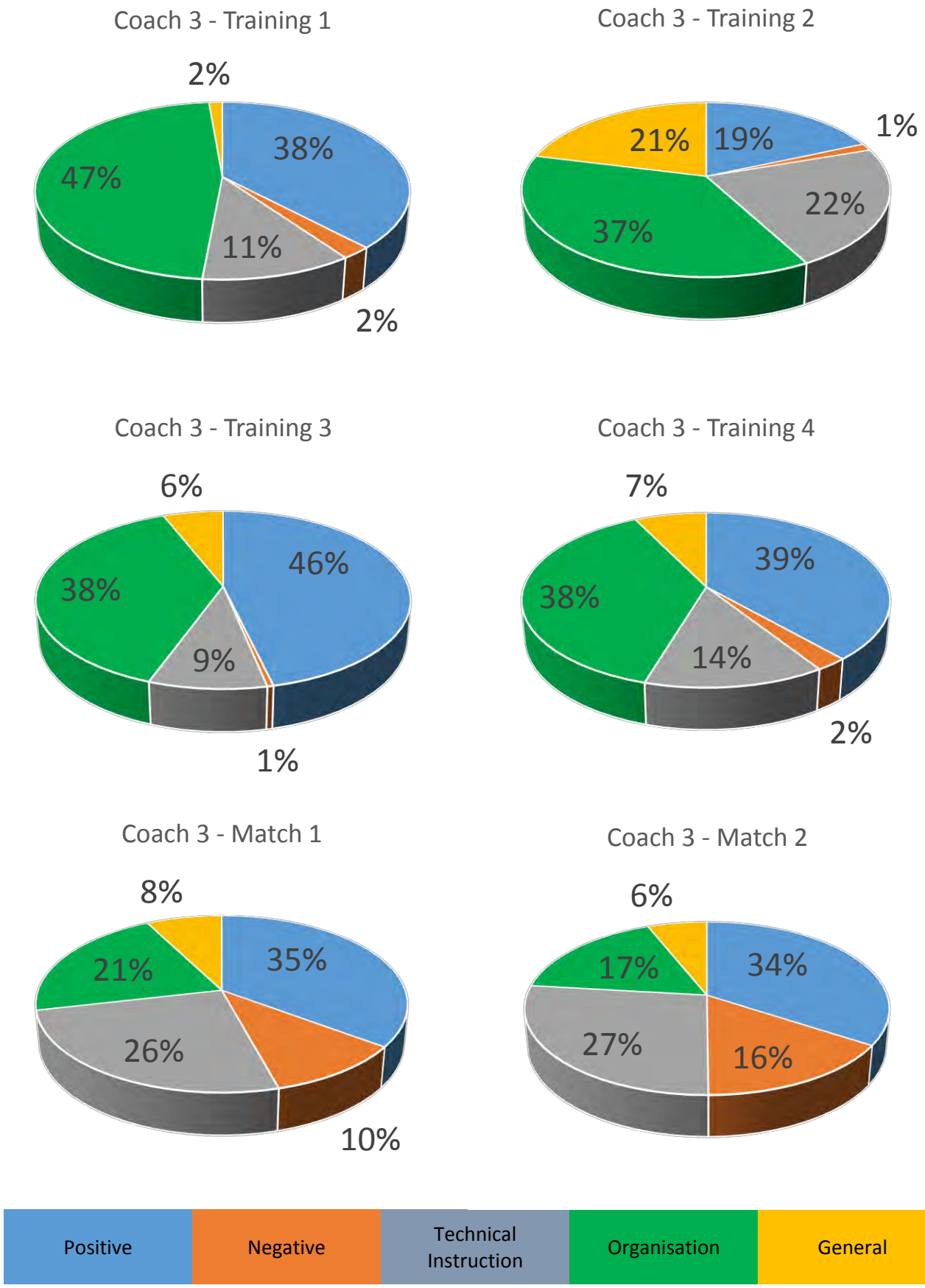

Figure 4 Coach 3 GAA - Individual Training and Match Behaviours represented as a % of Total Coaching Behaviours for each event

5.3.4 Coach 4 (Rugby)

Coach 4 was observed for a total of 408.7 minutes (M = 74.01, SD = 3.05) divided between training sessions (*n* = 4) 224.3 minutes (M = 56.08, SD = 6.01) and matches (*n* = 2) 183.9 minutes (M = 91.95, SD = 1.7). Details for all training sessions and matches are outlined in Table 6 and represented as percentages of total coaching behaviours in Figure 5. Total observed coaching behaviours during training sessions were 1179 (M = 294.75, SD = 87.47) and 868 during matches (M = 434, SD = 36.77), an increase in *mean* behaviours from training to matches. Interestingly, the *mean RPM* of coaching behaviours decreased from training (M= 5.26, SD = 14.55) to matches (M = 4.72, SD = 21.67). Similar to coach 2 and coach 3, *positive* behaviour (M = 138.88, SD = 6.21) followed by *organisation* (M = 123.63, SD = 41.34) recorded the largest combined number of coaching behaviours.

Table 6 Coach 4 Rugby - Individual Training, Match and Combined Coaching Behaviours

Coach 4 Rugby	Training Behaviours							Match Behaviours					Combined Behaviours		
	T1	T2	T3	T4	Total	Mean	SD	M1	M2	Total	Mean	SD	Total	Mean	SD
Positive	86.00	88.00	102.00	125.00	401.00	100.25	17.97	171.00	184.00	355.00	177.50	9.19	756.00	138.88	6.21
Negative	2.00	8.00	33.00	9.00	52.00	13.00	13.69	36.00	35.00	71.00	35.50	0.71	123.00	24.25	9.18
Technical	34.00	51.00	27.00	50.00	162.00	40.50	11.90	37.00	34.00	71.00	35.50	2.12	233.00	38.00	6.92
Organisation	60.00	115.00	198.00	96.00	469.00	117.25	58.47	130.00	130.00	260.00	130.00	0.00	729.00	123.63	41.34
General	15.00	10.00	48.00	22.00	95.00	23.75	16.90	34.00	77.00	111.00	55.50	30.41	206.00	39.63	9.55
Total	197.00	272.00	408.00	302.00	1179.00	294.75	87.47	408.00	460.00	868.00	434.00	36.77	2047.00	364.38	35.85
Duration (mins)	62.25	48.30	58.95	54.80	224.30	56.08	6.01	93.15	90.75	183.90	91.95	1.70	408.20	74.01	3.05
RPM	3.16	5.63	6.92	5.51		5.31	1.56	4.38	5.07		4.72	0.49		5.02	0.76

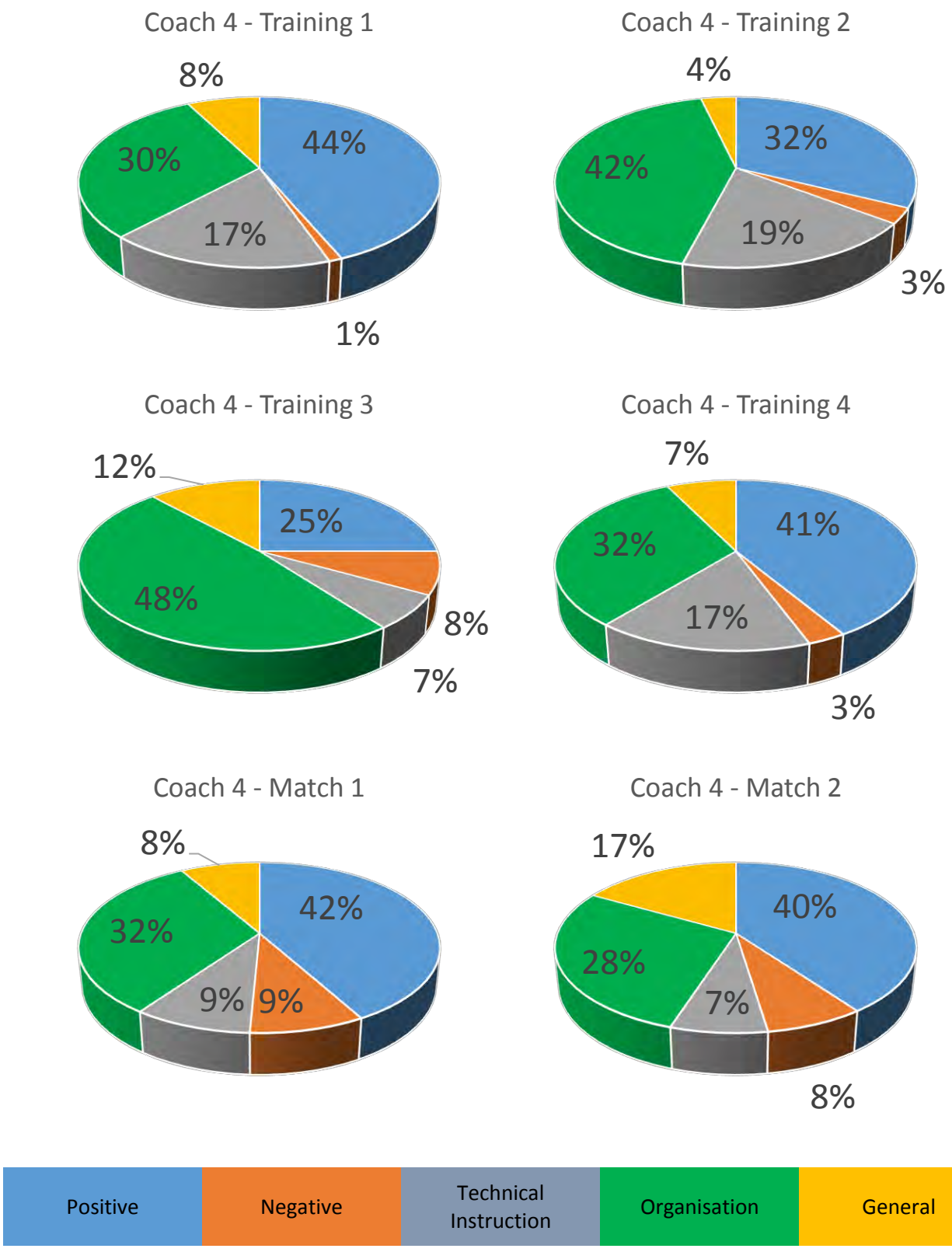

Figure 5 Coach 4 Rugby 2 - Individual Training and Match Behaviours represented as a % of Total Coaching Behaviours for each event

5.4 Discussion

The objective of this chapter was to examine coaches' behaviours in practice. In doing this it was important to investigate their coaching behaviours in both training and competition. There are some important findings from the results, most notably, the overall *mean* coaching behaviours increased from training to matches for coaches 2, 3 and 4 but decreased for coach 1. Interestingly, coach 1 had the highest *mean RPM* for overall coaching behaviours in training and the lowest *mean RPM* for matches. Despite increasing overall *mean* coaching behaviours from training to matches, coach 4 actually decreased his *mean RPM* in the same context. From the four coaches in the study, two increased (coach 2 - Hockey and coach 3 - GAA) and two decreased (coach 1 and coach 4 – both Rugby) their *mean RPM* from training to matches. The differences in coach's RPMs from training session to training session and match to match highlights the variability of coaching and supports the need for multiple observations. Furthermore, it provides justification for observing numerous training sessions and matches to capture an individual coach's range of behaviours.

The most commonly reported coaching behaviours for all coaches were *positive instruction* and *organisation* with three of the four coaches accumulating more *positive* behaviours than any other behaviour. Previous research has shown that coaches who have a high number of *positive* behaviours are more likely to create an athlete-centred training environment that is conducive to athlete development and positive performance in competition. (Gillet, Vallerand, Amoura, & Baldes, 2010; Hollembeak & Amorose, 2005). Furthermore, with the exception of coach 1, the coaches increased their *RPM* for *positive* behaviour during matches. This behaviour has been shown to add to the development of a positive coach-athlete relationship and highly influence team and individual performance (Fraser-Thomas et al., 2005; Jowett & Chaundy, 2004; Mageau & Vallerand, 2003).

In contrast to the high levels of *positive* behaviour, the results indicate that all coaches engaged in minimal levels of *negative* behaviour with all but coach 3 recording this as their least common behaviour. Overall, *negative* behaviour accounted for only a small percentage of each coaches' total behaviours, 6% coach 1, 3% coach 2, 7% coach 3 and 6% coach 4. In common with other behaviours, the *mean* value of *negative* behaviour increased from training sessions to match situations. However, from reviewing the audio and video footage of the matches, the *negative* behaviour during matches was frequently directed at the referees and match officials rather than the athletes. This may be explained by the consequence of the results-driven environment in which these coaches and athletes operate. The competitive stress reported by Thomas, Hanton, and Maynard (2007) that may influence certain behaviours in coaches and athletes and may explain the increase in *negative* behaviour in this context. The rate per minute of *negative* behaviour also increased from training to matches for coach 1, 0.03 to 0.53, for coach 2, 0.02 to 0.20, for coach 3, 0.07 to 0.65 and coach 4, 0.23 to 0.38. Although the numbers are small and the increases may appear large, the overall *mean* values for each coach are in line with the figures (3.39% and 0.28 *RPM*) reported in Hall et al., (2016). Whilst it has been shown that *negative* coaching behaviours can adversely affect the coach-athlete relationship (Hollembeak & Amorose, 2005; Jowett, 2007), the levels of *negative* behaviours reported here may be too low to have any adverse effect. Indeed, in Chapter 7, the athlete perception of coach behaviours indicated decreasing levels of negative rapport with their coaches as the season progressed.

Interestingly, although the coaches in this study have high percentages of *positive* behaviours this may detract from a number of other behaviours. For example, one of the stated session objectives for the first data collection session for all coaches placed an emphasis on *technical instruction*. The results show that *technical instruction* accounted for less than 19% of the coaching behaviours for all of the coaches, with coach 3 as low as 11.3%. Previous

research by Badami et al., (2011) has shown that *positive* behaviour with *technical instruction* after successful technical trials has a positive effect on athlete performance. In this instance, the feedback had little *technical instruction* connected to it. As such, the coaches may be missing a valuable opportunity to further enhance their athletes' technical competencies. However, the percentage of *technical instruction* is similar to the overall combined *technical instruction* figure of 14.2% reported by Hall et al., (2016). There is one coach, coach 3 GAA who increased his *technical instruction* from training (M = 30, SD = 15.34) to matches (M = 118, SD = 4.24). This is in complete contrast to the other coaches in this study and the coach in Hall et al., (2016) who all decreased their *technical instruction* from training to matches. However, having reviewed the coach's training and match transcripts in more detail, the results showed coach 3 prompted the athletes to solve technical issues themselves during training rather than giving the solutions to the athletes. During matches, the coach was engaging with the athletes to reinforce the importance of technical execution which is a possible explanation for the increase in *technical instruction* from training to matches.

Coach 2 had the longest duration of observation over the course of this study with a *mean* combined duration of 88.23 (SD = 5.24) minutes. This can be explained by the fact that his training sessions were longer and, in all but one of the sessions, exceeded the match duration. All the other coaches' training sessions were approximately 66% of the match duration time. This is important when we consider the *RPM* of each coaching behaviour. For example, in the case of coach 2 the *mean* duration of each training session was 89.98 (SD = 8.22) minutes with a *RPM* of coaching behaviours at 3.05 (SD = 8.59). The *mean* duration for matches decreased to 86.47 (SD = 0.81) minutes but the *RPM* increased to 3.43 (SD = 18.26). For coach 3, mean match duration was longer than training duration and *mean* RPM also increased from 3.97 (SD = 5.65) to 5.01 (SD = 9.28). The opposite was the case for coaches 1 and 4, both rugby coaches, where match duration was longer than training but *mean RPM*

decreased from 5.41 (SD = 14.59) to 2.67 (SD = 11.67) and 5.26 (SD = 14.55) to 4.72 (SD = 21.67) respectively. The combined *mean* for *RPM* for each coach was 3.69 (SD = 14.77) for coach 1, 3.24 (SD =7.53) for coach 2, 4.59 (SD = 5.11) for coach 3 and 4.92 (SD = 11.75) for coach 4. These figures are well below those reported in previous studies of 8.85 (Partington & Cushion, 2013) and 9.97 (Hall et al., 2016) and similar to the figure of 3.23 reported by (Vinson, Brady, Moreland, & Judge, 2016). This also indicates a tendency to merely positively reinforce every action rather than use corrective feedback to assist the development of the athlete. As alluded to in the introduction section of this chapter (p. 67) there is a dearth of studies in systematic observation coaching research that included both training and competitive *contexts*. It is worth mentioning again that only Hall et al., (2016) who had one coach and Webster, Hunt, & LaFleche, (2013) who had six coaches, have published research that examined coaching behaviours in the different *contexts* of training and competition in the last 20 years. Also, in reporting the results here, the decision was taken to report each coach as a separate case as each training session and each match are distinctly different entities. While comparisons were drawn between the four coaches in this study it is important to recognise that the context of each coaching situation was unique even to the coach and athletes involved. The variation and differences in *RPM* of coaching behaviours indicate that the coaches were adapting to different situational factors in each event. Therefore, prescribing optimal levels or percentages of coaching behaviours cannot be achieved as there is no one solution that will satisfy the needs of every situation which adheres to the realist evaluation concept (Pawson & Tilley, 2004).

It is pertinent here to acknowledge that many more coaching behaviours take place outside of the on-pitch interactions of training and matches between coaches and athletes. However, it was not feasible to ask the coaches to participate beyond their already generous commitment to this research. A possible limitation to this study, as discussed in the methods

section of this chapter, was the omission of a specific category for questioning in the CBAS observation instrument so all questions have been coded as "O" in the CBAS template. Chapter 6 will examine in more detail the questioning techniques used by the coaches to promote athlete learning, development and responsibility in shaping their own practice.

It is important that coaches understand the rate of their behaviours and how this impacts on athlete performance. It is hoped that this research will also heighten coaches' self-awareness of their coaching styles, methods and through gaining greater knowledge of their behaviours narrow the gap between their stated objectives and their practice. For the coach to communicate their message effectively they must be focused on their language, their thoughts and be aware of what exactly it is that they are trying to convey to their athletes. Despite offering considerable insight systematic coaching behaviour observation research does not provide detail on the cognitive processes underlying these behaviours (Cushion & Jones, 2001; Ford et al., 2010; Potrac et al., 2007). Further research may seek to examine the metacognitive process of coaches during training and match situations. Although this can be challenging, it may prove useful in enhancing coaches' cognitive processing. The coaches will have to pause and think about what's happening before engaging with the athletes to convey their thoughts allowing time for the athletes to form their own solutions.

While this study furthers our understanding of coaching behaviours and rate of each coaches' behaviour during training sessions and matches it is crucial to include the different coaching *contexts* in any future research.

5.5 Conclusions

For the purpose of analysis, all the coaches, training and matches must be treated as individual and separate entities. Every training session and match are separate entities and are highly unlikely to include exactly the same activities or coaching behaviours from one event to the next. Although this research has highlighted a number of differences in coaching

behaviours, it is important that future research continues to include both training and competitive matches on a longitudinal basis to further enhance our knowledge in this area. Furthermore, continuing the thread on coach education from Chapter 4 it is important that coach developers include topics such as the importance of instruction and differences in coaching behaviours in their coach education programmes.

