

1. INTRODUCTION

Sports coaches are pivotal to the delivery of quality experiences in sport. Millions of paid and unpaid coaches provide children, players and athletes with guidance and support to help them fulfil their goals, follow their dreams and enhance the quality of their lives.

Pat Duffy, Chairman of the European Coaching Council (Lyle & Cushion, 2010, p.vii)

There are approximately 1.1 million coaches in the UK, providing sporting opportunities and guided development to around 5 million children, adult participants and talented high performance athletes (Sports Coach UK, 2011). A significant majority of these individuals are volunteers, have no license to practice and just over half (53%) have a coaching qualification (North, 2009; Sports Coach UK, 2011). The majority of individuals who have a coaching certification are qualified at level one or two (69%), with only a small number qualified at level three (19%) and level four (12%) (North, 2007; Sports Coach UK, 2011). Coaching qualifications are needed to help develop quality coaches and quality coaches are important for a number of reasons. Firstly, they play a role in stimulating and sustaining participation (Biddle & Mutrie, 2001; Fraser-Thomas et al, 2005; **sportscotland**, 2006; North, 2009). Quality coaches provide individuals with a good experience of sport and as a result of this positive experience individuals are more likely to stay involved in sport, either as a participant or a volunteer. Biddle and Mutrie (2001) suggest that “the coach could be the single most influential factor for sporting adherence” (p.154). Secondly, quality coaches can help develop a range of skills such as communication, decision-making, team work and leadership (Côte, 2002; Fraser-Thomas et al, 2005; **sportscotland**, 2006). These skills are useful, not only in the sporting context, but also in everyday life. Thirdly, quality coaches are needed to develop athletic talent and enable athletes to achieve success in world class sport (Côte et al, 2003; Mallet, 2005; **sportscotland**, 2006; North, 2009). Mallet (2005) notes that guidance from a quality and competent coach is essential to becoming an expert performer. Overall, quality coaching plays a pivotal role in delivering success in sport at all levels – participation, development and excellence.

The importance of coaching, and coach education, has also been recognised by the UK government and its agencies in numerous policy documents (e.g. UK Sports Council, 1991, 1999, UK Sport, 2000; DCMS, 2002, **sportscotland**, 2006). For example, the UK Sports Council (1999) emphasised the importance of coaching at all levels – foundation, participation and performance. They went on to note that coaching was “crucial in driving up participation, developing sport, and achieving success from playground to podium” (p.7). Due to the pivotal role that coaches play in sport, these policy documents have recognised the need to have an effective system to educate and develop coaches. In 1991 the Coaching Matters report indicated that the current coach education system in the UK was flawed and there was a need for a nationally agreed template to be established and delivered by a central institute in order to ensure a consistent system from sport to sport. A further recommendation proposed in Coaching Matters was to provide coaches with more opportunities and support to develop their skills outside a formal qualification framework. In general, these recommendations were not moved forward and were therefore repeated in later policy documents such as The Development of Coaching in the UK (UK Sports Council, 1999), The UK Vision for Sport (UK Sport, 2000) and the Coaching Task Force (CTF) Final Report (DCMS, 2002). For example, the CTF Report (DCMS, 2002) proposed that a National Certificate of Coaching (NCC) was needed and this structure should be based on National Standards. Following this report the United Kingdom Coaching Certification (UKCC) was developed and introduced in 2002 and this provided an initial step towards addressing some of the concerns raised in the previous policy documents.

Overall, it is clear from both the literature in the area and the policy documents that educating and developing quality coaches is an important endeavour. However, it is unclear the most effective ways to develop coaches and the role and impact formal education plays.

1.1 Definitions of coaching

The nature of coaching has become subject to increasing debate (Jones, 2000; Lyle, 2002; Cassidy et al, 2004; Cushion, 2007) and there are various definitions of the concept. Despite the lack of an agreed definition, there is a widespread realisation and acceptance that coaches are not merely technicians engaged in the transfer of knowledge but are

practitioners who engage in a complex sociocultural process that involves a myriad of interacting variables (Jones, 2000; Cushion, 2007; Gilbert, 2007; Lyle, 2007a; Mallett, 2007; Petitpas, 2007). Therefore, coaching is not an activity that can be easily reduced to a generic set of rules or predictable processes. Instead coaching is seen as multifaceted, dynamic, and messy in nature (Cushion, 2007; Jones et al., 2004; Lyle, 1999, 2002). In addition to this, coaching is influenced by a number of social factors (e.g. Jones, 2000; Potrac et al, 2002; Jones et al, 2003). According to Potrac et al (2002) coaching is part of the complex realities associated with modern day sporting environments, which involve interactions between individuals of different ages, class, experiences, gender, race and values. Coaches also operate in a variety of domains and have to be able to adapt to their environment and make decisions based upon multiple situational factors (Jones et al, 2003). Lastly, coaching is seen to be a unique occupation that combines a multiplicity of roles (Lyle, 1999; Jones, 2000). These primarily involve a central tenet of improving athlete or team performance. This is emphasised in the definition provided by the European Coaching Council (2007): “Coaching is the guided improvement, led by a coach, of sports participants and teams in a single sport and at identifiable stages of the athlete/sportsperson pathway” (p.5). According to Lyle (1999), the improvement in performance is purposeful and stable, and not reflective solely of chance or maturation. It is clear from these descriptions that coaching is an ambiguous and complex process and therefore it is not surprising that its definition is subject to debate.

There are various interpretations of what coaching is and these include: the instructional perspective (Sherman et al, 1997), the sociological perspective (Jones, 2000), the pedagogical perspective (Armour, 2004), and the humanistic perspective (Kidman, 2005). These different perspectives of coaching will be discussed in turn. Sherman et al (1997) conceptualised sports coaching as a form of instruction and applied the Instructional Psychology (ISP) model to the coaching context. The ISP model, which has five components, was re-conceptualised for the sports coaching context. This involved including an additional component. The model focuses on skill acquisition and the six components are as follows:

1. Achievement: Refers to the description of desired end states or goal's of instruction for both the coach and learner. In this context, desired end states can be explicitly

represented by both the technique (or form) of a particular motor skill and the outcome that occurs as a result of performing the acquired skill.

2. **Aptitude:** Refers to the initial state of the learner's knowledge, interest in acquiring the motor skill, and entry ability level to perform a sporting motor skill prior to instruction. By finding this information out, coaches can more easily select the types of instructional specifications and environmental conditions to best suit the learner and promote skill acquisition.
3. **Learning:** This involves the specification of the various processes that are assumed to occur within the person receiving coaching during the transition from novice to expert performer, and which are taken to underlie this transition.
4. **Instruction:** This involves the specification of instructional procedures that are used during coaching, and which are taken to facilitate learning and promote the transition from novice to expert performance.
5. **Performance evaluation:** This involves assessment of the novice's skill performance after instruction in comparison to the entry performance.
6. **Instructional evaluation:** This involves assessment by the coach and learner of the coaching relationship with particular emphasis on the instructional procedures used during coaching. This requires the coach to explicitly assess and analyse the effects that his/her instruction had on factors such as the learners' (a) knowledge, (b) perceived skill level, (c) opinion of the instructional treatment, (d) the speed or efficiency of the learning process.

It is clear from the model that Sherman and colleagues believe that coaching is about facilitating the learning and development of skills. This view is supported in the motor learning literature (e.g. Fischman & Oxendine, 1998). Fischman and Oxendine (1998) believe that understanding the motor skill learning process is a core element of successful coaching. According to these researchers, coaches must understand how athletes learn new motor skills and how they maintain and improve well learned skills. Practice and feedback

are seen as two essential elements in the motor learning process. Fischman and Oxendine (1998) believe that coaches must be able to organise effective practice sessions as well as be able to analyse the learner's performance and communicate any changes that are needed.

A strength of the instructional perspective is it provides a simplistic way of viewing coaching i.e. the role of the coach is to develop their athletes' motor skills. This approach however does not take into account the 'messy' nature of coaching. This can be seen as a limitation of the approach as it does not consider other roles involved in coaching such as social support. Another weakness is that the instructional interpretation of coaching focuses mainly on outcomes, i.e. the performance of a motor skill, and neglects other aspects such as the process of athlete learning. It has been suggested that most coach education is currently based on the instructional perspective as coaches are mainly educated on how to teach skills to athletes and little time is devoted to the others aspects of coaching such as the coach-athlete relationship (e.g. Jones, 2000; Nelson et al, 2006).

Jones (2000) provides a sociological perspective of coaching and views it as a "culturally contested site of social practices characterised by a series of power relations" (p.38). From the sociological perspective, coaching is seen as essentially a social activity and coaches have to understand the social environment in which they are working in and the relationships they have with their athletes. Recently, coaching has been increasingly acknowledged by researchers in the field as a social activity (e.g. Cassidy et al, 2004; Jones et al, 2009; Cushion, 2010a, 2010b) and the argument has been further refined through empirical and theoretical study (e.g. Jones et al, 2002, 2005, 2011). A strength of the sociological perspective is that it takes into account the multiple social factors that are involved in coaching. However, by doing this, coaching is seen as 'messy' and complex and this causes problems for coach education as it is difficult to design education programmes around a 'messy' view of coaching. Jones (2000) identifies a way that the sociological component could be incorporated into coach education. He suggests a critical task based reflective approach in which coaches learn in context by reflecting on real life problems and the decisions they would make. Jones (2000) believes that coaches need to reflect on what they actually do in practice without losing sight of the wider patterns of social life. This

social approach to coach education has also been recently suggested by Cushion (2011). Cushion (2011) believes that coach learning should be situated in social and cultural contexts so that knowledge is constructed through direct experience of social practice.