Chapter 6

Coaches' use of Questioning during Training Sessions and Competitive Matches

6.1 Introduction

In this chapter, I attempt to delve a little deeper into the coaching behaviours presented in the previous chapter. The coaches in this research interacted often with their athletes and used considerable amounts of encouragement and reinforcement of positive actions by the athletes. However, one area that needs further examination is the use of questioning – how they're asked, when they're asked, to whom the questions are directed and the type of questions used by the coaches to engage the athletes in both training and match situations. Questioning has been shown to promote both explicit and implicit learning in athletes which improves performance in both training and competitive matches (Reid, Crespo, Lay, & Berry, 2007). This also aligns with the constructivist argument that questioning helps learners build knowledge structures by considering alternatives. Through the use of appropriate questions, the coach can empower the athletes to share in the decision-making processes. By giving the athletes responsibility for making decisions that affect the outcomes of training and competitive matches it promotes more autonomy within a group which has been shown to increase intrinsic motivation (Ryan & Deci, 2000). As discussed in Chapter 5, coaching behaviours were examined through a systematic observation instrument, the CBAS, and the purpose of this chapter was to scrutinise, one of those behaviours, *questioning*, in more detail. The use of questions, specifically questions that encourage athlete feedback and stimulate problem solving skills, warrants closer examination. As identified earlier the CBAS observation tool has no specific listed behaviour category for "use of questions" or "questioning" by the coach. For the purpose of this research "questioning" was coded in the Organisation (O) category of behaviour. The Organisation (O) category was selected as the interactions between the coaches and the athletes took place during breaks in the training or competitive matches when they could not have an immediate tactical influence on the event. As outlined earlier in Chapter 3, methodological considerations, the use of mixed methods to examine both the quantities and meanings of the coaching behaviours

strengthens this research by giving a greater context to the environment in which the training sessions and matches take place. A key aspect of the coaching role is to facilitate learning through the use of questioning (Neenan, 2009). This chapter will investigate the number and type of questions used by coaches and to whom the questions were directed in both training and competitive matches.

6.2 The use of Questioning in Practice

Coaches' activities and behaviours must be adaptable to the evolving and dynamic circumstances during the coaching *context* (Saury & Durand, 1998). As such it is difficult to be definitive about prescribing optimal levels of questioning during training and matches. However, questioning is an essential facet for progressive instruction (Butler, 1997). Ford et al., (2010) found that coaches over emphasise learning through instruction, which can limit the development of athletes' decision making and problem solving skills. Furthermore, by equipping athletes with critical thinking skills there is a greater likelihood that they will recognise and apply them at appropriate times (Halpern, 1998, 2007). However, critical thinking skills involves reasoning and can be learned through practice, aided by coaches who use probing questions rather than giving solutions to their athletes. In some contexts, such as *elite performance,* the pressure for instant results continues to increase which can have an adverse effect on coaches in the development of their athletes. Light and Robert (2010) found that the three least experienced of the four elite level coaches in their study were reluctant to hand over decision making power to the athletes. During training and matches, athletes' problem-solved from a finite set of solutions dictated by the coach. Questioning has also been shown to play a significant role in developing creativity (Harpaz & Lefstein, 2000). In a sporting context, the use of questioning to promote problem solving ability and critical thinking were found to be areas that need to be prioritised by coaches (Harvey & Light, 2015). Cushion and Jones (2001) analysed eight elite coaches over three training sessions, which resulted in

average questioning time from the coaches of 2.98% of time. Similarly, research conducted by Potrac et al., (2007) found four elite coaches use of questioning to be 2.38% of total behaviour during three training sessions.

According to Neenan (2009) a significant part of a coach's verbal activity is devoted to asking questions in order to, among other things, gather assessment information, clarify points, reveal core values, establish goals and develop action plans. However, previous teaching and coaching research has also found that coaches find developing logical and sequential questioning a challenging task (Roberts, 2011). Roberts' paper investigated, among other things, cricket coaches use of questioning. The study stated that coaches "found it desperately difficult" to formulate a questioning strategy without an in-depth knowledge of the game. As such, the coaches interpreted using questioning as a coaching technique as an advanced coaching strategy that was difficult to master. Furthermore, the ability to design practice games that facilitate the use of questioning was also found be an ongoing challenge for coaches (McNeill et al., 2004). Not only do coaches have difficulty using questions but when they do, they tend to be low-level comprehension or closed questions (76%) rather than open-ended or **divergent** questions (6.7%) (Harvey et al., 2016). In an attempt to overcome these challenges, coaches have developed a variety of means, one example of which is teaching games for understanding approach (TGFU; Bunker & Thorpe, 1986). To successfully implement TGFU it is important that coaches have a command on the pedagogical content, knowledge, understanding and critical thinking to create an optimal learning environment (Cushion & Harvey, 2016; Gurvitch, Blankenship, Metzler, & Lund, 2008). Critical to this is the ability to develop athletes' knowledge through a logical sequence of instruction and questioning (Hopper, 2002).

When coaching is well planned and thought out coaches can draw on their knowledge of the sport to develop their questioning ability (Abraham & Collins, 2011). Coaches should

ask questions for the purpose of gaining specific information rather than asking vague questions, for the sake of it, which will not generate much relevant information. For example, a coach could say to an athlete after an exercise "what did you do well there?" or "did you keep your hands up there?" In the first instance, the coach is inviting the athlete to discuss the exercise and offer a viewpoint on it whereas the second question can be met with a simple "yes" or "no". Also in the second instance, the coach is *telling* the athlete what he saw rather than getting the athlete to articulate their thoughts on what the athlete actually did during the exercise. As such, merely asking questions for the sake of it is not useful. The success of a coaching session can be determined on the athletes understanding of the session and coaches should be encouraged to ask purposeful questions that will make an immediate impact, for example, to check for understanding (Fisher & Frey, 2015). Furthermore, coaches should employ a questioning approach which may lead to increased problem solving and decision-making skills, game understanding and superior critical reflection skills (Cope et al., 2016). Similarly, an alternative approach sees the coach as a facilitator, one where the discourse has shifted and allows alternative answers and solutions from athletes to promote independent learning (Prain & Hickey, 1995).

The use of questioning can be a powerful method of encouraging players to analyse their actions and having an effective questioning structure and sequence is necessary to keep the focus on the athlete (Pearson & Webb, 2008). However, questions may vary depending on the *context* of the environment in which it takes place. For example, Trudel et al., (1996) noted that matches offered less in the way of *teachable moments* through questioning with much of this type of coaching having to be undertaken during training sessions. This also concurs with other systematic observation research in coaching that found that overall, coaches asked more questions in training than in matches (Partington & Cushion, 2013). The same authors also found that coaches are more likely to ask **convergent questions** (i.e., closed or

limited response questions) than **divergent questions** (i.e., open questions that may offer solutions in the answer) in training than matches and overall.

6.3 Types of Questions and Questioning Styles

To continue this thought process, the type of questions coaches ask are critical. To help promote cognitive skills among athletes, coaches must use more open questions and allow the athletes to problem solve. Questions can be organised into four categories depending on the cognitive activity involved (Siedentop & Tannehill, 2000, p. 288). They are as follows:

1) **Recall** – questions which require memory to answer
2) **Convergent** – closed questions that involve a limited response
3) **Divergent** – open questions which bring about solutions to new problems
4) **Value** – questions which seek expressions of choice, attitude and opinion.

Coaches may implement the different types of question by asking the same question in different ways. For example, "where was the goalkeeper standing before you took the shot?" to prompt an athlete to recall something that just happened. The coach may ask the same question in a different way; "do you remember where the goalkeeper was standing?" is an example of a **convergent** question and solicits a short *yes* or *no* answer from the athlete. In contrast, if this question was asked using the **divergent** question "what could you have done differently with the goalkeeper in that position?" the athlete will have to provide a solution, ensuring they think about what just happened. Finally, by using a **value** question the coach may prompt the athlete by asking "what was the best option you could take with the goalkeeper in that position?" Used in an appropriate context, the coach, as facilitator can empower the athletes to continue helping each other and elaborate their thinking to the rest of the group (Harvey & Light, 2015).

In this regard, Socratic questioning is an effective method to use in coaching. The Socratic questioning technique, derived from the Greek philosopher Socrates, focused on

asking open questions to probe thinking and determine the extent of learning (Paul & Elder, 2007). By doing this, the person being asked the question can arrive at their own conclusions rather than being told what these conclusions should be (Holden & Schmit, 2002). Socratic questioning is an important tool in cognitive behavioural therapy (CBT; Hollon & Beck, 1994). It is also an important factor in cognitive behavioural coaching (CBC; Neenan & Dryden, 2013; Neenan & Palmer, 2013) where both CBT and CBC attempt to close the performance gap through problem resolution. In both situations, this approach is designed to help people to become their own therapist or coach. Socratic questioning was designed to challenge accuracy and complete thinking in any learning context. As such, it can be a very useful tool for guided discovery practice in skill acquisition during training (Reid et al., 2007). Socratic questioning is based around the elements of thought such as concepts, assumptions, rationale and opinions (Paul & Elder, 2006). Not unlike Siedentop and Tannehill (2000), the Socratic questioning method has three different kinds of questions that can generate a definitive answer (**convergent**), a subjective choice (**divergent**) and a question that calls for clarification or opinion (**value**). Within these three types are more detailed questions including those listed below:

1) Conceptual Clarification - questions to provoke thinking, proving arguments or clarifying a particular status
2) Probing Assumptions - questions to probe beliefs on which an argument or answer is founded
3) Probing Rationale - questions to probe reasoning for the argument or answer
4) Questioning Viewpoints - questions to probe opinions of possible actions
5) Probing Implications and Consequences - questions to require an answer as to a logical implication of a particular action

Further details on the questions used for this study will be discussed in the section on methods (6.4).

Chapter 2 and Chapter 5 discussed systematic observational coaching research and the context in which it has taken place over the last 40 years based on reviews by Kahan (1999) and Cope et al., (2016). Among some concerns raised by the most recent review was that only two of the 26 studies reviewed observed coaches' behaviour in both training and competition. Also, conclusions of coaches' behaviour were based solely on a limited number of observations with only four studies observing the coaches on more than eight occasions. In one study, six coaches were observed, however, only one coach was observed in three of the other four studies. The following sections of this chapter will discuss four different coaches' use of questioning during both training and competition on six different occasions. The different types of questions used by the coaches and how they affect the promotion of critical thinking and learning in athletes will also be discussed.

6.4 Methods

6.4.1 Participants

The participants in this study were high performance coaches (n = 4) from three team sports (Rugby, Field hockey, Gaelic Football) and their athletes (n = 52) who volunteered to participate in this longitudinal study during training sessions and matches. For the purpose of this study *high performance* coaches were defined as coaches involved with teams where coaching objectives tend to focus on outcome, with the results in games being more important than having fun (Erickson et al., 2007). All athletes were male between the ages of 18 and 35. The athletes with whom the coaches worked were playing in an *elite context.* This is characterised by intensive preparation and involvement from athletes, highly structured and formalised competition and coaches who work with the same group in a full-time capacity (Trudel, Gilbert, & Kirk 2006, p. 521). All coaches were male between the ages of 35 and 63

with an average of 19.8yrs sport-specific coaching experience. In an attempt to be as consistent as possible all teams were considered senior adult (Over 18) male teams playing at the highest level in their respective national leagues. At the time of data collection all athletes had been working with their respective coaches for at least six months.

6.4.2 Procedures

Institutional ethical approval was attained prior to the commencement of this study. Each coach had indicated their interest in participating in the research after responding to a recruitment email which had been distributed through clubs in Ireland. Following an initial telephone call to outline the nature and aim of the study a face-to-face meeting was arranged with each coach to finalise the processes involved as well as the date and time of the initial data collection session. A participant information sheet (Appendix 9, p. 217-219) and an informed consent form (Appendix 10, p. 220-222) were sent to each coach one week in advance of the first data collection session to give each coach adequate time to make a decision whether or not they would participate.

Approximately 1 hour prior to each training session (n = 4) and match (n = 2) the coaches were fitted with a microphone (*Sennheiser 600 ew113-p G3*) which was attached to the lapel of their training top. The microphone transmitted to a receiver on a video camcorder *(Canon Legria FS200)*, placed on a portable tripod in the stand, where available, or at the side of the pitch. The camera was used to record the coaches' movements, behaviours and interactions to give greater depth of context to the data. The video footage also served to triangulate and further verify certain behaviours when the audio was somewhat unclear or ambiguous. Recording began approximately five minutes prior to the beginning of the event, usually as the coaches and athletes emerged from the changing rooms to take the pitch. Recording was completed as the coaches and athletes left the pitch at the end of each event. In total, 1,746.26 minutes, (ave 441.01 minutes, for each coach) of behavioural observation was

recorded over the course of the season which exceeds the 270 minutes (three observations of 90mins each) Brewer and Jones (2002) concluded was sufficient to observe the full range of coaching behaviours.

6.4.3 Questioning Methods

A combination of question types was used in this research which concur with those described by Siedentop and Tannehill (2000) and Paul and Elder (2006). The question types are assigned to one of seven categories listed below that were used to establish coaches' use of questioning during training and matches. Each question category has an example of a question used by one of the coaches taken from the event transcripts.

1) Yes or No **(YorN)** - Convergent or closed question

   "*Kevin*, are you the extra man?"

2) Rhetorical **(Rhet)** - Convergent or closed question

   "Right lads put the green bibs on will you?"

3) Conceptual Clarification **(Clar)** - Divergent or open question

   "So what's our shape at the back *Kevin*?"

4) Probing Implications and Consequences **(PrIC)** - Divergent or open question

   "Do you want to have another run and see if it is ok or is it a risk?"

5) Probing Assumptions **(PrAs)** - Divergent or open question

   "Why did you say that?"

6) Probing Rationale **(PrRa)** - Divergent or open question

   "Why is *Kevin* picking and going there though?"

7) Questioning Viewpoints **(QVie)** - Divergent or open question

   "What was working for the forwards then, when you were getting the scores?"

For the purpose of reporting the results category 1 and category 2 are termed *closed questions* with categories 3 to 7 termed *open questions*.

6.4.4 Analysis

The data were prepared by transcribing all coaching content from the coaches from the mp4 video file of each training session and match verbatim, resulting in total transcripts of 134,014 words. The transcripts were then imported into the NVivo© software for qualitative analysis to highlight the questions used by the coaches during each event. A one-way ANOVA with seven levels (Types of questioning, as described above) was carried out on the four coaches. Alpha level was set at 0.5 and a Bonferroni post-hoc comparisons test was used. The seven categories of questions listed in section 6.4.3 were used as pre-defined themes to assign each question asked by the coach into a particular code. A sample of the coding framework can be found in Appendix 13 (p. 229-230). From the data, it was possible to qualitatively assess the exact wording used in the questions and also to establish to whom the coach was directing each question. Table 7 shows the different groups of intended recipients of coaches' questions.

Table 7 Pre-defined categories of people with whom the coach interacted during training and competition

Recipient	**Details**
Player	One to one interaction with an individual player
Players	Two or more players at the same time, for example in group discussions during training or match intervals
Staff	Assistant Coaches, video analysts
Management	Team managers, selectors, medics, physios
Referees	All match officials including, assistant referees, linesmen, umpires, assessors
Other	Spectators, or any person outside of the five other categories

Prior to the study the research team undertook two pilot studies so that the footage could be used for training and practice on the coding procedures. Credibility of the data is essential when using a systematic observation method (McKenzie & Van der Mars, 2015). Using the

pilot studies footage, a familiarisation period with the coding system subsequently took place, during which the researchers discussed various cultural, idiosyncratic use of language such as ending each sentence with "ok?", or "alright?" or "yeah?". It was agreed between the research team that due to the high frequency of these **convergent** questions, they would not be included in the overall calculations as they could distort the true numbers and percentages of questions asked. The process of achieving inter-rater agreement obliged the researchers to observe the same training sessions or matches twice (or more) at different points in time (McKenzie & Van der Mars, 2015). The coding analysis was then repeated two weeks later and inter-rater agreement measured at 94% which exceeds the accepted level of 80% recommended by Siedentop & Tannehill (2000, p. 335) for event observational coding. The trustworthiness of the data were assured through a variety of means. Firstly, each coach was given the opportunity to review each recorded event from the video footage and given the opportunity to suggest amendments (Miles, Huberman, & Saldaña, 2013). Secondly, while the coding was conducted from the transcript in NVivo© the video footage was also occasionally used to confirm the intended recipient of the coach interaction. Finally, regular meetings took place between the lead researcher and the two research assistants to ensure consistency in coding and agreement in the questioning categories (LeBreton & Senter, 2008). In Chapter 5 overall coaching behaviours were assessed using the CBAS system where *questioning* was coded in the "Organisation" (O) category. By combining that data with the number of questions established in this chapter it is possible to calculate the number, rate and percentage of coaches' questioning in comparison to overall coaching behaviours. Coaching behaviours are represented as a percentage of total coaching behaviours for each session and was calculated by dividing the total number of coded coaching behaviours by the number of grouped coaching behaviours then multiplying this number by 100. Percentage of time spent by the coaches in the different coaching behaviours is represented as a percentage of total session duration and was calculated

by dividing the total duration of the session by the number of grouped coaching behaviours then multiplying this number by 100. Percentages have been widely used in coach behaviour observation research (Partington & Cushion, 2013; Potrac et al., 2007; Smith & Cushion, 2006) and are recommended as a more reliable variable than frequency data which could vary in relation to the duration of each event (Ford et al., 2010).

6.5 Results

Overall totals, percentages of total behaviours and average rate per event of *closed* and *open* questions are presented in Tables 8 to 17.

6.5.1 Results for All Coaches

Table 8 outlines the number of questions for each of the seven categories for all coaches for all of their data collection sessions. The rate of closed and open combined questioning for coach 1 was approximately 1 question every 2.17 minutes. For coach 2, it was approximately 1 question every 2.5 minutes, coach 3 approximately 1 question every 1.67 minutes and coach 4 approximately 1 question every 2 minutes. Closed and open questions were asked at a rate of approximately 1 every 3.36 and 6.06 minutes, respectively for coach 1. For coach 2, 4.13 and 6.34 minutes, respectively, for coach 3, 3.47 and 3.21 minutes, respectively and for coach 4, 3.26 and 5.17 minutes, respectively. Table 9 reports the total number of questions that were asked in training (TotT) and matches (TotM). Also in Table 9 are the total number of open questions in training (TotOT) and matches (TotOM) and closed questions in training (TotCT) and matches (TotCM) for all of the coaches.

Table 8 All coaches' total questions during training and matches combined for all six observations

Coaches	YorN	Rhet	Clar	PrIC	PrAs	PrRa	QVie	Closed Total	Open Total	Total Qs	Total Observation Time (mins)
Rugby 1	90	20	44	4	2	1	10	**110**	**61**	**171**	369.84
Hockey	117	12	54	4	15	8	3	**129**	**84**	**213**	532.86
GAA	95	28	86	0	0	0	47	**123**	**133**	**256**	426.36
Rugby 2	107	18	62	0	8	3	6	**125**	**79**	**204**	408.2

Legend: YorN – Yes or No; Rhet – Rhetorical; Clar – Clarification; PrIC – Probing for Implications and Consequences; PrAs – Probing for Assumptions; PrRa – Probing for Rationale; QVie – Questioning Viewpoint

Table 9 All coaches' total questions during training and matches separated

Coaches	TotCT	TotOT	TotCM	TotOM	TotT	TotM	TotC	TotO	Total Qs
Rugby 1	69	33	41	28	102	69	110	61	171
Hockey	97	54	32	30	151	62	129	84	213
GAA	84	87	39	46	171	85	123	133	256
Rugby 2	65	57	60	22	132	82	125	79	204

Legend: TotCT – Total Closed Questions in Training; ToTOT - Total Open Questions in Training; ToTCM - Total Closed Questions in Matches; ToTOM - Total Open Questions in Matches; ToTT - Total Closed in Training; ToTM - Total Questions in Matches; ToTC - Total Closed Questions; ToTO – Total Open Questions; Total Qs – Total Questions

6.5.2 Coach 1 (Rugby)

Table 10 reports the number of open and closed questions asked by coach 1 during each of the data collection sessions. The systematic observation coding recorded a total of 1649 different coaching behaviours of which 171 (10%) were questions, 7% closed questions and 3% open questions. During training (n = 4) coach 1 asked 102 questions, or 9% of 1164 coaching behaviours, 3% of these behaviours were open questions. Coach 1 asked 69 questions, 14% of total coach behaviours in matches (n = 2), 6% of these behaviours were open questions. Table 11 reports the number of open and closed questions and the intended recipient from coach 1 during each of the data collection sessions. As noted in Table 10 coach 1 directed 162 (95%) questions to individual players (45, 26%), two or more players (49, 29%) and staff (68, 40%). 55% of all questions were directed to the players as individuals or as a group.