A further interpretation of coaching is provided by Armour (2004) who examines the concept from a pedagogical perspective. Pedagogy is essentially about learning and a simple definition is provided by Armour who states that “pedagogy is any conscious activity by one person designed to enhance learning in another” (p.95). To describe pedagogy in more detail, Leach and Moon (1999) conceptualise it as four individual yet interlinked elements. The four elements are teachers, learners, learning tasks and the learning environment. These four elements have an overriding focus on the unifying goal of learning. Reinterpreting Leach and Moon’s definition to fit the culture of sports coaching, Armour (2004) defines coaching pedagogy as embracing the four elements of teachers (and coaches), learners, knowledge base and the learning environment. According to Armour (2004), teachers/coaches need to understand why they hold certain views and why they act in certain ways. This understanding will help them learn about their own coaching. Coaches also need to understand and analyse the best ways their athletes learn. Athletes are seen as learners and are believed to be at the heart of the coaching process. It is important for the athletes to buy into the learning process and take ownership of their learning. When selecting learning tasks for the athletes, coaches must draw upon their knowledge base. This involves reflecting on some prior assumptions about what is valuable and worthwhile knowledge in a specific context. The environment in which the learning takes place is important and Armour believes that learning should be situated in specific communities of practice (COPs). A Community of Practice (COP) is described by Culver & Trudel (2006) as:

A group of people who share a common concern, set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an on-going basis.

(Culver & Trudel, 2006, p.98)

It is clear from the descriptions above that the pedagogical perspective places learning for both the athlete and coach at the core of the coaching role. Coaches must continuously

learn in the interest of their athletes and through coaching athletes learn and develop in an attempt to improve their performance. The pedagogical perspective views coaching as a continuous learning process and a strength of the approach is that both athlete and coach learning are seen as important. A challenge with drawing on this perspective is that coaches may have difficulties understanding how they view learning and how their athletes learn (Cassidy, 2010).

There is growing recognition and acceptance that coaching is a pedagogical enterprise (e.g. Cassidy et al, 2004, 2009; Jones et al, 2004; Penney, 2006; Armour, 2010) and this has implications for coach education. Several researchers who view coaching from a pedagogical perspective (e.g. Armour, 2004, 2010; Cassidy et al, 2004, 2006) believe that coach education should include collaborative learning through COPs. These researchers suggest that coaches should come together formally in a group context to discuss coaching issues and share knowledge. Armour (2010) also suggests that the collaborative learning should be situated and linked to daily practice because authentic learning experiences are essential for coaches to develop.

Another interpretation of coaching is provided by Kidman (2005) who draws on a humanistic perspective. From this perspective coaching is seen to be athlete centred. An athlete centred approach to coaching is one that “allows athletes to gain and take ownership of knowledge, development and decision making that will help them maximise their performance” (p.13). In this approach athletes are involved in decision making and have an active role in contributing to and being part of their learning. The humanistic perspective therefore has similarities with the pedagogical approach as encouraging athletes to be part of their learning is a key feature of both. Athlete-centred coaching is also about being supportive and empowering and promoting enjoyment and personal development. Coaches should encourage athletes to be self aware, self sufficient and take control over their learning. This approach to coaching is about trying to develop better people, not just better athletes. In order for this to happen, the coach-athlete relationship is very important and is based on mutual respect, trust and honesty.

This perspective is linked to self-determination theory (SDT) and autonomy-supportive coaching. One of the central tenets of SDT is that the self-determined motivation of an athlete is affected by the extent to which they feel connected to their social environment, competent in what they undertake and autonomous in their actions. Mageau and Vallerand (2003) proposed a motivational model of the coach-athlete relationship that was based on the tenets of SDT. The model suggests that autonomy-supportive coaching behaviours have a beneficial impact on athletes' needs for autonomy, competence and relatedness, which in turn promotes self-determined motivation. Autonomy-supportive behaviours are seen to be athlete-centred. According to Black and Deci (2000), being autonomy-supportive means that the coach takes the athletes' perspective into consideration, acknowledges their feelings and provides them with pertinent information and opportunities for choice, while minimising the use of pressures and demands. Recent research in the coaching domain has supported Mageau and Vallerand's model as positive outcomes associated with autonomy-supportive coaching styles have been found (e.g. Gagne et al, 2003; Reinboth et al, 2004; Amorose & Anderson-Butcher, 2007). For example, Reinboth et al (2004) found that autonomy-supportive coaches in youth football and cricket had a positive influence on their athletes' perceptions of autonomy, competence and relatedness. Research conducted in PE settings has also shown the motivational implications of perceived autonomy support (e.g. Hagger et al, 2003; Standage et al, 2006). Although humanistic behaviours have been shown to have a positive influence on athletes' motivation, it is not known whether this style of coaching actually has an impact on performance.

Viewing coaching from a humanistic perspective can be beneficial as athlete-centred/autonomy supportive coaching behaviours have been shown to have a positive impact on athletes i.e. improve their perceptions of autonomy, competence and relatedness. Another strength of the humanistic perspective is that it puts the athlete at the centre of the coaching process and this is where they should be because ultimately it is the athletes who perform and compete. Despite these strengths, adopting autonomy-supportive behaviours can be difficult for several reasons. Firstly, the pressure to perform can cause coaches to adopt more controlling behaviours. Mageau and Vallerand (2003) identify that stressful and pressured situations can affect whether a coach can adopt

autonomy-supportive behaviours. Secondly, it takes time to develop a high level of understanding of autonomy-supportive behaviours (Mallet, 2005). As well as this, coaches need to know their athletes and trust them before adopting an autonomy-supportive style. Lastly, the effect of the humanistic coaching behaviours will depend on how the athletes interpret and react to the behaviours. Some athletes may not be used to the increased responsibility and freedom that the humanistic approach affords (Mallet, 2005). Supporters of this perspective believe that coach education should focus on the coach-athlete relationship and help coaches develop humanistic coaching behaviours. However, as already mentioned, it takes time to develop an understanding of these behaviours and there may not be enough time to do this during coach education which is often short and episodic in nature.

It is evident from this section that there are various ways to interpret coaching. It is important for researchers, and others, to be clear about how they view coaching as this can influence how they think about other issues such as the delivery of coach education. It is clear from the discussions above that there are similarities across the different perspectives. One common feature of all four is that learning, whether it is athlete learning, coach learning or both, is an important component of coaching. The concept of learning is discussed in the following section.

1.2 Learning and approaches to learning

The concept of learning can be viewed from different theoretical perspectives. Brockbank and Magill (2007) identify three different perspectives; behaviourist theories of learning, cognitivist theories of learning, and constructivist theories of learning. Behaviourist theories view learning as a change in behaviour in response to a stimulus. They focus on the outcomes of a stimulus, without necessarily attending to social meaning. Some of the early research in coaching focused solely on behaviour change (e.g. Smith et al, 1979; Chelladurai, 1978; 1980; Smith & Smoll, 1990). For example, the research undertaken by Smith, Smoll and colleagues examined the changes in coaches' behaviour after participating in a coach training programme. These researchers found that in general the behaviour of the trained coaches changed in the way that was intended by the programme. Unlike behaviourism,

cognitive approaches scrutinise internal mental structures and see learning as transforming these structures (Brockbank & Magill, 2007). According to cognivists, thought plays a significant but not exclusive role in the processes of learning and therefore cognitive models try to better understand the mental complexities associated with learning. In comparison, constructivist theories of learning view learning as an active and creative process involving an individual's interaction with their physical environment and with other learners.

In addition to these three theories of learning presented by Brockbank and Magill, Sfard (1998) has conceptualised learning using the metaphors of acquisition and participation. The acquisition metaphor views learning as the transfer of information from a teacher to a student. The acquisition metaphor is linked to behaviourist and cognitivist theories of learning as it focuses on the individual mind and what goes into it. In the participation metaphor, learning occurs through an individual taking part in a number of activities in the real world. The participation metaphor views learning as an active process which involves an individual interacting with the environment and others. The participation metaphor is therefore linked to constructivist theories of learning as it focuses on individuals' evolving bonds with others and the environment.

Coach education programmes are currently based around the acquisition metaphor as they involve course tutors delivering knowledge to the participants (Trudel & Gilbert, 2004; Erickson et al, 2008; Cassidy, 2010). However, research has shown that coaches prefer and value learning through a range of other sources which are mainly associated with the participation metaphor (e.g. Gould et al, 1990; Irwin et al, 2004; Jones et al, 2004; Erickson et al, 2008). This research on coach learning is outlined in the following section.

1.3 Coach learning

Nelson et al (2006) state that the term coach learning "can embrace all forms through which coaches acquire the knowledge that informs their professional practice" (p.248). A similar definition is provided by Cushion et al (2010) who state that coach learning "embraces all the processes and structures that enable coaches to construct and develop the knowledge required to engage effectively in their professional practice" (p.i). Coach learning can be separated into three learning situations: informal, non-formal and formal (Coombs &

Ahmed, 1976). The definition of informal learning is similar to that of the participation metaphor. Informal learning is when an individual learns from daily experiences and interactions with the environment. There are a variety of informal activities through which a coach can learn from, such as previous experiences as an athlete, interactions with others and practical coaching experiences. One of the clearest messages to emerge from the coach learning literature is that informal learning has become a well established learning pathway for coaches. A recurring theme in the literature is that coaches mainly learn through experience and interacting with other coaches (e.g. Gould et al, 1990; Salmela, 1995; Cushion et al, 2003; Jones et al, 2004; Erickson et al, 2008).