Table 10 Coach 1 (Rugby) Total number of questions for all observations

Coach 1 Rugby	Closed Total	Open Total	Total Qs	Organisation (O)	Total Coach Behaviours (TCBs)	Total Qs as % of O	% of Total Coach Behaviours	Closed Qs % TBCs	Open Qs % TBCs
T1	23	10	33	74	198	45%	17%	12%	5%
T2	13	7	20	138	441	14%	5%	3%	2%
T3	23	6	29	135	219	21%	13%	11%	2%
T4	10	10	20	142	306	14%	7%	3%	4%
M1	28	21	49	85	239	58%	21%	12%	9%
M2	13	7	20	82	246	24%	8%	5%	3%
Total	**110**	**61**	**171**	**656**	**1649**	**26%**	**10%**	**7%**	**3%**
T-Total	69	33	102	489	1164	21%	9%	6%	3%
M-Total	41	28	69	167	485	41%	14%	8%	6%

Table 11 Coach 1 (Rugby) Total number and % of questions to each recipient from the total coaching behaviours

Recipient	Total Training	Total Match	Total Closed	Total Open	Total Questions	% Qs in Training	% Qs in Matches	Training v Match	% Closed Qs of Total Coaching Behaviours	% Open Qs of Total Coaching Behaviours	% of Total Coaching Behaviours	% of Total Questions
Player	41	4	32	13	45	4%	1%	p=0.01*	2%	1%	3%	26%
Players	47	2	35	14	49	4%	0%	p=0.01*	2%	1%	3%	28%
Staff	14	54	41	27	68	1%	11%	p=0.01*	2%	2%	4%	40%
Management	0	8	2	6	8	0%	2%	p=0.49	0%	0%	0%	5%
Referee	0	0	0	0	0	0%	0%	p=1.00	0%	0%	0%	0%
Other	0	1	0	1	1	0	0%	p=0.93	0%	0%	0%	1%

*Significant difference noted between training and matches for questions to this recipient

6.5.3 Coach 2 (Hockey)

Table 12 shows the number of open and closed questions asked by coach 2 during each of the data collection sessions. The systematic observation coding recorded a total of 1691 different coaching behaviours of which 213 (13%) were questions, 8% closed questions and 5% open questions. During training (n = 4) coach 2 asked 151 questions, or 9% of 1098 coaching behaviours, 5% of these behaviours were open questions. Coach 2 asked 62 questions, 10% of total coach behaviours in matches (n = 2), 5% of these behaviours were open questions. Table 13 reports the number of open and closed questions and the intended recipient from coach 2 during each of the data collection sessions. As noted in Table 12 coach 2 directed 194 (91%) questions to individual players (36, 17%), two or more players (48, 23%) and staff (116, 54%). 40% of all questions were directed to the players as individuals or as a group.

Table 12 Coach 2 (Hockey) Total number of questions for all six observations

Coach 2 Hockey	Closed Total	Open Total	Total Qs	Organisation (O)	Total Coach Behaviours (TCBs)	Total Qs as % of O	% of Total Coach Behaviours	Closed Qs % TBCs	Open Qs % TBCs
T1	24	15	39	96	279	41%	14%	9%	5%
T2	13	5	18	60	180	30%	10%	7%	3%
T3	27	16	43	107	351	40%	12%	8%	4%
T4	33	18	51	139	288	37%	18%	11%	7%
M1	15	13	28	89	307	31%	9%	5%	4%
M2	17	17	34	109	286	31%	12%	6%	6%
Total	**129**	**84**	**213**	**600**	**1691**	**36%**	**13%**	**8%**	**5%**
T-Total	97	54	151	402	1098	38%	14%	9%	5%
M-Total	32	30	62	198	593	31%	10%	5%	5%

Table 13 Coach 2 (Hockey) Total number and % of questions to each recipient from the total coaching behaviours

Recipient	Total Training	Total Match	Total Closed	Total Open	Total Qs	% Qs in Training	% Qs in Matches	Training v Match	% of Closed Questions of Total Coaching Behaviours	% of Open Questions of Total Coaching Behaviours	% Total Coaching Behaviours	% of Total Questions
Player	25	15	25	11	36	2%	3%	p=0.05*	1%	1%	2%	17%
Players	35	13	30	18	48	3%	2%	p=0.01*	2%	1%	3%	23%
Staff	90	26	67	49	116	8%	4%	p=0.56	0%	3%	7%	54%
Management	3	0	1	2	3	0%	0%	p=0.77	0%	0%	0%	1%
Referee	0	2	1	1	2	0%	0%	p=0.85	0%	0%	0%	1%
Other	2	6	5	3	8	0%	1%	p=0.70	0%	0%	0%	4%

*Significant difference noted between training and matches for questions to this recipient

6.5.4 Coach 3 (GAA)

Table 14 reports the number of open and closed questions asked by coach 3 during each of the data collection sessions. The systematic observation coding recorded a total of 1881 different coaching behaviours of which 256 (14%) were questions, 7% of which were closed questions and 7% of which open questions. During training (n = 4) coach 3 asked 171 questions, or 17% of 982 coaching behaviours, 9% of these behaviours were open questions. Coach 3 asked 85 questions, 9% of total coach behaviours in matches (n = 2), 5% of these behaviours were open questions. Table 15 reports the number of open and closed questions and the intended recipient from coach 3 during each of the data collection sessions. Individual players (43, 17%), two or more players (91, 36%) and staff (118, 46%) accounted for 99%, or 252, of the total questions asked. As noted in Table 13 coach 3 asked a total of 256 questions, 123 (48%) closed questions and 133 (52%) open questions. The number of open questions asked by coach 3 was 133 out of a total of 1881 coaching behaviours or 9%. 53% of all questions were directed to the players as individuals or as a group.

Table 14 Coach 3 (GAA) Total number of questions for all six observations

Coach 3 GAA	Closed Total	Open Total	Total Qs	Organisation (O)	Total Coach Behaviours (TCBs)	Total Qs as % of O	% of Total Coach Behaviours	Closed Qs % TBCs	Open Qs % TBCs
T1	34	51	85	209	443	41%	19%	8%	11%
T2	6	7	13	28	76	46%	17%	8%	9%
T3	26	20	46	83	216	55%	21%	12%	9%
T4	18	9	27	94	247	29%	11%	7%	4%
M1	24	31	55	99	472	56%	12%	5%	7%
M2	15	15	30	73	427	41%	7%	4%	3%
Total	**123**	**133**	**256**	**586**	**1881**	**44%**	**14%**	**7%**	**7%**
T-Total	84	87	171	414	982	41%	17%	9%	8%
M-Total	39	46	85	172	899	49%	9%	4%	5%

Table 15 Coach 3 (GAA) Total number and % of questions to each recipient from the total coaching behaviours

Recipient	Total Training	Total Match	Total Closed	Total Open	Total Qs	% Qs in Training	% Qs in Matches	Training v Match	% of Closed Questions of Total Coaching Behaviours	% of Open Questions of Total Coaching Behaviours	% Total Coaching Behaviours	% of Total Questions
Player	40	3	23	20	43	4%	0%	p=0.01*	1%	1%	2%	17%
Players	91	0	35	56	91	9%	0%	p=0.01*	2%	3%	5%	36%
Staff	38	80	62	56	118	4%	9%	p=0.04*	0%	3%	6%	45%
Management	2	2	3	1	4	0%	0%	p=1.00	0%	0%	0%	2%
Referee	0	0	0	0	0	0%	0%	p=1.00	0%	0%	0%	0%
Other	0	0	0	0	0	0%	0%	p=1.00	0%	0%	0%	0%

*Significant difference noted between training and matches for questions to this recipient

6.5.5 Coach 4 (Rugby)

Table 16 reports the number of open and closed questions asked by coach 4 during each of the data collection sessions. The systematic observation coding recorded a total of 2047 different coaching behaviours of which 204 (10%) were questions, 6% closed questions and 4% open questions. During training (n = 4) coach 4 asked 122 questions, or 6% of 1179 coaching behaviours, 5% of these behaviours were open questions. Coach 4 asked 82 questions, 9% of total coach behaviours in matches (n = 2), 3% of these behaviours were open questions. Table 17 reports the number of open and closed questions and the intended recipient from coach 4 during each of the data collection sessions. As noted in Table 16 coach 4 directed 200 (99%) questions to individual players (28, 14%), two or more players (145, 71%) and staff (27, 13%). Of these 204 questions 125 (62%) were closed and 79 (38%) were open. This represents 6% and 4% respectively for closed and open questions from the 2047 different coaching behaviours recorded with coach 4. 85% of all questions were directed to the players as individuals or as a group.

Table 16 Coach 4 (Rugby) Total number of questions for all six observations

Coach 4 Rugby	Closed Total	Open Total	Total Qs	Organisation (O)	Total Coach Behaviours (TCBs)	Total Qs as % of O	% of Total Coach Behaviours	Closed Qs % TBCs	Open Qs % TBCs
T1	30	6	36	60	197	60%	18%	15%	3%
T2	10	7	17	115	272	15%	6%	4%	2%
T3	11	26	37	198	408	19%	9%	3%	6%
T4	14	18	32	96	302	33%	11%	5%	6%
M1	27	11	38	130	408	29%	9%	7%	2%
M2	33	11	44	130	460	34%	10%	7%	3%
Total	**125**	**79**	**204**	**729**	**2047**	**28%**	**10%**	**6%**	**4%**
T-Total	65	57	122	469	1179	26%	10%	6%	4%
M-Total	60	22	82	260	868	32%	9%	7%	2%

Table 17 Coach 4 (Rugby) Total number and % of questions to each recipient from the total coaching behaviours

Recipient	Total Training	Total Match	Total Closed	Total Open	Total Qs	% Qs in Training	% Qs in Matches	Training v Match	% of Closed Questions of Total Coaching Behaviours	% of Open Questions of Total Coaching Behaviours	% Total Coaching Behaviours	% of Total Questions
Player	15	13	21	7	28	1%	1%	p=0.89	1%	0%	1%	14%
Players	93	52	87	58	145	8%	6%	p=0.01*	4%	3%	7%	71%
Staff	12	15	15	12	27	1%	2%	p=0.83	0%	1%	1%	13%
Management	0	0	0	0	0	0%	0%	p=1.00	0%	0%	0%	0%
Referee	0	0	0	0	0	0%	0%	p=1.00	0%	0%	0%	0%
Other	2	2	2	2	4	0%	0%	p=1.00	0%	0%	0%	2%

*Significant difference noted between training and matches for questions to this recipient

6.6 Discussion

The results show an interesting difference and variability in the rate of questioning between the coaches where coach 3 asks open questions every 3.21 minutes. In contrast to the other three coaches, coach 3 is the only coach to ask more open than closed questions. However, it should be noted that there was a wide variability in number and percentage of questioning from training session to training session and match to match which may be attributed to the different objectives for each session and the different contexts in which they occurred. Questioning has been shown to promote implicit learning when used appropriately (Reid et al., 2007). As such, it is possible to interpret from the results that coach 3 was twice as likely as the other coaches to ask an open question, in particular, those that invite the athletes' opinion by *questioning their viewpoint (QVie)*. This infers that coach 3 acted in the role of a facilitator of learning, challenging the athletes to problem solve and make decisions indicating that he is coaching through use of questioning. Further, by using more of this type of open or **divergent** questioning it is feasible to suggest that coach 3 was more likely to promote athletes' autonomy in training and matches which concurs with Light and Robert, (2010). Coach 2 asked a higher number of questions in the *probing assumptions (PrAs)* (see Table 8) category than any other coach but this was not shown to be significant. Overall, there was no significant difference in the rate of questioning or in the number of closed or **convergent** questions asked by the coaches. However, it is indicative of the coaching method that the coaches predominantly asked closed or low-level comprehension questions instead of **divergent** questions, which was also found in Harvey et al., (2016).

It was not surprising to report that all of the coaches asked more questions during training than in matches where training simply has "more coachable moments" which agrees with previous findings in the literature (Hall et al., 2016; Trudel et al., 1996). It is likely that the sport-specific demands accounted for the differences in total observation time.

Interestingly, the individual training observation sessions with coach 2 were longer in duration than match-time in three of the four sessions. In contrast, the other three coaches' individual training sessions equated to approximately 66% of match-time. Despite the differences in total observation duration between the coaches there was no significant differences found between the number of questions asked as a percentage of overall coaching behaviours ($F_{(3, 92)} = 0.213$, $p = 0.89$) (Coach 1 - 10%, Coach 2 - 13%, Coach 3 - 14%, Coach 4 - 10%). When analysed further, coach 1 was observed using questions 6.2% as a percentage of total behaviours in training and 4.2% as a percentage of total behaviours in matches ($p=0.26$); coach 2, 9% in training and 3.6% in matches ($p<0.01$); coach 3, 9% in training and 4.5% in matches ($p<0.01$) and coach 4, 5.9% in training and 4% in matches ($p=0.26$). These results compare very favourably with those found previously in Partington & Cushion (2013) whose coaches were observed questioning 11% in training and 9.5% in matches but higher than those found both, by Hall et al., (2016) 5.9% and Potrac et al., (2007) 2.38% of total coaching behaviours. The coaches also engaged with questioning more than reported in Cushion and Jones (2001) which resulted in average questioning time from the coaches of 2.98% of time.

Of particular interest in this research is how the coaches interacted with their athletes. Having examined the overall coaching behaviours in Chapter 5 and specifically addressed *questioning* as part of those behaviours in this chapter it is logical to examine how many of those *questions* were directed towards the athletes. The results indicate that coach 4 directed 71% of his overall questioning to *athletes* as a group, higher in comparison to the other three coaches, 29%, 23% and 36% respectively. However, there was no difference in coach questioning to the *athletes* in a one to one setting. A more in-depth analysis shows that coaches 1 and 3 had little or no interaction through questioning with their athletes during matches. This contrasted with coaches 2 and 4 who had almost identical percentage interactions with their athletes during training as they had in games. The rules of hockey allow for unlimited

interchanging of athletes, so it was not surprising to see the hockey coach interacting more with his athletes during matches. However, it may also be possible that these results imply from the audio recordings of each event, that during matches, coaches 2 and 4 were using questions to reinforce solutions that may have been discussed during training. It may also indicate that information on technique and tactics was more instructed through *telling* rather than through *questioning* with the athletes. This would concur with the difficulty in using questioning as a coaching strategy mentioned in Roberts (2011) study on cricket coaches. Furthermore, the *telling* approach will not only restrict athlete development but also their creativity. Assigning a finite set of solutions will be sufficient for a set period of time but will only suffice in that particular *context*. When the *context* changes, different challenges may arise where no solution has been discussed. Therefore, it might be a more appropriate approach to empower the players to find the precise solution in the moment and allow for the development of a more complete athlete (Light & Butler, 2005). With such little interaction between coaches 1 and 3 with their athletes during games it is possible that this was the approach they adopted.

Another aspect of the coaching role is how much interaction each coach has with *staff*. Coaches 1 (40%), 2 (54%) and 3 (46%) directed the highest percentage of their questioning to their *staff* in comparison to coach 4 (13%). Coach 1 and coach 3 interacted through questioning with *staff* more often in training than matches than coaches 2 and 4. Hall et al., (2016) found conferring with associates to be the most common behaviour of the international rugby union coach in their study. This shows a willingness to delegate and share responsibility with others while also engaging in other essential coaching activities such as observation. Conferring with associates has also been used out of necessity as a method of communication with athletes in international rugby union (Mouchet, Harvey, & Light, 2014). However, this was not the case for coach 4 in this research. Little or no interaction through questions was found across all four coaches in this study with *management, referees* or *other* and therefore it is likely that any

engagement that took place with these groups was through responding to questions, delegating tasks or giving instructions.

It is important that coaches recognise the importance of questioning as a coaching strategy. As is the case with other coaching methods, they are dependent on the *context*, the needs of the athlete and the desired outcome of the strategy. Time with the athletes in coaching is usually a short-term endeavour, measured in minutes rather than hours per week, and therefore it is important to make every question count. Coaches can make an immediate and telling impact by facilitating and empowering athletes through autonomy supportive behaviours. Whilst it is important to encourage coaches to use autonomy supportive behaviours such as divergent questioning, it is also important to recognise the structural constraints that exist in the coach-athlete relationship. This structural constraint lies in the power imbalance that exists in all coach-athlete relationships (Jowett, 2007) and means that athletes are unlikely to achieve true autonomy (Denison, Mills & Konoval, 2015). The training environment should allow the sport to be the educator while the coach is the facilitator. This coaching approach will ensure a progression of athletes' knowledge and understanding of the sport (Solana-Sánchez, Lara-Bercial, & Solana-Sánchez, 2016).

It would appear from the results that coach 3 has a well-practiced questioning routine in certain aspects of training. He relies mainly on *clarification* and *questioning viewpoint* questions to promote learning and empower his athletes to problem solve during training. This type of training is likely to provide athletes with the appropriate decision-making skills to overcome match-day challenges. This is contrasted with coach 4 who appears to equip athletes with finite solutions instructed within training to perform in matches. The results for coach 3 also provide evidence that this questioning approach is conducive to creating a positive learning environment and builds good rapport between coaches and athletes. Chapter 7 will discuss the athletes' perception of coaching behaviours with coach 3 scoring high on the scale for positive

rapport and low on the scale for a negative rapport with his athletes. Also, the athletes perceive the relationship between them and coach 3 to be improving over the course of the season. The coach's ability to use appropriate questioning may be a contributory factor to this.

Coaches' activities and behaviours must be adaptable to the evolving circumstances during the coaching context (Saury & Durand, 1998) and as such it is difficult to be definitive about proscribing optimal levels of questioning during training and matches. However, based on the results, it is reasonable to propose that the coaches can continue to develop their questioning methodology and increase the cognitive challenge they pose to the athletes. Simply asking questions will not be enough to stimulate the thinking and social interaction needed to create a learning environment (Cazden & Beck, 2003). Using education as an example, while questioning is common practice it is often limited to inauthentic, basic level questions to which the teacher already has an answer thus it does not promote any metacognition in the learners (Cazden & Beck, 2003). It was difficult to group all these coaches, training and matches together for analysis as each event must be treated as an individual entity. Every training session and match are separate entities and are highly unlikely to include exactly the same activities or coaching behaviours from one event to the next. Although this research has highlighted a number of differences in questioning behaviours, it is important that future research continues to include both training and competitive matches on a longitudinal basis to further enhance our knowledge in this area.

6.7 Conclusions

Based on the findings of this research (and those of others) it is important that coaches recognise the importance of questioning as a coaching strategy. While it appears that all coaches were very organised and planned with a thoroughly professional approach there does not appear to be any questioning structures prepared for training or match situations. It would be impossible to predict and prepare for every outcome or nuance that may arise during

matches. However, while preparing the activities for training sessions, coaches may benefit from extra time planning their questioning approach. The pre-planning of questions can promote problem solving and decision making skills in athletes that are essential for sport-specific performances.

Chapter 7

Athlete Perception of Coaching Behaviours

7.1 Introduction

In Chapters 5 and 6 the focus of the work was on the coach, their behaviours during training sessions and competitive matches and how they utilised questions to interact with the athletes and promote learning. This chapter shifts the focus onto the athletes themselves. In so doing we address the important and often overlooked aspect of the athletes' perception of the coaching behaviours. Coaching effectiveness as mentioned in Chapter 5 cannot solely be assessed by a win-loss ratio or number of trophies attained in a particular time period. Invariably, a team will play in approximately two competitions each year, at the end of which a maximum of two teams can win a trophy. In this context, evaluating teams' development based on outcome alone may not be truly representative of *why* a particular outcome was achieved (Martindale et al., 2012). Outcome also does not reflect the work and effort of coaches, management and players over the season as a whole. As discussed earlier in chapters 2 and 5, coaching effectiveness can be measured in a number of ways. Therefore, one critical element of programme and coaching evaluation is the athletes' perception of the coaching behaviours. This chapter will specifically discuss athlete perception of coaching behaviours at various time-points during the season using the Coach Behaviour Scale for Sport (CBS-S; Côté et al., 1999).

7.2 Coaching Behaviours

As seen in Chapter 2 coaching is about instigating change and the definition of coaching effectiveness means creating a noticeable, although at times difficult to measure, development in the athlete. Also discussed in Chapter 2 was Pawson & Tilley's (2004) concept of realist evaluation (CMO), where a coach, depending on the context (C) of the coaching situation may alter their method (M), or behaviour, to achieve a particular outcome (O). This development should not only be seen in areas of technical and tactical proficiency during performance but also in personal development outside of the performance environment (Côté & Gilbert, 2009).