Non-formal learning is any organised and structured educational activity which takes place outside the spheres of formal education. Examples of non-formal learning include conferences, workshops and other continual professional development (CPD) activities. The concept of formal learning is similar to that of the acquisition metaphor in that it is mediated or guided by some knowledgeable other. According to Coombs and Ahmed (1974) formal learning is planned, structured and takes place in educational institutions. Research has shown that formal coach learning plays a marginal role in a coach's overall development compared to informal learning (e.g. Gould et al, 1990; Irwin et al, 2004; Erickson et al, 2008; Werthner & Trudel, 2009). Despite this finding, coaching policies in the UK (e.g. UK Sports Council, 1991, 1999; UK Sport, 2000; DCMS, 2002) have emphasised the importance of both formal and informal learning in coach development. An example of a formal learning situation is a large scale coach education programme, such as the UKCC, and these are discussed in more detail in the following section.

1.4 Coach education

The first large scale coach education programme was developed in the 1970s in Canada. Since then coach education has grown and large scale programmes are now available in numerous countries around the world. One of the main reasons for developing large scale coach education programmes was "to address moral and legal issues (i.e. certification)" (Trudel & Gilbert, 2004, p.2). According to Trudel and Gilbert (2004) the development of coach education programmes was seen as a way of professionalising the field of sports

coaching and allowing the competency of coaches to be certified. Another major reason for implementing coach education programmes was to develop coaching competency, expertise and practice. It is believed by developers of coach education that their programmes can contribute to the development of these aspects (Woodman, 1993; Dickson, 2001; Lyle, 2002; McCullick et al, 2005). Within the formal coach education literature there has been a number of studies that have evaluated coach education programmes (e.g. Gilbert & Trudel, 1999; Dickson, 2001; Walsh, 2004; Hammond & Perry, 2005; Misener & Danylchuk, 2009). However, these studies have mainly gathered the participants' perceptions of the programme rather than evaluated the impact of the programme on the coaches. This is emphasised by Cushion et al (2010) who states that "there remains no evidence to link certification as a result of coach education with coaching competency" (p.45).

1.4.1 Coach education in the United Kingdom

The coach education programme currently being implemented in the United Kingdom is known as the United Kingdom Coaching Certification (UKCC). According to Sports Coach UK, the UKCC is a national framework which supports the development, endorsement and improvement of governing bodies of sport coach education programmes. The rationale for developing the UKCC can be traced back to 1991. The need for a nationally agreed coach education template, which is in line with the National Occupational Standards for Coaching, Teaching and Instructing, was first suggested in the Coaching Matters report (UK Sports Council, 1991). This recommendation was re-emphasised in later policy documents (e.g. UK Sports Council, 1999, UK Sport, 2000, DCMS, 2002) and it was not until after the Coaching Task Force (CTF) report (DCMS, 2002) that the recommendation was implemented. The CTF report proposed that a National Certificate of Coaching (NCC) should be developed which is set against national standards. It was suggested that the structure of the NCC should comprise of five levels to mirror international developments and the implementation of the structure should be undertaken by a single organisation (i.e. Sports Coach UK). This national framework proposed in the CTF report was named the United Kingdom Coaching Certificate (UKCC). The development of the UKCC was intended to standardise coach education

throughout the UK and to provide a UK wide recognised seal of quality coaching. It was believed that the UKCC would play a part in professionalising the area of sports coaching.

The UKCC started out as a five level qualification process but has been reduced to four, with the distinctions between levels being described in terms of role function. The four levels are assistant coach, coach, senior coach and master coach. The design of the UKCC is based around developing coach-specific competencies and these competencies differ between level. This competency-based approach to coach education focuses on what coaches can do rather than what they know. The provision of knowledge is still part of the coach education process but there is now a focus on the ability to apply appropriate levels of knowledge into coaching situations.

In Scotland, the development and implementation of the UKCC is supported by **sportscotland**, the national agency for sport in Scotland. To contribute to the successful delivery of the UKCC in Scotland, **sportscotland**, through National Lottery Investment, invested £2.5 million over a four year period (commencing in 2007) to subsidise course candidate fees (**sportscotland**, 2010). A total of 26 sports have received funding to help keep candidates costs down. Despite this large investment into the UKCC in Scotland, no research has evaluated the programme.

1.5 Purpose of the study

Due to this lack of research, the purpose of this study is to evaluate the UKCC in Scotland and discuss the implications for the design of the programme. Although there has yet to be an evaluation of the UKCC, Lyle (2007b, 2010, 2010a) has provided guidelines and various tools that could be used in the process. In Lyle's (2010a) recent monitoring and evaluation framework for the UKCC, he proposes five stages of evaluation for the UKCC. These stages are relevance, fidelity, effectiveness, transfer and impact. This study draws on this framework in that the relevance, fidelity and effectiveness of the UKCC are evaluated. The study addresses the following five research questions:

1. Is the UKCC relevant to participants' needs?

2. How important is the UKCC in the participants' overall learning and development as a coach?
3. What are the participants' perceptions of the UKCC?
4. What short term impact has the UKCC had on the participants' perceptions of competency?
5. Based on the findings of the above questions, what are the implications for the design of the UKCC?

1.6 Structure of the thesis

This chapter has introduced the origins and purpose of the thesis and summarised its focus. Chapter 2 reviews relevant literature and provides a foundation and direction for the current study. This chapter first provides an overview of the policies that have shaped coach education and learning in the UK. This is followed by an analysis of the existing literature on coach learning. This involves examining the research on formal, non-formal and informal coach learning. In chapter 3 the research approach is discussed and the methods used in the current study are outlined in detail. Along with this, the UKCC is described in more detail and the participants' demographic information is presented in this chapter. Chapter 4 starts by presenting and discussing the results of the study in relation to the first four research questions. Following this, research question five is addressed as the implications for the UKCC are discussed. Chapter 5 outlines the limitations of the research along with avenues for further research. . The final part of this chapter provides some concluding thoughts.

2. LITERATURE REVIEW

2.1 Introduction

This chapter starts by providing an overview of the policies that have shaped coach education and learning in the UK. Following this, the remainder of the review will examine the existing literature on coach learning. The main focus of the review is on the formal learning research, specifically studies that have evaluated coach education programmes.

2.2 UK Coaching Policy

The current study focuses on coach education in the UK. In order to locate the current research in the broader context of coach development¹ in the UK, it is important to understand government policies and initiatives that have shaped the current coach education system. The development of the UKCC is a result of a number of policy documents over the past few decades. In 1989, a review of coaching in the UK was initiated and two years later a report called 'Coaching Matters' (1991) was published by the UK Sports Council. In this report a number of issues were outlined regarding the current coach education provided in the UK. It was reported that coach education in the UK was delivered by National Governing Bodies and this differed to the set up in other countries, such as Germany and Australia, where coach education was delivered by a central organisation. In the UK most governing bodies had developed sport specific coach education systems however they generally suffered from the narrowness of the education which they provided. There was a lack of clarity and professional standards within the governing bodies' coach education systems and there was also a lack of cross sport consistency. Due to this, the Coaching Matters report suggested that a nationally agreed template should be established to create parity between sports. The report goes on to suggest that the system should be developed in line with the new framework being implemented by the National Council for Vocational Qualifications (NCVQ). The NCVQ was intending to institute a new national framework to enhance vocational and training arrangements and to ensure

¹ Coach development is assumed as an all encompassing term that refers to the process of leading towards enhanced expertise (Mallet et al, 2009).

consistent standards of competence and assessment arrangements. A further recommendation for the coach education system was it should be more context specific in that coaches should be able to attend courses specific to the environment in which they coach in. For example, those involved in coaching elite athletes would participate in coach education which was focussed on the high performance coaching context. In addition to providing these recommendations for improving the coach education system, the report also discussed the wider area of coach development. The report emphasised the need to support coaches' informal learning as well as their formal:

Coach development training at the present time is aimed mainly at enabling coaches to improve their qualifications. We recommend that a coach development training structure should be available for all coaches, even if they do not wish to move to a higher grade. This structure should comprise a compulsory element but also a voluntary element for coaches who wish to expand their knowledge.

(Coaching Matters, 1991, p.35)

In 1998, it was considered appropriate that Coaching Matters should be reviewed and recommendations and guidance for coaches and coaching for the 21st century should be provided. To do this a review group was set up comprising representatives from numerous organisations such as UK Sport, Sport England, **sportscotland**, the Sports Council for Wales, the Sports Council for Northern Ireland, and the British Olympic Association. Their initial discussions resulted in a consultative document called 'The Development of Coaching in the UK' (UK Sports Council, 1999). This report recognised that the implementation of the National Occupational Standards for Coaching, Teaching and Instructing by National Governing Bodies was crucial to the future development of consistent and quality assured coach education in the UK. It was reported that since Coaching Matters some work had been done in this area as governing bodies had started to implement national standards within their coaching qualifications and this had helped with some of the standardisation issues identified previously. However, this had not been as swift as was originally forecast by Coaching

Matters. The UK Sports Council (1999) identified that many of the recommendations of Coaching Matters had not been moved forward and were still valid. Therefore it was recommended that a consistent coach education structure was still needed across sports and this structure should be based on National Standards and linked to the government's structure of mainstream qualifications, education and training. A further recommendation, similar to that proposed in Coaching Matters, was the need to provide opportunities for coaches to develop their skills outside a qualification framework. Both vertical and horizontal CPD opportunities were acknowledged as important so that coaches would get a chance to progress to higher qualifications as well as opportunities to take part in other learning sources.