Athlete psychological development is also an important area to consider with previous research findings showing an increase in intrinsic motivation in athletes who have a positive, connected relationship with their coach (Ryan & Deci, 2000). Similarly, athletes' motivation is also likely to be influenced by the type of coach they play for (Amorose & Horn, 2000). Interestingly, regardless of level, coaches who portrayed more supportive, instructional behaviours were rated by their athletes as creating a more pleasant environment and had more positive rapport with their athletes. The athletes had more fun and liked their teammates more than athletes of coaches who had a tendency towards more punitive behaviours, which can create a negative rapport with the athletes (Hollembeak & Amorose, 2005). Although previous research has provided in-depth knowledge of coaching behaviours and coaching effectiveness, athlete feedback on their perception of coaching behaviours has been largely excluded, with some exceptions (Amorose & Nolan-Sellers, 2016; Koh & Wang, 2015). It is argued that any measure of coaching effectiveness should include feedback from their athletes (Lyle, 2000; Mallet & Côté, 2006). Using the Coaching Feedback Questionnaire (CFQ; Amorose & Horn, 2000), Amorose and Nolan-Sellars examined athletes' perceptions of the feedback from their coaches in response to their performance successes and failures. The study included 155 female softball athletes from a competitive league in the USA and found that coaches should provide high frequencies of positive and instructional feedback and avoid ignoring athletes' mistakes. An adapted version of the CBS-S was used by Koh and Wang (2015) to measure athlete feedback from 101 (male, $n = 61$, female, $n = 40$) Singaporean athletes involved in both team and individual sports. Their results found that gender and type of sport were potential moderators of athlete perception of coaching behaviours in young athletes but cautioned against the generalisation and application of these findings to other cultures and contexts. Considering that athletes are arguably the group most impacted by coaches it would be reasonable to assume that understanding their experiences would provide a more complete

picture of coaching effectiveness (Becker, 2009). Furthermore, the perceptions of athletes' in evaluating the quality of the work performed by coaches are critical to understanding the quality of the coach-athlete relationship in competitive sport (d'Arripe-Longueville, Fournier, & Dubois, 1998).

The athlete reaction or response to coaching behaviours is often critical to the way in which the athlete will train or compete. At times, despite the best intentions of the coach, the athlete interpretation of the coaching instruction may be entirely different. This may occur around more intense and stressful times, for example, during competition (Thomas, Hanton & Maynard, 2007). These different behaviours may also affect one, many or all the individual team members and consequently may be detrimental to, among other things, team cohesion and ultimately team performance. In this context, the coaching role often includes a variety of tasks beyond on-field practice sessions and the competitive environment such as goal-setting and mentoring athletes (Miller, Salmela, & Kerr, 2002). Despite recommendations from previous research athlete perception of coaching behaviours has received little consideration when measuring coaching effectiveness (Cope et al., 2016; Côté et al., 1999; Kahan, 1999).
For an effective coach-athlete relationship, the emotions, thoughts and behaviours of all parties should be closely aligned (Jowett, 2007). Therefore, establishing the athletes' perception of coaching behaviours would be an important factor in furthering our understanding of the coach-athlete relationship (Jowett & Cockerill, 2002; Mallett & Côté, 2006). In Chapter 2 (p. 15) we outlined the impact of a positive coach-athlete relationship on performance and the development of both the athlete and the coach as people. Coaches who are perceived by their athletes to demonstrate more positive behaviours increase intrinsic motivation in athletes (Hollembeak & Amorose, 2005). Coaches who share responsibility for decision making with their athletes and demonstrate transformational leadership qualities have also been shown to

have a more positive influence on athlete motivation, athlete self-esteem and overall team performance (Turnnidge & Côté, 2016; Vella & Perlman, 2014).

7.3 Measuring Athlete Perception of Coaching Behaviours

Several instruments have been designed to measure coaching behaviours and coaching effectiveness. For example, the Leadership Scale for Sport (LSS; Chelladurai & Saleh, 1980) and the Coaching Behaviour Questionnaire (CBQ; Williams et al., 2003) both the LSS and CBQ focused on specific aspects of coaching, and were not grounded in coaches' and athletes' experiences (Mallet & Côté, 2006). The LSS, because of its nature, was limited to examining leadership behaviours that mainly take place in the training environment while the CBQ concentrated on behaviours most commonly seen in the competitive environment. As such, this limits the use of the LSS and CBQ when the goal is to assess overall coaching behaviours in both of these contexts. An important aspect of this research was to not only track coaching behaviours over the course of one season but to also collect data on athlete perception of these behaviours during both training and match situations. Consequently, athletes were asked to complete the Coach Behaviour Scale for Sport (CBS-S; Côté et al., 1999).

7.4 The Coach Behaviour Scale for Sport

The design of the CBS-S was influenced by several qualitative studies conducted with coaches and athletes (Bloom & Durand-Bush, 1997; d'Arripe-Longueville et al., 1998; Gilbert & Trudel, 2000). These studies, among others, had used the Coaching Model (CM; Côté et al., 1995) as a framework to examine coaches' personal characteristics, athletes' characteristics, and the context in which coaching occurs. The CBS-S constructs conform closely to the original studies on which it was founded. As the constructs capture a wide variety of behaviours, preliminary investigations of the reliability (internal consistency and test-retest reliability) and validity (factor validity) were conducted. The Cronbach alpha-coefficients demonstrated high internal consistency of 0.85 or greater, and adequate test-retest reliability of

0.49 or greater. Factor analysis demonstrated eigenvalues exceeding 1.0, accounted for significant variance beyond that of the other factors and had high item loadings indicating strong factor validity (Côté et al., 1999). Subsequently the CBS-S provides a comprehensive athlete feedback tool that presents athlete perceptions on seven (7) key areas of team and athlete development. They are as follows:

i) Physical Training and Planning (**PTPs** - focusing on the athletes' physical training and planning for training and competition, seven questions, Q1-7)

ii) Technical Coaching (**TECs** - areas and methods of coaching feedback, demonstration and cues, eight questions, Q8-15)

iii) Mental Skills (**MENs** - how the coach helps the athlete to perform under pressure, stay focused and be confident, five questions, Q16-20)

iv) Goal Setting (**Gs** - identification, development and monitoring of the athletes' goals, six questions, Q21-26)

v) Competition strategies (**COMPs** - focusing on the coach's interaction with the athlete in competition, seven questions, Q27-33)

vi) Positive Rapport with the coach (**POSRs** - assessing the approachability, availability and understanding of the coach, six questions, Q34-39)

vii) Negative rapport with the coach (**NEGRs** - assessing the coach's use of negative techniques such as fear and yelling, eight questions, Q40-47)

Athlete perception was rated on a Likert scale of 1 (*Never*) to 7 (*Always*). An example of the CBS-S and the Likert scale can be found in Appendix 7 (p. 211-213). The data collection process recommended by Mallet & Côté (2006) suggested collecting data around mid-season and near the end of the season. The research team provided feedback to the coaches after the mid-season data collection which facilitated the coach with an opportunity to respond to the feedback and make adjustments if necessary. The data collection process for this research thesis

followed those implemented by Mallet & Côté (2006) with one difference; data collection sessions occurred on three separate occasions during the season. The extra data collection was included at the beginning of the season. The feedback from the athletes was collected on three dates that coincided with visits to collect coaching behaviour data (Chapters 5 and 6) with the coach, the first, last and either the third or fourth data collection visit. The different time-points for data collection were selected to allow for an analysis of potential changes in athlete perception to occur over time. These potential changes may be influenced by, among other things, performance, coach-athlete relationships or injuries within the squad. Thus, a longitudinal data collection will be more representative of the athletes' perception of coaching behaviours and the coach-athlete relationship which normally exists. Findings of the athletes' feedback are particularly interesting and show significant changes over the three different time points between the coaches and between the sports.

7.5 Methods

7.5.1 Participants

The participants in this study were high performance athletes (n = 52) from three team sports (Rugby, Field hockey, Gaelic Football) who volunteered to participate in this longitudinal study during training sessions and matches. The athletes were recruited as they were part of a team whose coaches were also participating in this research. These high-performance athletes were playing in an *elite context* characterised by intensive preparation and involvement from athletes, highly structured and formalised competition and coaches who work with the same group in a full-time capacity (Trudel, Gilbert & Kirk, 2006, p. 521). For the purpose of this study "high-performance" coaches were defined as coaches involved with teams where coaching objectives tend to focus on outcome, with the results in games being more important than having fun (Erickson et al., 2007). All athletes were male between the ages of 18 and 35. All teams were considered senior adult (Over 18) male teams playing at the highest level in

their respective national leagues. At the time of data collection all athletes had been working with their respective coaches for at least six months.

7.5.2 Procedures

Institutional ethical approval was attained prior to the commencement of this study. Each athlete had indicated their consent in participating in the research by signing the informed consent form. A participant information sheet (Appendix 11, p. 223-225) and an informed consent form (Appendix 12, p. 226-228) were sent to each club one week in advance of the first data collection session and distributed to the athletes under the direction of the coach. Following an initial telephone call to outline the nature and aim of the study a face-to-face meeting was arranged with each coach to finalise the processes involved as well as the date and time of the initial data collection session and to sign the consent forms with the coaches and their athletes.

All data was collected prior to a training session. No data was collected on match days. The research team arrived at the training ground approximately 75 minutes before the start of the training session. The questionnaires were distributed to the players upon their arrival at the training ground and took no more than 30 minutes to complete. To ensure confidentiality and honesty in responses, no coaches were present while the players completed the questionnaire. A member of the research team was in attendance for the duration of the data collection session to clarify any issues, provide information where necessary and gather completed questionnaires. Each of the athletes was assigned an identifying code known only to the research team and the athlete to maintain anonymity and to keep a record of athlete attendance at all the data collection sessions. Similar to the data collection process with the coaches discussed in Chapters 5 and 6, it was essential that athlete feedback was collected over the course of the season, rather than a one-off data collection session, to allow for possible fluctuations in athlete perceptions of the coaches behaviours.

7.5.3 Data Analysis

All questionnaire responses were amalgamated in tabular form using MS™ Excel 2010 before being transferred into IBM™ SPSS™ Statistics 22. Descriptive statistics were calculated relating to the central tendency of the measures namely mean and standard deviation where appropriate for all measures. The coaching behaviours were divided into the seven different CBS-S categories described in section 7.4. Similarly, early, middle/during and end season were divided into three different levels. The data were subjected to a 7x3 (Coach Behaviours x time-point) repeated measures analysis of variance (ANOVA) to compare the athlete perception of coaching behaviours at the different data collection time-points. Where sphericity was not observed, the Greenhouse Geiser correction was reported. Graphical display in SPSS of the data collected confirmed that the distribution was normal. The main effects were further investigated with a Bonferroni pairwise comparisons *post hoc* test to assess where the differences occurred.

7.6 Results

7.6.1 Coach 1 Rugby

Test for within subject effects showed athlete perception of all seven categories of coaching behaviours for coach 1 at each of the three time-points during the season. With a maximum score of 49, coach 1 scored consistently for Physical Training and Planning (PTPs) with only a slight decrease from 39.18 to 38.18, from early season to the end of the season. Technical skills (TECHs - maximum score, 56) increased over the season from early season (39.09) to the end of the season (42.18). Mental Skills (MENs - maximum score, 35) ranged from 21.55 early in the season to 23.16 at the mid-point of the season while Goal Setting skills (Gs - maximum score, 42) ranged from 22.27 early in the season to 26.73 at the mid-point of the season. Competition Strategy (COMPs - maximum score of 42) showed an increase from early season (35.83) to mid-season (37.45) before decreasing again at the end of the season (36.09).

Positive Rapport (POSRs – maximum score, 42) with athletes decreased over the course of the season and ranged between 33.27 early in the season to 29.64 at the end of the season. Negative Rapport (NEGRs – maximum score, 56) ranged from 13.45 in the middle of the season to 17.64 at the end of the season, a similar score to early in the season (17.18). Figure 6 shows the individual coach scores for all seven categories across the three different time-points.

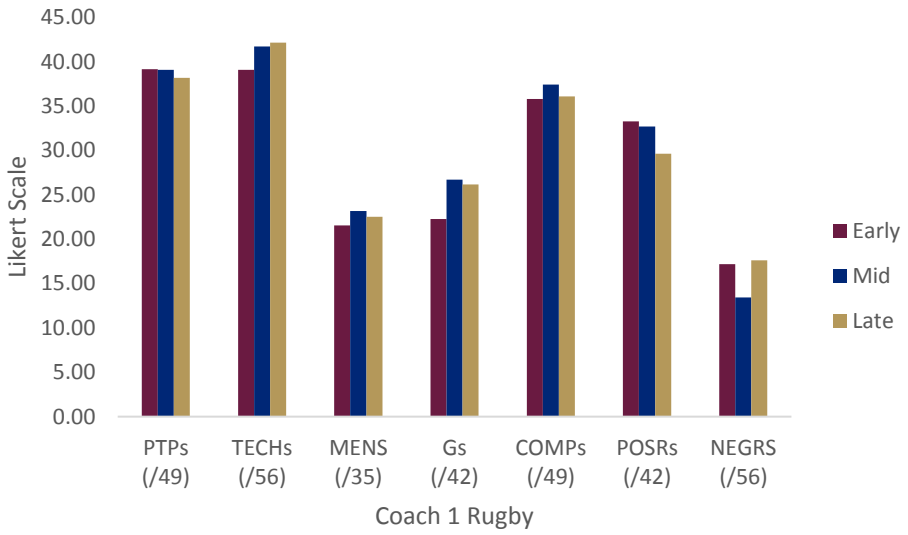

Figure 6 Individual scores for Coach 1Rugby 1 at different time-points for all seven categories.
PTPs (Physical Training and Planning) had seven questions and was scored out of 49, TECHs (Technical Skills) eight questions, scored out of 56, MENS (Mental Skills) five questions, scored out of 35, Gs (Goal Setting) six questions, scored out of 42, COMPs (Competition Strategy) seven questions, scored out of 49, POSRs (Positive Rapport) seven questions, scored out of 49 and NEGRs (Negative Rapport) eight questions, scored out of 56.

7.6.2 Coach 2 Hockey

Athlete perception of coach 2 showed a consistent level of scoring for all seven categories of coaching behaviours at each of the three time-points during the season. With a maximum score of 49, coach 2 scored consistently for Physical Training and Planning (PTPs) with only a slight decrease from 41.69 to 38.31, from early season to the end of the season but with the lowest score in the range in the middle of the season (36.23). Technical skills (TECHs - maximum score, 56) increased over the season from early (44.23) to the end of the season (49.46). Mental Skills (MENs - maximum score, 35) ranged from 26.46 early season to 24.38 at the mid-point of the season before increasing to 25.69 at the end of the season. Goal Setting skills (Gs -

maximum score, 42) followed a similar pattern, decreasing from 32.31 early in the season to 30.00 at the mid-point of the season before increasing to 31.62 at the end of the season. Competition Strategy (COMPs - maximum score of 42) ranged 39.85 early season to 41.23 at the end of the season. Positive Rapport (POSRs – maximum score, 42) with athletes decreased slightly from a high point during the season of 32.85 to 31.38 at the end of the season. Negative Rapport (NEGRs – maximum score, 56) also decreased over the season from 15.46 early in the season to 11.46 at the end of the season. Figure 7 shows the individual coach scores for all seven categories across the three different time-points.

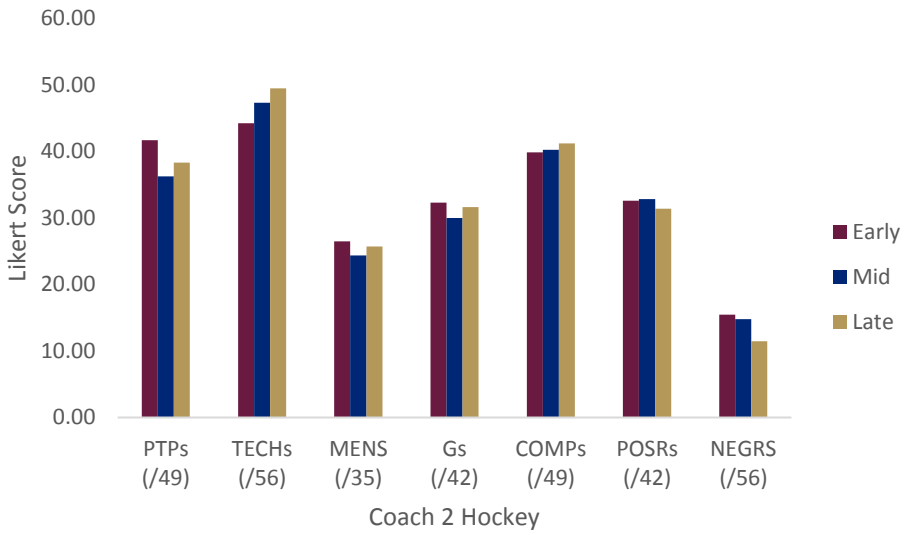

Figure 7 Individual scores for Coach 2 Hockey at different time-points for all seven categories.
PTPs (Physical Training and Planning) had seven questions and was scored out of 49, TECHs (Technical Skills) eight questions, scored out of 56, MENS (Mental Skills) five questions, scored out of 35, Gs (Goal Setting) six questions, scored out of 42, COMPs (Competition Strategy) seven questions, scored out of 49, POSRs (Positive Rapport) seven questions, scored out of 49 and NEGRs (Negative Rapport) eight questions, scored out of 56.

7.6.3 Coach 3 GAA

Athlete perception of coach 3 showed a wide range of scoring within all seven categories of coaching behaviours at each of the three time-points during the season. With a maximum score of 49, coach 3 scored consistently for Physical Training and Planning (PTPs) with only a slight decrease from 43.33 to 44.20, from early season to the end of the season but with the lowest score in the range in the middle of the season (42.80). Technical skills (TECHs - maximum

score, 56) ranged from 34.80 in the middle of the season to 46.60 at the end of the season. Mental Skills (MENs - maximum score, 35) ranged from 17.60 during the season to 28.20 at the end of the season. Goal Setting skills (Gs - maximum score, 42) were identical early in and during the season (25.07) before increasing to 35.20 at the end of the season. Competition Strategy (COMPs - maximum score of 42) ranged 36.33 during the season to 42.73 at the end of the season. Positive Rapport (POSRs – maximum score, 42) with athletes decreased slightly from early in the season (30.07) to during the season 28.40 before reaching a high point of 35.73 at the end of the season. Negative Rapport (NEGRs – maximum score, 56) also decreased over the season from 16.33 early in the season to 10.07 at the end of the season. Figure 8 shows the individual coach scores for all seven categories across the three different time-points.

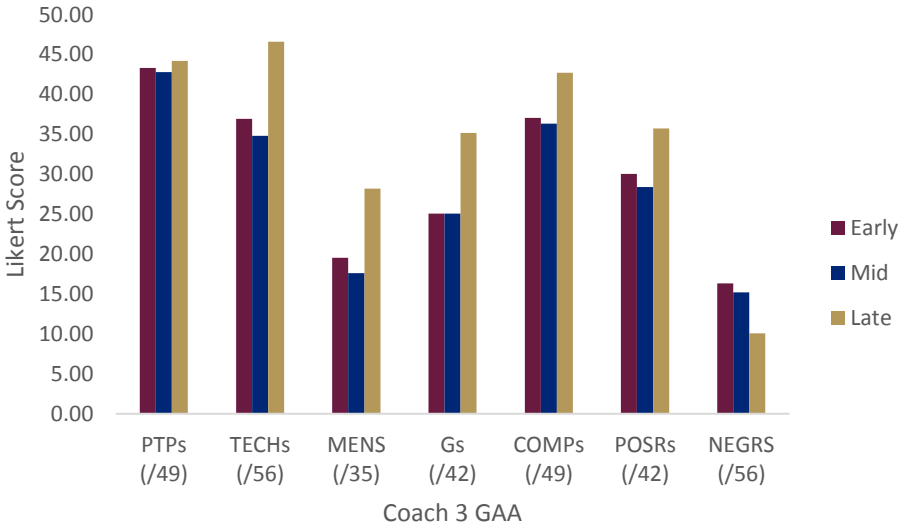

Figure 8 Individual scores for Coach 3 GAA at different time-points for all seven categories.
PTPs (Physical Training and Planning) had seven questions and was scored out of 49, TECHs (Technical Skills) eight questions, scored out of 56, MENS (Mental Skills) five questions, scored out of 35, Gs (Goal Setting) six questions, scored out of 42, COMPs (Competition Strategy) seven questions, scored out of 49, POSRs (Positive Rapport) seven questions, scored out of 49 and NEGRs (Negative Rapport) eight questions, scored out of 56.