The consultative document, along with a questionnaire, was distributed to a range of organisations and agencies for discussion. Inevitably the consultation raised some differences however in general there was a high level of consistent support for the issues and recommendations outlined in the document. As a result of this process, the UK Vision for Coaching (UK Sport, 2000) was produced. This document stated that by 2012 coaching will have:

- Professional and ethical values and inclusive and equitable practice.
- Agreed national standards of competence as a benchmark at all levels.
- A regulated and licensed structure.
- Recognition, value and appropriate funding and reward.
- A culture and structure of innovation, constant renewal and continuous professional development.

(UK Sport, 2000, p.5)

In the same year, the government produced a 'Plan for Sport' (2000) and within this there were a number of recommendations about the strategic direction of coaching and coach education. In order to help move forward some of these areas of work identified in the Plan for Sport, the Coaching Task Force (CTF) was established. In

regards to coach education and development, the recommendations that the CTF were asked to examine were:

- An international benchmarking exercise be undertaken to compare the preparation of coaches in England with other countries who were deemed to have successful systems in place, and to identify good practice.
- The implementation of a National Coaching Certification at 5 levels. This would be set against the national standards and be a requirement for all National Governing Bodies. The feasibility of linking this to a license to practice.

The conclusions and recommendations of the CTF regarding the two areas above were summarised in The Coaching Task Force Final Report (DCMS, 2002). The international benchmarking exercise compared coach education in the UK with four countries: Australia, France, Germany and Sweden. It was reported that coach education in the UK lacked a recognisable professional framework with a clearly defined set of standards. There was also a lack of consistency across sports in regards to content, delivery and assessment. Due to this, it was recommended that the UK system needed to be re-aligned to compete against best international practice and to harmonise between sports, between home countries and across the UK. Therefore, similar to previous policy documents, the CTF proposed that a National Certificate of Coaching (NCC) should be developed which is set against national standards. The CTF described this framework in more detail by proposing a five level structure to mirror international developments. It was also recommended that the implementation of this structure should be undertaken by a single organisation (i.e. Sports Coach UK) that will support governing bodies to develop their systems. Thus the NCC was to be centrally driven but allow governing bodies' ownership and control of technical content and a range of options in relation to management and delivery. Although the recommendations provided in the report related to England only, the CTF believed that the changes proposed had validity in the other home countries and the proposals should be progressed on a UK wide basis. Following these recommendations by the

CTF, a National Certificate of Coaching, which was named the UKCC, was finally developed and introduced in 2002.

In the context of Scotland, the Coaching Scotland Report was published by **sportscotland** in 2006 in response to The UK Vision for Coaching (UK Sport, 2000) and the CTF Final Report (DCMS, 2002). In the Coaching Scotland report, the importance of having well trained and quality coaches was identified. Quality coaching was seen to be crucial in the success of Sport 21, the National Strategy for Sport in Scotland (2003-2007). Although no targets in Sport 21 were specific to coaching, it was highlighted that coaching contributes to eight out of the eleven targets. Due to the importance placed on developing quality coaches, the Coaching Scotland Report identified several priorities related to coach education and development. One of these priorities was managing the introduction and delivery of the UKCC. According to the report, the percentage of qualified coaches in Scotland was low and therefore it was important to develop and implement an effective qualification structure which was quality assured and standardised across sports. A further priority was to provide more opportunities for coaches to develop beyond formal education. The report stated “coach education extends beyond the scope of the UKCC and must incorporate CPD and mentoring opportunities” (**sportscotland**, 2006, p.79).

Although there have been numerous policy documents over the last two decades which have focussed on coach education and development, they have all proposed similar key recommendations. Firstly, they have all identified the need for a UK-wide, quality assured and standardised national coaching framework to help develop quality coaches. This recommendation has been addressed with the development and implementation of the UKCC. Secondly, there is recognition throughout the policy documents of the different types of learning relevant to coaches and it is recommended that coaches are provided with opportunities and support for both formal and informal learning. In order to better understand how formal and informal learning opportunities can be integrated, a review of what learning is and how coaches learn would be useful. Therefore, this chapter will now examine the wider literature on coach learning. Firstly, the concept of learning is defined and discussed.

Following this, the review examines the research that has been undertaken on formal, non-formal and informal coach learning.

2.3 Learning and approaches to learning

Learning is a complex and contested concept (Cushion et al, 2010) and numerous definitions have been provided for the term by learning theorists. Some theorists regard learning as an outcome, for instance Gagne (1985) defines learning as “a change in human disposition or capability that persists over a period of time and is not simply ascribable to processes of growth” (p.2). Whereas, other theorists see learning as a continuous process grounded in experience (e.g. Dewey, 1933; Kolb, 1984; Jarvis, 1995, 2004). Kolb (1984) defines learning as “the process whereby knowledge is created through the transformation of experience” (p.38) and Jarvis (1995) states that “learning is the process of transforming experience into knowledge, skills, attitudes, values, feelings etc” (p.59). According to Tight (2002), Kolb’s definition has arguably been the more influential in the context of adult education.