7.6.4 Coach 4 Rugby

Athlete perception of coach 4 showed a wide range of scoring within all seven categories of coaching behaviours at each of the three time-points over the course of the season. With a maximum score of 49, coach 4 ranged in score for Physical Training and Planning (PTPs) from

41.54 early in the season to a low score of 32.38 at the end of the season. Technical skills (TECHs - maximum score, 56) ranged from 44.85 in the middle of the season to 40.38 at the end of the season. Mental Skills (MENs - maximum score, 35) ranged from a high of 25.00 during the season to a low of 23.08 at the end of the season. Goal Setting skills (Gs - maximum score, 42) followed a similar pattern with a high during the season (29.00) to a low score of 25.08 at the end of the season. Competition Strategy (COMPs - maximum score of 42) ranged 39.08 during the season to 35.92 at the end of the season. Positive Rapport (POSRs – maximum score, 42) with athletes increased slightly from early in the season (32.92) to during the season (36.00) before decreasing to a low point of 30.77 at the end of the season. Negative Rapport (NEGRs – maximum score, 56) also decreased over the season from 26.77 early in the season to 15.62 at the end of the season. Figure 9 shows the individual coach scores for all seven categories across the three different time-points.

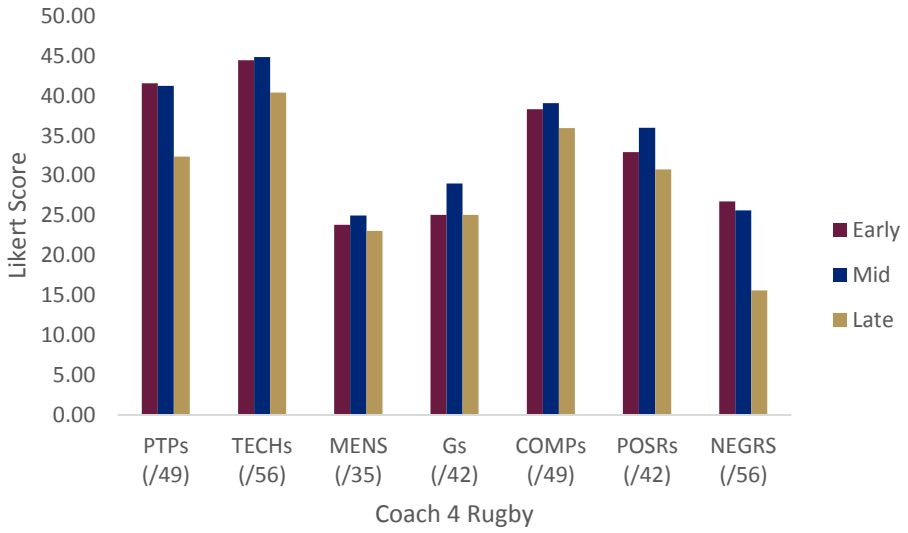

Figure 9 Individual scores for Coach 2 Rugby 2at different time-points for all seven categories.
PTPs (Physical Training and Planning) had seven questions and was scored out of 49, TECHs (Technical Skills) eight questions, scored out of 56, MENS (Mental Skills) five questions, scored out of 35, Gs (Goal Setting) six questions, scored out of 42, COMPs (Competition Strategy) seven questions, scored out of 49, POSRs (Positive Rapport) seven questions, scored out of 49 and NEGRs (Negative Rapport) eight questions, scored out of 56.

7.7 Discussion

The importance of athletes' perceptions of coaching behaviours was the core objective of this chapter. The results indicate that athletes' perceptions are that their coaches, at particular times of the year, may change their behaviours to emphasise different sport specific activities. For example, and along expected lines, coach 4 tended to prioritise PTPs in the preparatory phase, early in the season before decreasing the emphasis on this area at the end of the season (Figure 9). A possible explanation for this difference could be a decrease in the priority placed on this aspect of athlete development due to the season drawing to a close. At that time coach 4 had one match remaining in the competitive season and was neither in a position to compete for the title nor in danger of being relegated and, anecdotally there was a sense of lower motivation and possibly "holiday-mode" during the session. As the season progressed, a wide range of differences were evident for coaches in some of the categories, most notably, coach 3, with the exception of the PTPs category (Figure 8). It is feasible to interpret from Figure 8 that, as the season progressed coach 3 switched the emphasis from the physical development of his athletes to the technical and tactical development as the competition phase of the season reached the concluding stages.

The results reported an emphasis on technical skills coaching at each of the three time-points during the season with athletes' scoring their coaches very highly in this area. Figure 8 highlights the most notable increase in emphasis in *technical skills* from coach 3. This high-scoring can be interpreted as the athletes' perceiving their coaches as *technically* focused which may seem contradictory, as one might expect athletes who competed at the *elite* performance level to be technically proficient enough to concentrate on other aspects of the game such as tactical or mental development. However, in the categories on Mental Skills (MENs) - how the coach helps the athlete to perform under pressure, stay focused and be confident - and Goal Setting - identification, development and monitoring of the athletes' goals – all the coaches

scored poorly on this scale, in particular, coach 3, at the first two time-points as can be interpreted from Figure 8. However, at the end of the season, when the competition was intensifying, coach 3 scores highest in both categories. There is further evidence to support this when interpreting the COMPs results where again coach 3 scores higher at the end of the season in comparison to his scores early in and during the season. As discussed earlier in this chapter the coaches' role extends to goal-setting and mentoring athletes (Miller, Salmela & Kerr, 2002) and one would expect coaches who support their athletes in these categories to score highly. The consistent, low scores reported in this study would appear to show that the coaches were not meeting the goal-setting and mentoring needs of their athletes and, as such, can be interpreted as not being very supportive of their athletes during the season. However, in most cases, the coaches increased their support towards the end season as competition intensified.

Coaches who were perceived by their athletes to be supportive, through mentoring, building confidence and monitoring goals, are known to have high levels of positive rapport and low levels of negative rapport with their athletes (Hollembeak & Amorose, 2005; Jowett, 2005). Therefore, as the coaches in this study have scored poorly in these areas it would not be surprising to see similarly poor scores for POSRs and high scores for NEGRs. However, this was not the case. Although scores for POSRs were not high, the results reported that coaches scored consistently throughout the season with the exception of coach 3 who increased his score for POSRs at the end of the season, indicating the athletes perceived him to be more supportive towards the end of the season. Similarly, NEGRs decreased for all coaches over the course of the season with the exception of coach 1 who's score increased from early in the season to the end of the season although the difference was not significant. This may indicate that competitive stress was not present or had no effect on NEGRs between the coaches and athletes in contrast to the findings of Thomas, Hanton & Maynard (2007). In the case of coach 4, his athletes perceived their relationship to be quite negative, giving him a higher score for

NEGRs than other athletes' perception of their coach. This was particularly evident early in and during the season but improved noticeably as the season progressed with athletes' perceiving the lowest level of negative rapport at the end of the season.

The results would indicate that the coaches had a consistent level of rapport with their athletes for the duration of the season. The athletes also perceived the coaches altering their behaviour by placing an emphasis on different developmental aspects of coaching as competition intensified towards the end of the season. Further research is necessary to investigate whether or not this was part of the coaching strategy for the season as this was not within the scope of this research. Despite the low scores for supportive coaching behaviours in mental skills and goal setting this did not appear to affect the coach-athlete relationship in this particular group of coaches. Again, further research would be necessary to confirm whether this is commonplace in these team sports or simply the coaches and athletes in this research.

In some categories, namely MENs and COMPs, athlete perception was that no significant changes in coach behaviour was noted. It may be possible that all coaches had a large proportion of season planning and strategy, including MENs and COMPs in place before the first data collection time-point. As such it is not surprising that no significant changes were reported at time-points one and two for these categories. However, as the season progressed it would not be uncommon for coaches to reinforce these strategies to boost confidence, increase motivation and maintain focus for the final run in the competition. It is therefore possible to infer from the results that coach 3 reinforced or revisited prior planning and competition strategy late in the season. Alternatively, it may also be possible to infer that athletes' perceptions were that none of the coaches placed any emphasis on mental skills training, as part of their role in their athletes' development.

7.8 Conclusions

Overall, athlete perceived their coach to change their behaviours over the course of the season to place a different emphasis on particular categories investigated in this research. Once again, the context (early, middle, and end of the season) in which the data collection took place is critical to our understanding of these differences. The athletes' perception of coaches changing behaviours to emphasise or prioritise particular goals or outcomes aligns well with the CMO realist evaluator framework discussed in Chapter 2 (p. 16) and in the introduction of this chapter (p. 98). For example, coach 3 scored highest in all categories at the end of the season and was still building up to compete at the final stages of the national competition. It is, therefore, important to seek feedback from the athletes on coaching behaviours over the course of a season to evaluate the overall coaching programme. The CBS-S presents a useful means to evaluate the quality of coaches' work and future research should look to utilize the CBS-S, in conjunction with other measures, on a longitudinal basis. As demonstrated in this research, by interpreting the data, the specific areas that may need to be changed can be readily identified. A novel aspect of this study has been the inclusion of three different data collection time-points across the season. Whilst it is important to include athletes in all aspects of their programme, giving them the opportunity to give their perception of coaching behaviours may prove to be a very valuable coaching tool for the coaches themselves for reflection purposes.

Chapter 8
Discussion

"There are times to coach. You have to be balanced to know that. The urge to step in and show how good you are as a coach and show you know everything and you can tell them. Sometimes it is better to let them make a mistake. Sometimes they learn more from that than being told what to do"

Dennis Bergkamp, Ajax Assistant Manager.

8.1 Introduction

This chapter is concerned with the discussion of principle themes indicated from the data which emerged in this research and the important findings this research will contribute to enhancing coach education and the implications for coaching practice. This research used a mixed methods approach to investigate coaching education backgrounds with team sport coaches in Ireland, before examining coaching practice through systematic observation of coaches behaviours in both training and competition situations. The research investigated in more detail coaches use of *questioning* and the overall impact of these coaching behaviours on both coach and athlete development. It was important that athletes were given an opportunity to give their feedback on coaching behaviours to give a measure of coaching effectiveness and Chapter 7 highlighted some key behavioural changes over the course of the data collection period of one season. Throughout this discussion, particular emphasis will be given to the implications of the key findings and how they may be applied to influence coach education. In addition, future directions will be highlighted to further advance our knowledge of the importance of context specific coaching behaviours and their impact on coach and athlete development.

Although research on coach education has been in existence for over 40 years many issues remain unresolved. Among the topics highlighted in the review of the literature, are concerns over the persistence of coach educators to rely on formal education processes (section 2.4, p. 20), the lack of consensus on the preferred learning situations of coaches (section 2.4, p. 24) and the lack of teaching coaches how to coach (pedagogical tools) (section 2.4, p. 25) on formal coaching courses. Thus, one of the aims of this research was to investigate the coach education backgrounds of coaches in team sports and to identify their preferred learning situations. This research also centered on the application of coaching knowledge in practice by examining coaching behaviours in different coaching contexts. The literature review again highlighted some key areas of concern with systematic observation researchers continuing to

separate the critical coaching contexts of training and competition (section 2.5, p.32) and not collecting adequate data to observe the full scope of coaching behaviours (section 2.5, p.32). As such, another aim of this research was to observe several coaches from different team sports during training and competitive situations over the course of one season. Finally, the literature review also highlighted the lack of input from athletes into evaluations on coaching effectiveness (section 2.6, p. 34) and this research aimed to present a platform for athletes to give their perceptions of their coaches' behaviours on three separate occasions over the course of a season. This final chapter will provide a general discussion on all the aims relating to the findings from the research. Furthermore, recommendations for further research and the implications for applied practice will also be discussed.

8.2 Coach Education

There has been an increasing amount of research into coaching practice and how coaches learn how to coach (Cushion et al., 2010). Furthermore, coaching is influenced by three – *formal, non-formal* and *informal* - basic sources of learning (Nelson et al., 2006). As described earlier in Chapter 2 (p. 20) *formal* learning is something that takes place in an "institutionalized, chronologically graded and hierarchically structured educational system". There are normally restrictions on admission and set objectives that must be met to achieve a certification (LaBelle, 1982). In the sporting context, large-scale coach certification courses are examples of *formal* learning activities that conform to this definition. For the purpose of attaining a certification, there may be a case of coaches merely regurgitating content from the course, in a way, an indoctrination of the course and the coach educators' curriculum (Nelson et al., 2006). These courses have remained as the *modus operandi* of coach educators with little deviation from the traditional methods in the last 40 years (Cushion et al., 2010). The aim of study 1 on coach education and talent development was to examine the coaching education backgrounds of coaches in Ireland. Although all the coaches in our study had participated in the *formal* coach

education process run by their NGB, considerable time had elapsed since their last *formal* course. This is not uncommon, and as our results show (section 4.3, p. 55) coaches prefer self-directed, *informal* learning opportunities with coaches primarily participating in self-initiated experiential and observational situations to enhance their understanding and coaching education which concurs with the findings of Stoszkowski and Collins (2016). There is also little research evidence available on the effectiveness of these programmes (Werthner & Trudel, 2006). The findings of this research would agree with this statement and identifies a gap in the coach education process that does not meet the needs of high-performance level coaches (section 4.3.2.1, p. 58). Existing coach education courses are necessary and helpful for beginner level coaches and assist in the organisational ability of coaches learning about their sport.

Another key finding was the lack of instruction on these *formal* courses of *how* to coach, the pedagogical skills of coaching as it were. This is a significant gap in the *formal* education process in that coaches get little opportunity to practice and learn *how* to coach. Pedagogical skills are not on current coaching curricula. Despite the coaches departing the *formal* course loaded with an extensive repertoire of drills and tactical knowledge of their sport they are likely to leave without the necessary pedagogical tools to transmit this knowledge to their athletes (Cassidy, Jones & Potrac, 2016). The results in Chapter 4 would indicate that the majority of coaches learning *how to coach* takes place in *non-formal* (section 4.3.2.2, p. 58) and *informal* (section 4.3.2.3, p. 59) settings. However, as mentioned above, learning in, from, or a combination of both, different environments and settings is critical for coach education and frequently coaches learn to coach from their previous coaches and playing experience in sport.

8.3 Coaching Behaviours and Use of Questioning

Having examined the coaching education backgrounds of coaches from team sports in Ireland the logical next step was to investigate how they applied their knowledge in practice, i.e., *how* they coach. A longitudinal study of coaching behaviours was conducted to examine how coaches interact with their athletes in both training and competition (matches). It is important here to emphasise the context of the observations. As identified in the literature review in Chapter 2, one of the key recommendations from Kahan (1999) was that no coaching observation would be thorough enough without examining the coach in training and competition (section 2.5, p. 32). However, despite this recommendation, Cope et al., (2016) found that only two of the 56 studies they reviewed over a 20-year period since Kahan's initial paper, observed coaches in both training and competition. This is a key strength of this research programme. Not only is this dual-context area of research rare, it is unique in collecting data in the sport of Gaelic Football. Although there are fewer matches than training sessions coaches' behaviours have been identified as being different under the two conditions and training behaviours cannot be assumed to be the same as match behaviours (Cushion et al., 2010; Trudel et al., 1996). As in the case of previous research (Hall et al., 2016; Webster et al., 2013), the results are presented as a percentage and rate per minute (*RPM*) of total behaviour which gives consistency to the reporting of these results. The results of study 2 on coaching behaviours are presented in *means* and *percentages* and *rate per minute RPM.* The most notable finding from the research was the overall increase in total *mean* behaviours from training to competition (section 5.3, p. 75). Another interesting finding was that despite the overall *mean* increase in coaching behaviours from training to matches two of the coaches actually decreased their *mean RPM* from training to matches. This decrease in *mean RPM* is below that reported in previous studies (Hall et al., 2016; Partington & Cushion, 2013) and similar to the figures reported by (Vinson et al., 2016). However, comparison of results, while interesting, belies the

context in which the coaching took place and there will be further discussion on this section 8.5. Furthermore, the range and SD of the coaches' behaviours within their own training and match contexts also highlights the complex nature of coaching. Overall, the highest percentage of coaches' behaviours recorded were *positive* while the lowest recorded was *negative.* The high number of *positive* behaviours in conjunction with the low percentage of *technical instruction* may indicate a tendency to merely positively reinforce every action rather than use corrective feedback to assist the development of the athlete.

Despite the low number of recorded *negative* behaviours*,* the highest increase in *mean* behaviour from training to competition was noted in this behaviour category. This may be explained by the coaches having more control over their behaviour in a planned practice environment in contrast to the more reactionary, competitive environment (Cope et al., 2016). Further key strengths of this research are the range of sports involved and the number of observations with each coach. For the first time, Gaelic Football has been included in this type of research and there were six observations with each coach. The total observation time with each coach varied and ranged from 396.84 minutes to 532.86 minutes. This is well above the recommended total observation of 270 minutes needed to collect the full scope of coaching behaviours (Brewer & Jones, 2002).

A more detailed examination of coaching behaviours, specifically, the use of *questioning*, was conducted in study 3. A limitation of the CBAS instrument used to categorise the coaching behaviours was the omission of an *official* category for questioning. As explained in Chapter 6 (section 6.4.4, p. 103), *questioning* was assigned to the Organisation (*O*) category for the purpose of this study. Another strength of this study is that it is the first to specifically look at the type and amount of questions asked during training and competition by coaches in Irish sport. Two categories (2) and seven sub-categories (7) were used to analyse the types of questions and to whom the questions were directed (section 6.3, p. 98 and 99). Once again,

differences were noted between numbers of questions asked between training and competition. What was also notable was the different types of questions favoured by each coach. Given the uniqueness of each coaching context, it is difficult to compare coaching behaviours but the results of study 3 (section 6.5.1, p. 105) show question types most frequently used by the coaches in the different contexts. Coach 3 (GAA) stands out because of his use of the *questioning viewpoint, open question,* which is used to elicit information and encourages problem solving and decision making in the athlete (Light & Robert, 2010). This is also reflected in the athlete feedback which will be discussed further in section 8.4. Furthermore, the promotion of these skills in athletes is also associated with an autonomy-supportive coaching environment (Deci & Ryan, 2000) (section 2.3, p. 15). Coaches who use questions to promote these athlete skills are categorised as *calm and inquisitive* which is a preferred coaching behaviour (section 2.6, p. 35) with athletes (Allan & Côté, 2016; Rieke, Hammermeister, & Chase, 2008). Coaches who are perceived by their athletes to be promoting athlete autonomy are known to have better rapport by being mutually and causally interconnected (Jowett, 2007) (section 2.3, p. 15).

8.4 Athlete Feedback

It is important that coaches understand the impact and consequences of their behaviours towards their athletes. In Chapter 7, athlete perception of coaching behaviours was examined and importantly, identified changes of coaching behaviours over the course of one season. A strength of this research is that athlete perception of coaching behaviours was measured at three different time-points during the season which was an increase in the two data collection points recommended by Côté et al., (1999). Not only did this allow for changes and seasonal variations to be made to the coaching behaviours, it also ensured consistency in the data collection process. Similar to the process involved in data collection with the coaches, by collecting data longitudinally with the athletes, a broader understanding of athletes' perceptions

of their coaches could be achieved. This also presented the research team with a truer reflection of athlete interpretation of coaching behaviours across the season.

For an effective coach-athlete relationship, the emotions, thoughts and behaviours of all parties should be closely aligned (Jowett, 2005). Therefore, establishing the athletes' perception of coaching behaviours would be an important factor in furthering our understanding of the coach-athlete relationship (Jowett & Cockerill, 2002; Mallet & Côté, 2006). This was previously highlighted in the review of the literature (section 2.6, p. 35). It was highlighted earlier (section 4.4, p. 63) that coaching programmes that are evaluated based solely on winning will not adequately explain the reasons for success or how the programme can be improved (Martindale et al., 2010). Athlete perception has an important contribution to make to this evaluation and has been overlooked in the past. This may have something to do with the autocratic nature that traditionally prevailed in team sports (Baker et al., 2003). However, if programme evaluation or a successful coach cannot be determined by winning or not winning a trophy then other measures must be used. In this case, athlete feedback is very informative. In studies 2 and 3, coaching behaviours were analysed and, among other things, were discussed above (section 8.3, p. 142-144) in relation to the implications for the coach-athlete relationship. Athlete autonomy has been associated with intrinsic motivation (Deci & Ryan, 2000) and rapport with the coach (Jowett, 2007) that may have possible performance implications.

Although all the teams who participated in this research were competitive throughout the season, none of them won a trophy. Despite the dearth of trophies, athlete perception of *positive rapport* with their coaches showed no significant changes over the three different data collection time-points. In contrast, athletes perceived there to be significant differences in *negative rapport,* scoring their coaches lower as the season progressed, indicating an improving relationship. This is particularly noticeable with coach 3 (GAA) who incidentally also asked

the most open questions, specifically seeking the athletes' opinions by predominantly asking questions in the *questioning viewpoints* category. Athletes' perceptions of coaches behaviours also scored coach 3 (GAA) highest for the *mental skills* category, where athletes rate the coaches on how the coach helps the athlete to perform under pressure, stay focused and be confident. Significant differences were noted here, especially towards the more intensified competition period at the end of the season. This clearly indicates that athlete perception of coaching behaviour is a valuable feedback tool in assessing coaching effectiveness and should be included in future research.

8.5 Conceptual Framework and Methodology

At the outset of this thesis (section 2.2, p. 12) it was proposed the concept of viewing this research from a *realist evaluation* perspective. A key rationale for underpinning the thesis was the importance of *context* in this framework. In Chapter 3, it was outlined the methodological considerations and rationale for selecting a mixed methods approach to investigate the quantitative data further through a more in-depth qualitative analysis. These methods complemented each other and gave richness to the *context* in which this research took place, a dynamic coaching environment. It was difficult to compare coaching behaviours in between these coaches as all of them were coaching in entirely unique contexts. Not only were the sports different, training and competition presented different contexts and within each training session and each match the context was also different. Previous research into systematic coaching observation, for example, Partington and Cushion (2012) had amalgamated *all* coaches' behaviours to give an indication of behavioural trends and followed-up their observation with a more in-depth qualitative interview. However, as this thesis also included athlete feedback on coaches' behaviours specifically related to their own coach, it would have been incongruous to collectively group these perceptions for all coaches. Hence the coaches, training and matches must be treated as individual entities. Every training session

and match are separate entities and are highly unlikely to include exactly the same activities or coaching behaviours from one event to the next. Although this research has highlighted some differences in behaviours, it is important that future research continues to include both training and competitive matches on a longitudinal basis to further enhance our knowledge in this area. The variation, range and differences in coaching behaviours indicate that the coaches were adapting to different situational factors in each event. Therefore, prescribing optimal levels or percentages of coaching behaviours for a training session or match cannot be achieved as there is no one solution that will satisfy the needs of every situation. These findings are compatible with the *realist evaluation* concept (Pawson & Tilley, 2004). As the context changes, coaches change and adapt their behaviours, changing their methods (section 5.3, p. 75) to achieve the desired outcome. Athletes' perceptions also report these changes in behaviours (section 7.6, p. 129) which is further confirmed through the qualitative analysis on the coach questioning (section 6.5.1, p. 105). In selecting the *realist evaluation* framework and using a mixed methods approach, this research has addressed the recommendations from previous research (Cope et al., 2016; Cushion et al., 2010; Kahan, 1999; Partington & Cushion, 2012) that to get a complete picture and more depth in coaching research a combination of methods must be used.

8.6 Implications and Recommendations for the Application of the Research

Having discussed the findings of this thesis in the preceding sections 8.2 to 8.5 this section will highlight important implications and make recommendations for the application of these findings. The coach education process is an area that is of particular interest because of the wider reaching impact and influence it possesses. This research has highlighted several key changes that could be made to the coach education process that will impact coaching behaviours and athlete development. The coaches in this research have indicated a preference for learning that now focuses on more *informal* and *non-formal* methods rather than the traditional and favoured *formal* methods. These preferred methods could include workshops,

seminars, clinics and an opportunity to share information between coaches that could be facilitated by the coach educators. The research findings in this thesis indicate that *how to coach* (pedagogy) skills are an essential content addition with the use of *questioning* to be specifically addressed in this content. This may necessitate a change in focus from the sports' national governing bodies (NGBs) who are tasked with providing the coach education and developing coaches in their sport.

Based on the evidence presented in this thesis it might be more valuable for coach development to shift away from one-off, short, weekend-type courses, usually run in the off-season. Repositioning the courses to an ongoing, in-season process will have a number of benefits. Firstly, a more long-term coach development process allows each coach the opportunity to apply their learning in practice, in the specific context in which they are coaching. A *non-formal* learning setting includes the opportunity for coaches to actively participate in their learning. Secondly, by shifting the emphasis to engaging coaches on an ongoing basis, rather than a one-off course, it ensures each coach is supported throughout the season, gets regular feedback on their coaching methods and behaviours and keeps up to date with best, and most current, coaching practice. In addition to this, integrating systematic observation into the coach development process would be essential. By implementing this on an on-going basis, the recommended 270 minutes observation time (Brewer & Jones, 2002) would be comfortably achieved. Furthermore, by including feedback from athletes, it will enable coaches to generate a better understanding of their purpose, their perspective and their practice and how this relates to the relationship with their athletes. Finally, through ongoing engagement it presents the coaches with an opportunity to get feedback on their coaching practice, give feedback on the process and have an input into the content of the *informal* or *non-formal* education settings. Implementing a coach education process such as this would involve a seismic shift from traditional coaching course content to an inclusive, coach-driven

coach education process. It is apparent from the findings in our first study that the existing courses are clearly serving their purpose for beginner and introductory level coaches to various sports but the needs of coaches at higher levels of the game must also be addressed. It is also important here to address the concern raised in study 1 (section 4.3.3, p. 61) about the *fast-tracking* of former athletes into high-performance coaching positions. In the unlikelihood of this practice being discontinued it might be more appropriate to refer to *fast-tracked* former high-performance athletes as *coaches in a high-performance environment* rather than *high-performance coaches*. While coach education can take place in many ways and in vastly different contexts there is still much to be learned and gained from applied coaching practice and learning on the job (section 4.4, p, 61-63). However, as the results from Chapter 4 show, if the coach education system is not meeting the needs of *high-performance* or *elite level* coaches then it is possible the most beneficial learning context would be through experiential learning at this level.

To a coach educator or NGB responsible for developing coaches this research should be invaluable. Coach education is only one of many objectives for NGBs, the biggest one of all is to maintain the profile of the flagship events, marquee elite performers and the main revenue generating *assets* of the organisation. Performance at elite level is only possible through appropriate development structures in place underneath providing a constant stream of athletes over time. A more holistically developed coach and athlete will emanate from the sporting system with more highly developed personal traits fundamental for optimal performance within and outside of their sport (Côté, Young, North, & Duffy, 2007; Miller et al., 2002). Although not the only factor, development of both coaches and athletes is a vital part of this process.

From the coaches' perspective, this research should highlight the need for increased self-awareness of the impact of their behaviours on their athletes. These behaviours influence

the coach-athlete relationship, team culture and subsequently performance (section 5.4, p. 87). Athlete perceptions of coaching behaviours corroborate these findings and should be good indicators for coaches in how their behaviours could be adapted to different situations. Given the short time-span of coach-athlete interactions during training it is important that coaches are selective about what they say and when to say it, to have maximum effect. The importance of understanding the power of questioning should also not be lost on coaches. Questions should not be asked for the sake of it (section 6.2, p. 95). There is a need for appropriate, divergent questions that should promote critical thinking skills in athletes rather than the more often relied upon convergent questioning approach. Similarly, while *positive* behaviours and reinforcement of favourable athlete actions was the highest recorded coaching behaviour it is important that praise or encouragement include some *technical instruction* and is not just delivered for the sake of it. Training time is short and should be maximised. It is also apparent that coaches need to increase their technical instruction whether this is through increased use of questions or instruction will depend on the context of the training or competition at the time. Acknowledging that each situation is different and that there is no solution that will work for every domain it is still crucial that coaches understand the benefits of specific instruction that is autonomy-supportive and will empower their athletes. By being more aware of what and how they interact with athletes, coaches will be able to build a more positive relationship with their athletes that will lead to a more favourable coaching and playing environment. As the quote on the title page of this chapter indicates, the temptation to jump in to *tell* the athletes all that you know as a coach can be overwhelming but it also dilutes the athletes' autonomy to develop the necessary problem solving skills needed for the different demands that competition brings.

One of the main attractions of research is to be able to apply it in several settings. For a *real* impact to be achieved from this research, using business-parlance, it must reach the *end-*

user, the *customer*. In this instance, coaches and coach educators are the *customers* who could apply this research to their practice to promote athlete development. As we have seen from the findings presented earlier in this thesis, coaching in team sports has moved away from a largely autocratic dynamic into a more democratic system (section 5.1.1, p. 67). The coaches in this research frequently conferred with a group of assistants (section 6.6, p. 115). The main role of this coaching group was to develop players as people and as individuals so that together they can perform as a team. As alluded to in Chapter 2 (section 2.2, p. 14) this coaching method is also prevalent in a business setting. This research has many similarities and may be able to contribute to this area for performance evaluation. Systematic observation applies the same principles of evaluation with the coach (team leader) facilitating athlete (team member) input to shape the environment in which they operate. The way the manager facilitates depends on the skill (knowledge) that exists in each context. The culmination is a collaborative approach where the objective is to evaluate performance and identify where this performance can be improved. Sharing of responsibility is an empowering dynamic and has been shown to create better leaders through a more informed decision making process (section 6.6, p. 115). If the coach (team leader) can ensure the playing and coaching group (team members) share responsibilities and work toward the same goal it is more likely that the team will move closer to achieving their goal (section 2.3, p. 18).

8.7 Limitations

There are some limitations to this programme of research that had to be addressed. Originally eight coaches participated in the study but four coaches did not complete the process for a variety of reasons. These include being removed from their position as coach to the squad, resigning from the position, and declining to participate further in the research. Although four coaches completed this study, a larger number of participants would have strengthened this research. However, the quality of the data collected during the study from the four participants

should compensate for any perception of the quantity of participants being a limitation. Data was only collected for this research for a period of five minutes before each training session or competitive event began until the defined end of the training session or final whistle in the competitive event and as such, does not take into account any interactions between coach and athletes outside of this window. Anecdotally significant interactions take place that contribute to the coach-athlete relationship outside of training sessions and competitive matches. However, with an endless possibility of interactions taking place over the phone, on social media or impromptu-in-person meetings the data collection process would necessitate 24-hour monitoring of the coach which was deemed beyond the scope of this research. It may be possible to include more observation visits to each coach over the course of the season and indeed it would be necessary if an individual case study were the subject of the research.

It may also be useful to have a second camera in operation so that the coaches' behaviours can be linked to the actual event situations. Furthermore, as the trend of modifiying existing systematic observation instruments continues (section 2.5, p. 30) it is likely that a sport-specific instrument would be needed for each sport. That may make research involving a number of different sports difficult unless there is a common language and coding structure used in all observation instruments. Currently, no one instrument covers all coach behaviours in all sports and additional methods, such as those used in this research, are necessary to increase the richness of the context in which the coaching takes place.

8.8 Recommendations for Future Research

The context of this research included all male coaches coaching at adult male level in team sports. Accordingly, there are no female coaches in this research as few, if any are known to be working with this demographic, in Ireland. Further research must include female coaches at all levels in all sports. Whilst the current recommendation is for a minimum 270 minutes of data to be collected to observe the full scope of coaching behaviours further research is needed

to confirm how many observations are needed in different contexts to get a true reflection of coaching behaviours. Previous research by Vella & Pearlman (2014) has shown that a positive coach-athlete relationship is established through both parties working collaboratively, listening and making joint decisions. It would be interesting to establish how much the athlete is engaged with the coach and how much information the athletes retain in the different contexts. As this research has shown there is a wide range of variability across the different time-points and coaching contexts for each coach. This would be important information as it has implications for the number and rate of coaches' behaviours. Despite offering considerable insight systematic coaching behaviour observation research does not provide detail on the cognitive processes underlying these behaviours (Cushion & Jones, 2001; Ford et al., 2010; Potrac et la., 2007). As such further research may seek to examine the metacognitive process of coaches during training and match situations. Whilst making recommendations for future research has its benefits, it is important to be practical and ensure that recommendations are within the scope of research teams and meet the demands of the NGBs, coaches and athletes involved. In this regard, collaborative action research, driven by the key stakeholders is the most preferable.

8.9 Conclusions

The findings of this thesis contribute to the field of coach education and coach and athlete development in several ways. Study 1 provided an in-depth qualitative analysis of coaching education in Ireland from a coach perspective. Preferred learning settings, concerns about fast-tracking former athletes and an indication of a gap in the pedagogical content on the courses were identified. The findings from this chapter can be used to enhance the coach education process by varying the learning settings to predominantly *non-formal* workshops and seminars and creating additional content on coaching skills, in particular *how to coach.* Studies 2 and 3 highlighted coaching behaviours and identified a prevalence of *positive* behaviour rather than *technical instruction* indicating the coaches are very encouraging towards their athletes but do

not provide much technical feedback to improve the athletes' skill competencies. The coaches also found *use of questions* a challenging task and relied mainly on convergent, closed questioning techniques. Increasing their divergent, open questions will lead to greater development of critical thinking skills in their athletes. Improved decision making and problem solving skills will enhance performance and prepare a better-rounded athlete. Furthermore, while divergent, open questions evoke greater thought processing ability, inviting athlete opinion and contribution indicates an athlete-autonomy-supportive coach which leads to greater rapport and an improved coach-athlete relationship. Chapter 7 highlights the importance of athlete feedback in assessing coaching behaviours and the effectiveness of these behaviours. Athlete perception of subtle, and not-so-subtle, changes in coaching behaviours over the course of the season provided evidence of the coaches adapting their methods to fit the context of the coaching situation and the needs of the team at that particular time. This positions this research into the critical realism theory and justifies the methodological approach taken in this thesis. The sources of feedback used in this study are critical to evaluate coaching and programme effectiveness and to develop coaching interventions that may enhance the athlete experience. Collectively the findings of this thesis add to our knowledge on coach education, coaching behaviours in different contexts and the impact of these behaviours on athlete development. Adopting the recommendations in this chapter may prove useful to guide future research and applied practice in this domain.

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Appendices

Appendix 1

Recruitment Letter for participants for Study 1 (Chapter 4)

UNIVERSITY *of* LIMERICK

O L L S CO I L L U I M N I G H

January, 2014

Dear [Hon sec/Secretary]

I am a postgraduate researcher at the University of Limerick in the early stages of a PhD in Physical Education and Sports Science. My area of research is Coach and Athlete Development in team sports in Ireland.

I'm looking to recruit coaches from a number of sports at a variety of levels to participate in the study and I am looking for your help in this process. I'd like to recruit one coach from each of the adult teams in your club.

The mixed methods research study includes a questionnaire (20mins approx.) that will endeavour to establish background information on the participants academic and coaching education. Followed the completion of the questionnaire there will be an interview (1hr approx.) with a random sample of respondents. If necessary, there will be a short follow-up meeting (30mins approx.) for clarification and confirmation purposes with a small number of participants. I have enclosed an information sheet for prospective participants.

I'd appreciate it if you could forward this letter to people within your club who fall into any of the above categories and to whom you think this study would be of interest. Thanks for taking the time to read this letter and I will be in touch again in the next few days.

Yours sincerely,

Ian Sherwin (PhD Researcher)

Department of Physical Education and Sports Sciences

University of Limerick

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This study has been approved by the ethics committee for the faculty of Education & Health Sciences. If you have any concerns about this study and wish to contact someone independent, you may contact The EHS Research Ethics Contact Point of the Education and Health Sciences Research Ethics Committee, Room E1003, University of Limerick, Limerick. Tel: (061) 234101 / Email: ehsresearchethics@ul.ie.

Appendix 2
Online questionnaire for participants for Study 1 (Chapter 4)

Coaching Questionnaire

1. Demographic Information

Name: _____ Gender: M ☐ F ☐

Date of birth: _____ Email address: _____

Occupation:

_____

Current coaching level:

Professional Team ☐
Inter-county Team ☐
Senior Club 1st Team ☐
Senior Club U20/U21 ☐
Senior Club U18/Minor or lower ☐
School 1st (U19) Squad ☐
School Junior (U16) Squad ☐
Other:_____

Highest level of educational attainment:

Post Primary ☐
Trade: ☐
College – Bachelor: ☐
College – Master: ☐
College – Doctoral: ☐
Other:_____ ☐

Please list your area of specialisation at Degree and/or Trade where applicable:

_____

_____

Years of coaching experience in your sport <5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ >20 ☐

Please list any coaching achievements: eg Titles, Representative coaching etc

_____

_____

Please list all memberships you currently hold in coaching related or professional associations:

_____

_____

Please list any sports coaching courses you have attended giving details on the sport, awarding body, course level and year of the course:

_____

_____

2. Athletic Profile

I would like to focus on the sport activities that you have been involved in throughout your development. Looking back over your life, please tell me about any sporting activity in which you participated on a regular basis (at least one season) during the various stages as listed below. Please indicate the highest level at which you participated using the following codes; Club (cb) School (sl) County (cy) Provincial (pv) National (nl) International (il) Professional (pf)

Please use the above codes for all sports in which you participated up to, and including, the age of 9

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 12

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 16

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 19

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you have participated since turning 20

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please indicate the highest number of hours per week and months per year you were/are regularly involved. Use the box on the left to complete hours per week using the following codes:
0hrs **= 1,** 1-3hrs **= 2,** 4-6hrs **= 3,** 7-9hrs **= 4,** >10hrs **= 5**
Use the box on the right to fill in months per year using the following codes:

0months **= 1,** 1-5months **= 2**, 6-8months **= 3,** 9-11months **= 4,** 12months **= 5**

Example Rugby 3 3 **would indicate 4-6hrs per week for 6-8months of the year**

Please use the above codes for all sports in which you participated up to, and including, the age of 9

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 12

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 16

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 19

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you have participated since turning 20

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

For each sporting activity, please indicate if you were assigned any specific leadership roles or special responsibilities using the following codes:

Captain = **1**, Vice-Captain = **2**, No leadership role = **3**

Please use the above codes for all sports in which you participated up to, and including, the age of 9

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 12

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 16

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you participated up to, and including, the age of 19

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

Please use the above codes for all sports in which you have participated since turning 20

Rugby	☐	Tennis	☐	Basketball	☐
Gaelic Football	☐	Swimming	☐	Cricket	☐
Hurling	☐	Gymnastics	☐	Cycling (Road)	☐
Camogie	☐	Golf	☐	Cycling (Mountain)	☐
Handball	☐	Athletics	☐	Martial Arts	☐
Soccer	☐	Badminton	☐	Other_____	☐

3. Coaching Profile

In this section, I would like to focus more specifically on your experience as a coach to get a sense of your involvement in coaching by assessing different factors that may have contributed to your development as a coach. First, I would like you to answer a series of questions regarding reference information.

Developmental milestones

Age when idea for becoming a coach first emerged

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when first engaged in the regular training of a team or an athlete

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when decision was made to become a coach

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when all available leisure time was being spent on your coaching career

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when you attended your first coaching clinic

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when you first moved (relocated) to coach

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when you were first remunerated for your service as a coach

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when you first established a close and extended relationship with a team or athlete

<15 ☐ 16-25 ☐ 26-30 ☐ 31+ ☐ never happened ☐

Age when you think you will reach (or have already reached) your coaching potential

15-25 ☐ 26-35 ☐ 36-40 ☐ 41+ ☐ never happened ☐

Age when you think you will retire from coaching

<35 ☐ 36-45 ☐ 46-55 ☐ 56+ ☐ never ☐

I would like to focus on the sport activities that you have coached. Looking back over your life, please tell me about any sporting activity that you coached on a regular basis. Use the left box to indicate the highest level at which you coached using the following codes

Club (cb) School (sl) County (cy) Provincial (pv) National (nl) International (il) Professional (pf).

Use the right box to indicate your most senior role on the coaching staff

Head coach = **1**, Assistant coach = **2**, Positional coach = **3,** Specialist/Skills coach (kicking, throwing) = **4**

Please use the above codes for all sports in which you coached up to, and including, the age of 15

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you coached up to, and including, the age of 25

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you coached up to, and including, the age of 35

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you coached up to, and including, the age of 40

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐
Soccer	☐	☐	Badminton	☐	☐	Other_____	☐	☐

Please use the above codes for all sports in which you coached since turning 41

Rugby	☐	☐	Tennis	☐	☐	Basketball	☐	☐
Gaelic Football	☐	☐	Swimming	☐	☐	Cricket	☐	☐
Hurling	☐	☐	Gymnastics	☐	☐	Cycling (Road)	☐	☐
Camogie	☐	☐	Golf	☐	☐	Cycling (Mountain)	☐	☐
Handball	☐	☐	Athletics	☐	☐	Martial Arts	☐	☐

Soccer ☐☐ Badminton ☐☐ Other_____ ☐☐

Please indicate the highest number of hours per week and months per year you were/are regularly coaching. Use the box on the left to complete hours per week using the following codes:

<6hrs = **1,** 6-10hrs = **2,** 11-20hrs = **3,** 21-30hrs = **4,** >31hrs = **5**

Use the box on the right to fill in months per year using the following codes:

<4months = **1,** 5-7months = **2**, 8-9months = **3,** 10-11months = **4,** 12months = **5**

Please use the above codes for all sports in which you coached up to, and including, the age of 15

Rugby ☐☐	Tennis ☐☐	Basketball ☐☐
Gaelic Football ☐☐	Swimming ☐☐	Cricket ☐☐
Hurling ☐☐	Gymnastics ☐☐	Cycling (Road) ☐☐
Camogie ☐☐	Golf ☐☐	Cycling (Mountain) ☐☐
Handball ☐☐	Athletics ☐☐	Martial Arts ☐☐
Soccer ☐☐	Badminton ☐☐	Other_____ ☐☐

Please use the above codes for all sports in which you coached up to, and including, the age of 25

Rugby ☐☐	Tennis ☐☐	Basketball ☐☐
Gaelic Football ☐☐	Swimming ☐☐	Cricket ☐☐
Hurling ☐☐	Gymnastics ☐☐	Cycling (Road) ☐☐
Camogie ☐☐	Golf ☐☐	Cycling (Mountain) ☐☐
Handball ☐☐	Athletics ☐☐	Martial Arts ☐☐
Soccer ☐☐	Badminton ☐☐	Other_____ ☐☐

Please use the above codes for all sports in which you coached up to, and including, the age of 35

Rugby ☐☐	Tennis ☐☐	Basketball ☐☐
Gaelic Football ☐☐	Swimming ☐☐	Cricket ☐☐
Hurling ☐☐	Gymnastics ☐☐	Cycling (Road) ☐☐
Camogie ☐☐	Golf ☐☐	Cycling (Mountain) ☐☐
Handball ☐☐	Athletics ☐☐	Martial Arts ☐☐
Soccer ☐☐	Badminton ☐☐	Other_____ ☐☐

Please use the above codes for all sports in which you coached up to, and including, the age of 40

Rugby ☐☐	Tennis ☐☐	Basketball ☐☐
Gaelic Football ☐☐	Swimming ☐☐	Cricket ☐☐
Hurling ☐☐	Gymnastics ☐☐	Cycling (Road) ☐☐
Camogie ☐☐	Golf ☐☐	Cycling (Mountain) ☐☐
Handball ☐☐	Athletics ☐☐	Martial Arts ☐☐
Soccer ☐☐	Badminton ☐☐	Other_____ ☐☐

Please use the above codes for all sports in which you coached since turning 41

Rugby ☐☐	Tennis ☐☐	Basketball ☐☐
Gaelic Football ☐☐	Swimming ☐☐	Cricket ☐☐
Hurling ☐☐	Gymnastics ☐☐	Cycling (Road) ☐☐
Camogie ☐☐	Golf ☐☐	Cycling (Mountain) ☐☐
Handball ☐☐	Athletics ☐☐	Martial Arts ☐☐
Soccer ☐☐	Badminton ☐☐	Other_____ ☐☐

4. Coach Development Activities

Please review the list of coach development activities that has been prepared. This list is based on research with coaches across competitive levels and types of sport. Please indicate (on average per week) the percentage of your time spent on the following activities using the following codes

<10% = **1** 11%-20% = **2** 21-30% = **3** 31%-40% = **4** >50% = **5**

1. Training: all the time spent immediately before, during, and after training sessions (practices) ☐
2. Competition: all the time spent immediately before, during, and after athletic events (games) ☐
3. Meeting with coaching staff: to address team or player issues (i.e., practice planning or reviewing games and strategies) ☐
4. Administration: meeting with team administrators, parents, or officials to address organisational issues (i.e., fundraising, recruiting, rules) ☐
5. Observing other coaches (reflective transformation): observing other coaches live in training and /or competition ☐
6. Watching televised sports: observation of organised professional or amateur sport on television (recorded or live) ☐
7. Review of coaching materials: formally prepared coaching resources (i.e., books, cd-roms, videos, internet) ☐
8. Personal reflection on coaching: personal creative thought about any aspect of coaching, including time spent alone planning practice sessions or competitions ☐
9. Attending coaching clinics: or educational courses related to coaching or sport/coaching science ☐
10. Regular contact with non-coaching staff: to discuss coaching ideas or seek advice (i.e. peer sounding boards) ☐

Finally, taking into account your **CURRENT COACHING LEVEL** please rank the above list of activities on a scale from 1 (most valuable) to 10 (least valuable) in order of how valuable they are relative to enhancing your development as a coach.

Training	☐	Watching televised sport	☐
Competition	☐	Review of coaching materials	☐
Meeting coaching staff	☐	Personal reflection on coaching	☐
Administration	☐	Attending coaching clinics/courses	☐
Observing other coaches	☐	Regular contact with non-coaching staff	☐

Thank you for taking the time to complete this questionnaire.

Ian Sherwin,

Post-graduate Researcher,

PESS Department,

University of Limerick,

Limerick

E: Ian.sherwin@ul.ie

M: 086 2219024

Appendix 3

Information sheet for participants for Study 1 (Chapter 4)

UNIVERSITY *of* LIMERICK

OLLSCOIL LUIMNIGH

Coach and Athlete Talent Development in team sports in Ireland

Participant Information Sheet

Please read the information below thoroughly before deciding whether or not to participate in this study.

Introduction

You are being invited to participate in a study which will examine talent development systems in Irish sport. It will also examine the practical application of the development models that exist in various sports in Ireland and be further used for a comparative study on an International basis. The study is being carried out by Mark Campbell (Lecturer, University of Limerick), Tadhg MacIntyre (Lecturer, University of Limerick) and Ian Sherwin (Postgraduate Researcher, University of Limerick).

Purpose of the Study

As sport evolves so too must the manner in which it is coached. Teams and players are constantly striving to achieve in a dynamic environment. The study will assess the contribution of a variety of sectors in creating an environment conducive for optimal development of both players and coaches and determine the links between the theory and application of the current systems.

What you are being asked to do

You will be asked to complete an online questionnaire relating to your sporting background. Once we have collected all the questionnaires, a random sample (**NOT ALL – this may not be you**) of respondents will be invited to attend a structured, audio recorded, focus group

meeting lasting approximately 1 hour. This focus group will be undertaken at a time that is convenient to all participants.

What are the benefits to me?

Participating in this study will further our understanding of coach and player development systems in operation in Irish sport and about the factors which affect the practical application of the theoretical models.

What are the risks to me?

There are minimal risks (e.g. slight embarrassment on having to talk about yourself) associated with participating in this study. During the focus group your will not be required to answer any questions with which you are uncomfortable. Responses to the questions will be confidential among the group to reduce this risk.

What happens to your information?

The information retrieved will be dealt with and handled in complete confidence whereby your results as well as your confidentiality are the first priority of the researchers carrying out the study. After the completion of the study, information will be anonymised and kept electronically on the principal investigator's password protected computer.

Withdrawing from the study

Your participation in this study is completely voluntary. You have the right to withdraw from the study at any time.

If you would like to take part in this study or if you require further information please contact:

Ian Sherwin (PhD Researcher)

Department of Physical Education and Sports Sciences

University of Limerick

Email: ian.sherwin@ul.ie

Dr Mark Campbell (Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: Mark.Campbell@ul.ie

Dr Tadhg MacIntyre (Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: tadhg.macintyre@ul.ie

This study has been approved by the ethics committee for the faculty of Education & Health Sciences. If you have any concerns about this study and wish to contact someone independent, you may contact The EHS Research Ethics Contact Point of the Education and Health Sciences Research Ethics Committee, Room E1003, University of Limerick, Limerick. Tel: (061) 234101 / Email: ehsresearchethics@ul.ie.

Appendix 4
Interview question guide for participants in Study 1 (Chapter 4)

UNIVERSITY *of* LIMERICK

O L L S CO I L L U I M N I G H

Coach and Athlete Talent Development in team sports in Ireland

Interview Question Guide

- INTRODUCTORY QUESTIONS- Series of questions relating to participant demographics (age, gender, years in the game, playing and coaching experience, area of practice etc.)
- FOLLOW UP QUESTIONS/ PROBING QUESTIONS AND SPECIFYING QUESTIONS WILL BE UTILISED THROUGHOUT
- **Theme**- Establishing the impact of professional (Rugby, Aus Rules) sport on coaching in clubs and schools (series of open ended questions relating to this)
- How has the shift in support base to pro/county teams affected club/school ability to develop?
- Tell me a little bit about the methods you use to develop players/coaches?
- Tell me a bit more about x…y
- Explain more specifically regarding…
- To clarify then does that meant that…
- What is your opinion of the current status of your playing group?
- Ok so you were positive/ negative…
- Explain why you are positive negative regarding x…
- **THEME- COACHING MODELS**

- KEY QUESTION-How familiar are you with sports development models?
- Explain more specifically regarding……
- To clarify then does that mean that…
- KEY QUESTION-How big an impact do NGB coaching courses and models have in the way you coach/play?
- Explain more specifically regarding the IRFU/GAA model…
- How closely aligned is your philosophy to the model?
- List some examples where you have applied to model…
- Describe a situation where you found this to be effective/non-effective
- What was the outcome of the change you made?
- To clarify then does that meant that…
- Has any new policy that the NGB has introduced affected how you coach/play?
- …made it easier/ more difficult in developing as a coach/player?
- How has this been facilitated by you?
- **THEME- CPD**
- KEY QUESTION-What is your understanding of Continuous Professional Development?
- How important do you consider it to be?
- Can you rate it on a scale of 1-10?
- How have you developed as a coach/player since your introduction to the game?
- Examples please?
- Any (approximately) Financial Costs incurred for this development?
- KEY QUESTION-How relevant is the current development pathway to how you are involved in the game?
- How exactly has it impacted on your continued involvement in the game?

- Specific examples?
- In an ideal world describe how would you like to develop as a coach/player?
- Any other ways you would develop as a coach/player? Season reviews with NGBs?
- KEY QUESTION-What for you is a successful day/season?
- Successful work life?
- Describe the criteria you use to judge coaching/playing successfully
- Can this be measured or benchmarked?
- Explain more specifically regarding…
- To clarify then does that meant that…
- What has been the most important lesson you have learned from your involvement in (the) sport
- What would your advice be for new or interested people wanting to coach/play?
- Anything else?
- CONCLUDING questions, thanks and recap of the next series of steps i.e., their transcribed interview will be sent to them for perusal and to clarify and ascertain the level of accuracy etc.

Appendix 5
Coach Behaviour Assessment Scale (CBAS) Explanation (Chapter 5)

The CBAS contains 12 behavioural categories:

REACTIVE BEHAVIOURS

Desirable Performance

1. **Positive Reinforcement (R)**

A positive reaction by the coach to a desirable performance by one or more players. R may be verbal or nonverbal in nature. Examples include congratulating a player or patting a player on the back after a good play.

2. Non-Reinforcement (NR)

A failure to reinforce a positive behaviour; the coach essentially fails to respond. An example would be a player getting a base hit and the coach showing no reaction.

Reactions to mistakes

3. Mistake-Contingent Encouragement (EM)

Encouragement of a player by a coach following a player's mistake.

4. Mistake-Contingent Technical Instruction (TIM)

Telling or showing a player who has made a mistake how to make the play correctly. TIM behaviour requires that the coach instruct the player in some specific way. An example is showing a player how to field a ball after an error has been made.

5. Punishment (P)

A negative response by the coach following an undesirable behaviour. Like **R,** P may be either verbal or nonverbal. Examples include making a sarcastic remark to a player who has just struck out or the coach waving in disgust after a player has made an error.

6. **Punishment with TIM (TIM+P)**

Sometimes TIM and P occur in the same communication, as when a coach says, "How many times do I have to tell you to catch the ball with two hands!" Whenever a coach gives TIM in a punitive or hostile manner, P is also scored (TIM + **P).**

7. Ignoring Mistakes (IM)

A lack of response, either positive or negative, to a mistake on the part of a player or the team. Essentially, IM occurs when a coach does not respond with EM, TIM, P, or TIM + P to a mistake.

RESPONSE TO MISBEHAVIOURS

8. Keeping Control (KC)

Responses that are designed to maintain order. Such behaviours by a coach are ordinarily elicited by unruly conduct or inattentiveness by the players.

SPONTANEOUS BEHAVIOURS

Game-related spontaneous behaviours

9. General Technical Instruction (TIG)

A communication that provides instruction relevant to techniques and strategies of the sport in question. **As** in the case of TIM, the purpose of these communications is to foster the learning of skills and strategies for dealing with game situations. The message must clearly be one of instruction. Unlike TIM, TIC is not elicited by an immediately preceding mistake by a player or the team. Rather, it is coach-initiated. Baseball examples include telling or showing a player how to bat or field, telling a fielder which base to throw to, telling a pitcher to take more time between pitches, and shifting the infield or outfield in a strategic manner.

10. General Encouragement (EG)

Encouragement that does not immediately follow a mistake. EG differs from the Rand EM categories in that it is not a response to specific actions by the players. It relates to future hopes, rather than the behaviours of the past. It differs from technical instruction in that the coach makes requests with which the players may not necessarily be able to comply (e.g., “Come on, team, let’s get some runs”).

11. Organisation (O)

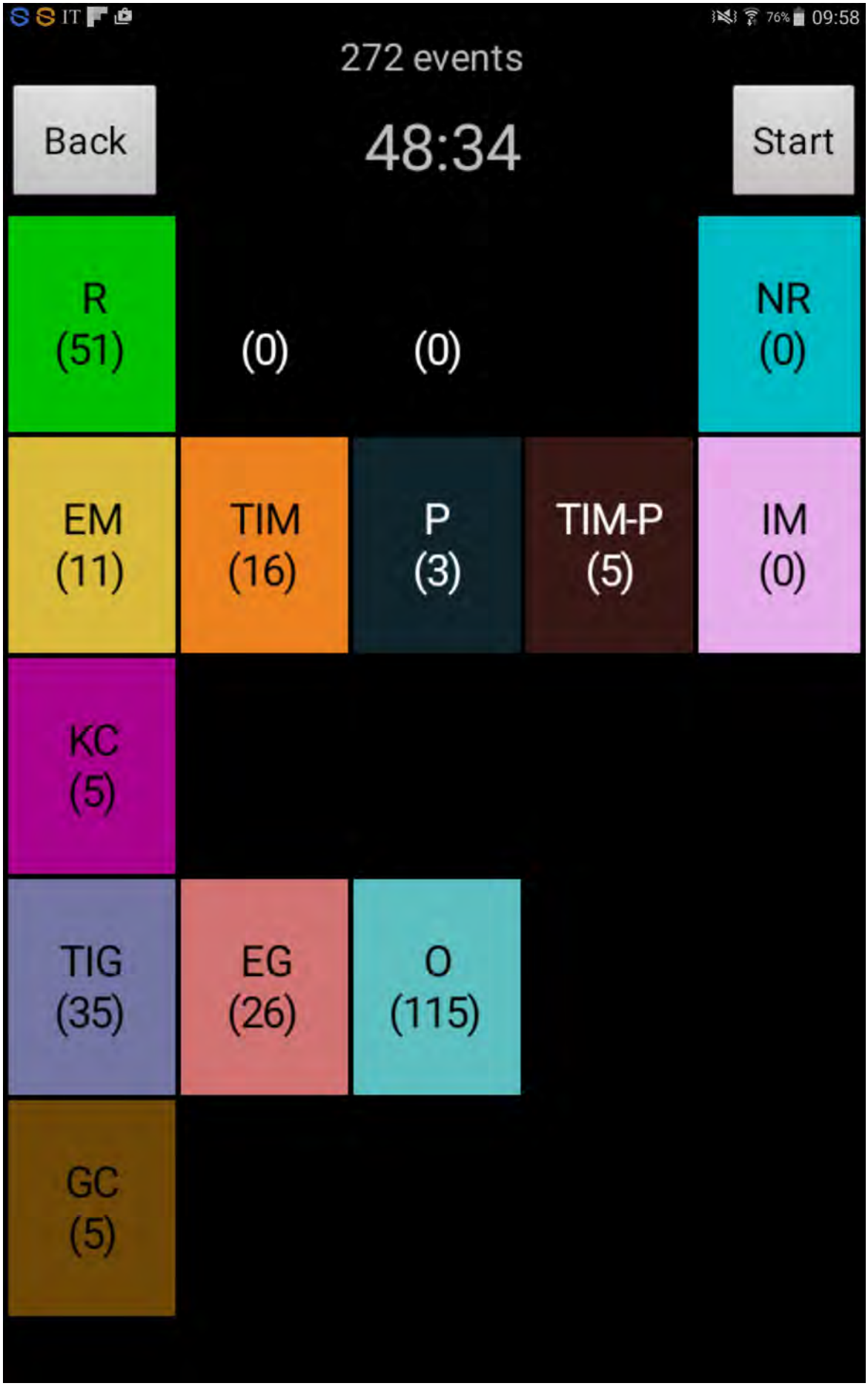
Behaviour directed at administrative organization, such **as** reminding the players of the batting order, announcing substitutions, reassigning positions, and telling players to coach on the bases. It involves organizational behaviour that is not intended to influence play immediately. Thus, putting in a new shortstop is scored 0, while positioning the shortstop closer to second base **is** scored technical instruction.

Game-irrelevant spontaneous behaviour

12. General Communication (GC)

Interactions with players that are unrelated to game situations or team activities, such **as** joking with players, conversation about family members, daily activities, etc.

Appendix 6
Coach Behaviour Assessment Scale (CBAS) Template (Chapter 5)


IT
76%
09:58
272 events
Back
48:34
Start
R
(51)
(0)
(0)
NR
(0)
EM
(11)
TIM
(16)
P
(3)
TIM-P
(5)
IM
(0)
KC
(5)
TIG
(35)
EG
(26)
O
(115)
GC
(5)

Appendix 7
Coach Behaviour Scale for Sport (CBS-S) (Chapter 7)

Coach and Athlete Talent Development in team sports in Ireland

Coaching Behaviour Scale for Sport (CBS-S ©)

HOW FREQUENTLY DO YOU EXPERIENCE THE FOLLOWING COACHING BEHAVIOURS

Please use the scale below to answer all the sections.

1	2	3	4	5	6	7
Never	Rarely	Sometimes	Fairly often	Often	Very Often	Always

The coach(es) most responsible for my physical training and conditioning….

Provides me with a physical conditioning programme in which I am confident
1 2 3 4 5 6 7

Provides me with a physically challenging conditioning programme
1 2 3 4 5 6 7

Provides me with a detailed physical conditioning programme
1 2 3 4 5 6 7

Provides me with a plan for my physical preparation
1 2 3 4 5 6 7

Ensures that training facilities and equipment are organised
1 2 3 4 5 6 7

Provides me with structured training sessions
1 2 3 4 5 6 7

Provides me with an annual training programme
1 2 3 4 5 6 7

The coach(es) most responsible for my technical skills….

Provides me with advice while I'm performing a skill
1 2 3 4 5 6 7

Gives me specific feedback for correcting technical errors
1 2 3 4 5 6 7

Give me reinforcement about correct technique
1 2 3 4 5 6 7

Provides me with feedback that helps me improve my technique
1 2 3 4 5 6 7

Provides visual examples to show how a skill should be done
1 2 3 4 5 6 7

Uses verbal examples that describe how a skill should be done
1 2 3 4 5 6 7

Makes sure I understand the techniques and strategies I'm being taught
1 2 3 4 5 6 7

Provides me with immediate feedback
1 2 3 4 5 6 7

The coach(es) most responsible for my mental preparation….

Provides me with advice on how to perform under pressure
1 2 3 4 5 6 7

Provides me with advice on how to be mentally tough
1 2 3 4 5 6 7

Provides me with advice on how to stay confident about my abilities
1 2 3 4 5 6 7

Provides me with advice on how to stay positive about myself
1 2 3 4 5 6 7

Provides me with advice on how to stay focused
1 2 3 4 5 6 7

The coach(es) most responsible for my goal setting….

Helps me identify strategies to achieve my goals
1 2 3 4 5 6 7

Monitors my progress toward my goals
1 2 3 4 5 6 7
Helps me set short term goals
1 2 3 4 5 6 7
Helps me identify target dates for attaining my goals
1 2 3 4 5 6 7
Helps me set long term goals
1 2 3 4 5 6 7
Provides support to attain my goals
1 2 3 4 5 6 7

The coach(es) most responsible for my competition strategy….

Helps me focus on the process of performing well
1 2 3 4 5 6 7
Prepares me to face a variety of situations in competition
1 2 3 4 5 6 7
Keeps me focused in competitions
1 2 3 4 5 6 7
Has a consistent routine at competitions
1 2 3 4 5 6 7
Deals with problems I may experience at competitions
1 2 3 4 5 6 7
Shows confidence in my ability during competitions
1 2 3 4 5 6 7
Ensures that facilities and equipment are organised for competitions
1 2 3 4 5 6 7

My Head Coach ….

Shows understanding for me as a person
1 2 3 4 5 6 7
Is a good listener
1 2 3 4 5 6 7
Is easily approachable about personal problems I might have
1 2 3 4 5 6 7
Demonstrates concern for my whole life (i.e., other parts of my life than sport)
1 2 3 4 5 6 7
Is trustworthy with my personal problems
1 2 3 4 5 6 7
Maintains confidentiality regarding my personal life
1 2 3 4 5 6 7
Uses fear in his/her coaching methods
1 2 3 4 5 6 7
Yells at me when angry
1 2 3 4 5 6 7
Disregards my opinion
1 2 3 4 5 6 7
Shows favouritism towards others
1 2 3 4 5 6 7
Intimidates me physically
1 2 3 4 5 6 7
Uses power to manipulate me
1 2 3 4 5 6 7
Makes personal comments to me that I find upsetting
1 2 3 4 5 6 7
Spends more time coaching the best athletes
1 2 3 4 5 6 7

Appendix 8
Recruitment Letter for Coaches and Athletes (Chapters 5, 6 and 7)

UNIVERSITY *of* LIMERICK

OLLSCOIL LUIMNIGH

May, 2015

Dear

I am a postgraduate researcher at the University of Limerick undertaking a PhD in Physical Education and Sports Science. My area of research is on Coach and Athlete Talent Development in Team sport in Ireland specifically examining coaching behaviours.

I'm looking to recruit coaches and their athletes from team sports to participate in the study and I am looking for your help in this process. The coaches should have a proven success in "developing talent". For the purpose of this study "developing talent" will be defined as athletes who, as a direct result of the methods used by these coaches, have progressed to higher honours in their sport, won titles, sustained their involvement in the sport or have moved into significant leadership roles in their sports career or life outside sport.

The mixed methods study will take place over the course of a season (approx 6 months). The coach will be asked to review their coaching behaviours during training and competitive matches by analysing them through video and audio recordings and answer a short series of questions on a maximum of 6 occasions. The athletes will be asked to complete a questionnaire on three occasions – at the beginning, mid-point and end of the research project – on their coach's behaviours. I have enclosed information sheets for both coaches and athletes.

I'd appreciate it if you could forward this letter to coaches you feel meet the above criteria and to whom you think this study would be of interest. Thanks for taking the time to read this letter and I will be in touch again in the next few days.

Yours sincerely,

Ian Sherwin (PhD Researcher)

Department of Physical Education and Sports Sciences

University of Limerick

Email: ian.sherwin@ul.ie

Dr Mark Campbell (1st Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: Mark.Campbell@ul.ie

Dr Tadhg MacIntyre (2nd Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: tadhg.macintyre@ul.ie

This research study has received Ethics approval from the Education and Health Sciences Research Ethics Committee. If you have any concerns about this study and wish to contact someone independent you may contact: Chairman Education and Health Sciences Research Ethics Committee EHS Faculty Office University of Limerick Tel (061) 234101

Appendix 9

Participant (Coach) Information Sheet (Chapters 5, 6 and 7)

UNIVERSITY *of* LIMERICK

O L L S CO I L L U I M N I G H

Coach and Athlete Talent Development in team sports in Ireland

Coach Information Sheet

Please read the information below thoroughly before deciding whether or not to participate in this study.

Introduction

You are being invited to participate in a study which will examine coach and athlete talent development in Irish sport specifically looking at the coach/athlete relationship. The study is being carried out by Mark Campbell (Lecturer, University of Limerick), Tadhg MacIntyre (Lecturer, University of Limerick) and Ian Sherwin (Postgraduate Researcher, University of Limerick).

Purpose of the Study

As sport evolves so too must the manner in which it is coached. Teams and players are constantly striving to achieve in a dynamic environment. The scope of behaviours and behavioural qualities examined in coaching research is still somewhat limited and this study will investigate coaching behaviours in order to gain a more in-depth understanding of how (i.e., delivery, presentation, or quality) these behaviours impact on the training/playing environment and the development of athletes.

What you are being asked to do

Over the course of a season (approx. 6 months) you will be asked to review a short series of video and audio clips of your coaching behaviours which will have been recorded during your squad training and game situations. The video and audio capturing of training and game situations will be arranged at your convenience with the review taking place within 48hrs of each training session or game. The review will take no longer than 45 minutes and will involve a short questionnaire (6 questions) on a maximum of 6 occasions.

What are the benefits to me?

Participating in this study will further our understanding of coach and athlete interactions and how they impact on your continued development as a coach. You will be given feedback and evaluations on your coaching effectiveness and how your relationship with your athletes impacts on the creation of a training/playing environment that is conducive to the development of both the coach and athlete.

What are the risks to me?

There are minimal risks (i.e., there may be some embarrassment while watching and listening to yourself on video) associated with participating in this study. You will not be required to answer any questions with which you are uncomfortable. Responses to the questions will be confidential to reduce this risk.

What happens to your information?

The information retrieved will be dealt with and handled in complete confidence whereby your results as well as your confidentiality are the first priority of the researchers carrying out the study. After the completion of the study, information will be kept electronically on the principal investigator's password protected computer.

Withdrawing from the study

Your participation in this study is completely voluntary. You have the right to withdraw from the study at any time.

If you would like to take part in this study or if you require further information please contact:

Ian Sherwin (PhD Researcher)

Department of Physical Education and Sports Sciences

University of Limerick

Email: ian.sherwin@ul.ie

Dr Mark Campbell (Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: Mark.Campbell@ul.ie

Dr Tadhg MacIntyre (Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: tadhg.macintyre@ul.ie

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Appendix 10

Participant (Coach) Informed Consent Form (Chapters 5, 6 and 7)

University *of* Limerick

OLLSCOIL LUIMNIGH

Coach Informed Consent Form

Coach and Athlete Talent Development in team sports in Ireland

Name: _____

- I have read and understand the subject information sheet.
- I understand what the project is about and what the results will be used for.
- I am fully aware of all procedures involving myself and of any risks and benefits associated with the study.
- I know that my participation is voluntary and that I can withdraw from the project at any stage without giving any reason.
- I am aware that my results will be kept confidential
- I consent for the data to be used anonymously in report format and published output.
- I consent to having my training and game situations video and audio recorded.

I the undersigned have been fully informed of and understand the nature of this study. I am aware of the risks involved and agree to be a participant in this project.

Name of Participant (Please print): _____ Date: _____

Signature of Participant: _____ Date: _____

Name of Researcher (Please print): _____ Date: _____

Signature of Researcher: _____ Date: _____

Contact name and details of Project Investigators:

Ian Sherwin (PhD Researcher)

Department of Physical Education and Sports Sciences

University of Limerick

Email: ian.sherwin@ul.ie

Dr Mark Campbell (1st Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: Mark.Campbell@ul.ie

Dr Tadhg MacIntyre (2nd Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: tadhg.macintyre@ul.ie

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Appendix 11
Participant (Athlete) Information Sheet (Chapter 7)

UNIVERSITY *of* LIMERICK

O L L S CO I L L U I M N I G H

Examination of Talent Development in Irish Sport

Athlete Information Sheet

Please read the information below thoroughly before deciding whether or not to participate in this study.

Introduction

You are being invited to participate in a study which will examine coach and athlete talent development in Irish sport specifically looking at the coach/athlete relationship. The study is being carried out by Mark Campbell (Lecturer, University of Limerick), Tadhg MacIntyre (Lecturer, University of Limerick) and Ian Sherwin (Postgraduate Researcher, University of Limerick).

Purpose of the Study

As sport evolves so too must the manner in which it is coached. Teams and players are constantly striving to achieve in a dynamic environment. The scope of behaviours and behavioural qualities examined in coaching research is still somewhat limited and this study will investigate coaching behaviours in order to gain a more in-depth understanding how (i.e., delivery, presentation, or quality) these behaviours impact on the training/playing environment and the development of athletes.

What you are being asked to do

You will be asked to complete 3 questionnaires over the course of the season relating to your interpretation of your coach's behaviours during training and game situations. The data collection (through the questionnaires) sessions will take place during your normal training session times. A video camera will be used to capture your coach's behaviours during a maximum of 4 training sessions and 2 matches. During these training sessions and matches the camera will be zoomed in to focus solely on your coach and not on the training sessions or games as a whole.

What are the benefits to me?

Participating in this study will further our understanding of coach and athlete interactions and how they impact on your development both on and off the field. Athletes will have the opportunity to contribute to their learning and the creation of a positive training/playing environment that is athlete centric.

What are the risks to me?

There are minimal risks associated with participating in this study. You will not be required to answer any questions with which you are uncomfortable. Responses to the questions will be confidential to reduce this risk. The questionnaires will be anonymous and will never be shown to your coach.

What happens to your information?

The information retrieved will be dealt with and handled in complete confidence whereby your results as well as your confidentiality are the first priority of the researchers carrying out the study. After the completion of the study, information will be kept electronically on the principal investigator's password protected computer.

Withdrawing from the study

Your participation in this study is completely voluntary. You have the right to withdraw from the study at any time.

If you would like to take part in this study or if you require further information please contact:

Ian Sherwin (PhD Researcher)

Department of Physical Education and Sports Sciences

University of Limerick

Email: ian.sherwin@ul.ie

Dr Mark Campbell (Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: Mark.Campbell@ul.ie

Dr Tadhg MacIntyre (Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: tadhg.macintyre@ul.ie

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Appendix 12
Participant (Athlete) Informed Consent Form (Chapter 7)

University *of* Limerick

OLLSCOIL LUIMNIGH

Athlete Informed Consent Form

Coach and Athlete Talent Development in team sports in Ireland

Name: _____

- I have read and understand the subject information sheet.
- I understand what the project is about and what the results will be used for.
- I am fully aware of all procedures involving myself and of any risks and benefits associated with the study.
- I know that my participation is voluntary and that I can withdraw from the project at any stage without giving any reason.
- I am aware that my results will be kept confidential
- I consent for the data to be used anonymously in report format and published output.

I the undersigned have been fully informed of and understand the nature of this study. I am aware of the risks involved and agree to be a participant in this project.

Name of Participant (Please print): _____ Date: _____

Signature of Participant: _____ Date: _____

Name of Researcher (Please print): _____ Date: _____

Signature of Researcher: _____ Date: _____

Contact name and details of Project Investigators:

Ian Sherwin (PhD Researcher)

Department of Physical Education and Sports Sciences

University of Limerick

Email: ian.sherwin@ul.ie

Dr Mark Campbell (1st Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: Mark.Campbell@ul.ie

Dr Tadhg MacIntyre (2nd Principal Investigator)

Department of Physical Education and Sports Sciences

University of Limerick

Email: tadhg.macintyre@ul.ie

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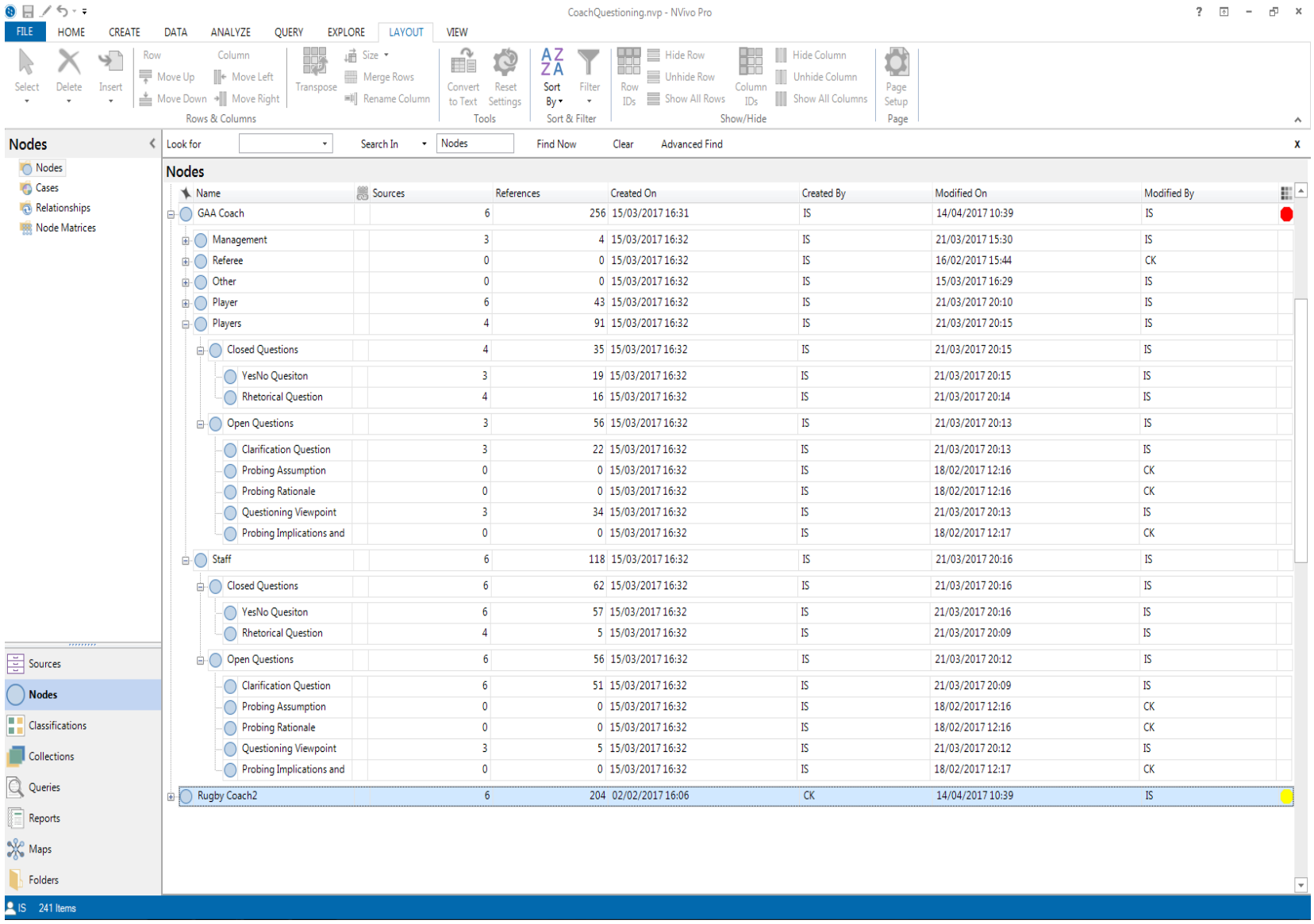
Appendix 13
Sample Coding Framework for Coach Questioning (Chapter 6)


CoachQuestioning.nvp - NVivo Pro
FILE
HOME
CREATE
DATA
ANALYZE
QUERY
EXPLORE
LAYOUT
VIEW
Select
Delete
Insert
Row
Move Up
Move Down
Column
Move Left
Move Right
Rows & Columns
Transpose
Size
Merge Rows
Rename Column
Convert to Text
Reset Settings
Tools
Sort By
Filter
Sort & Filter
Row IDs
Hide Row
Unhide Row
Show All Rows
Column IDs
Hide Column
Unhide Column
Show All Columns
Show/Hide
Page Setup
Page
Nodes
Nodes
Cases
Relationships
Node Matrices
Look for
Search In
Nodes
Find Now
Clear
Advanced Find
Nodes
Name
Sources
References
Created On
Created By
Modified On
Modified By
GAA Coach 6 256 15/03/2017 16:31 IS 14/04/2017 10:39 IS
Management 3 4 15/03/2017 16:32 IS 21/03/2017 15:30 IS
Referee 0 0 15/03/2017 16:32 IS 16/02/2017 15:44 CK
Other 0 0 15/03/2017 16:32 IS 15/03/2017 16:29 IS
Player 6 43 15/03/2017 16:32 IS 21/03/2017 20:10 IS
Players 4 91 15/03/2017 16:32 IS 21/03/2017 20:15 IS
Closed Questions 4 35 15/03/2017 16:32 IS 21/03/2017 20:15 IS
YesNo Quesiton 3 19 15/03/2017 16:32 IS 21/03/2017 20:15 IS
Rhetorical Question 4 16 15/03/2017 16:32 IS 21/03/2017 20:14 IS
Open Questions 3 56 15/03/2017 16:32 IS 21/03/2017 20:13 IS
Clarification Question 3 22 15/03/2017 16:32 IS 21/03/2017 20:13 IS
Probing Assumption 0 0 15/03/2017 16:32 IS 18/02/2017 12:16 CK
Probing Rationale 0 0 15/03/2017 16:32 IS 18/02/2017 12:16 CK
Questioning Viewpoint 3 34 15/03/2017 16:32 IS 21/03/2017 20:13 IS
Probing Implications and 0 0 15/03/2017 16:32 IS 18/02/2017 12:17 CK
Staff 6 118 15/03/2017 16:32 IS 21/03/2017 20:16 IS
Closed Questions 6 62 15/03/2017 16:32 IS 21/03/2017 20:16 IS
YesNo Quesiton 6 57 15/03/2017 16:32 IS 21/03/2017 20:16 IS
Rhetorical Question 4 5 15/03/2017 16:32 IS 21/03/2017 20:09 IS
Open Questions 6 56 15/03/2017 16:32 IS 21/03/2017 20:12 IS
Clarification Question 6 51 15/03/2017 16:32 IS 21/03/2017 20:09 IS
Probing Assumption 0 0 15/03/2017 16:32 IS 18/02/2017 12:16 CK
Probing Rationale 0 0 15/03/2017 16:32 IS 18/02/2017 12:16 CK
Questioning Viewpoint 3 5 15/03/2017 16:32 IS 21/03/2017 20:12 IS
Probing Implications and 0 0 15/03/2017 16:32 IS 18/02/2017 12:17 CK
Rugby Coach2 6 204 02/02/2017 16:06 CK 14/04/2017 10:39 IS
Sources
Nodes
Classifications
Collections
Queries
Reports
Maps
Folders
IS 241 Items