There are a number of different theories of learning and these have been grouped by researchers. Merriam and Cafferella (1999) categorised the learning theories as behaviourist, cognitivist, humanist and social, while Brockbank and Magill (2007) combined the humanist and social theories into one group known as constructivist theories of learning. Alternatively, Anderson et al (1996) and Greeno (1997) classified learning theories as cognitive or situational. Similar to Cushion et al’s (2010) recent review of coach learning, this overview draws on Brockbank and Magill’s classification and discusses the behaviourist, cognitivist and constructivist theories of learning.

2.3.1 Behaviourist theories of learning

Behaviourist theories view learning as a change of behaviour in response to a stimulus. These theories avoid using any internal concepts, such as thought, to explain behaviour. Instead they restrict their explanations to those material parts of the situation that can be seen and described. Their explanations for behaviour are therefore expressed purely in terms of conditioned responses to environmental stimuli (Tusting & Barton, 2006). There are two main forms of behaviourist theory: connectionism and conditioning. Connectionism

is associated with Thorndike (1928) and proposes that if a learner discovers some act or explanation to be effective or valid it will be repeated until the consequences of the action no longer produce the desired results. Conditioning on the other hand starts with the teacher rather than the learner. There are two types of conditioning, the first being known as classical conditioning which was proposed by Pavlov (1927). This theory asserts that a subject learns to associate the presentation of a reward with a stimulus. For instance, Pavlov's dogs salivated at the sound of a bell because they had been fed when the bell had been rung on previous occasions. Since Pavlov's initial work, considerable research has been conducted on classical conditioning and the results have shown that during the conditioning process some form of behavioural learning occurs. The second type of conditioning is operant conditioning (Skinner, 1974) and this is when the response is shaped by the reward. After each action that achieves the desired behaviour the learner is rewarded. It has been found that the subject learns to repeat the desired response voluntarily for as long as it is appropriately rewarded.

Behaviourist models of learning imply that it may be possible to 'train' learners' responses by using behavioural techniques, breaking complex behaviours down into simple chains and rewarding correct performance (Tusting & Barton, 2006). These models provide a simple method for approaching the teaching of complex behaviours. Borger and Seaborne (1966) suggest that from this perspective learning is viewed as an outcome and can be defined as "any more or less permanent change in behaviour which is the result of experience" (p.14). This definition is limited as not all learning can be reduced to a change in behaviour. Learning can also change cognitive processes that underpin behaviour. A further weakness with this approach to learning is that the individuals being 'trained' are not thinking or understanding why their behaviour has changed, they are simply acting in response to a stimulus. If the stimulus is taken away the learner will not know how to respond. Therefore, behaviourist models offer little to help learners' develop understanding or autonomy.

2.3.2 Cognitivist theories of learning

According to cognitivist theories of learning, thought plays a significant but not exclusive role in the processes of learning and therefore cognitive models try to better understand the mental complexities associated with learning. Cognitive theories mainly look at changes to the individual and tend not to consider how the individual has interacted with the external environment. This is emphasised by Jarvis (2004) who states that cognitive approaches to learning “isolate the individual from the social” (p.157). The key implication of cognitive models for learning lie in the importance of building on learners’ existing knowledge, and in the need to find ways to ensure that learners have understood or made sense of what they are learning, rather than simply focusing on eliciting the required performances.

The roots of cognitivist approaches can be traced back to Gestalt psychology, which drew attention to the significance of questions of perceptions, insight and meaning. There are a number of other cognitive theories such as Gagne’s (1985) theory of instruction and Mezirow’s (1981) transformational model of learning. Gagne (1985) believes that learning is primarily about internal information processing. Gagne studied the conditions under which successful learning occurred and tried to describe these objectively so that they could be replicated in other instructional settings. For Gagne, learning is progressive in that learners draw on previously-learned skills and capacities when learning new material. Mezirow’s (1981) transformational model focuses on meaning and reflection to develop learning. Mezirow believes that an individual’s construction of reality is transformed as a result of reflecting on experience and plotting new strategies.

Cognitive theories which take into account the influence of the environment are known as cognitive constructivist theories (Tusting & Barton, 2006; Brockbank & Magill, 2007). These theories are aware that both the environment and the learners themselves play an active role in constructing the knowledge that they learn. Many of the cognitive constructivist theories are inspired by Piaget’s (1950, 1970) developmental model of learning. His model on children’s development drew attention to the active role of children in their own learning. Piaget (1950, 1970) demonstrated that, rather than simply undergoing an

inevitable maturing process, the children's development occurred through their active interaction with the environment in different ways.

2.3.3 Constructivist theories of learning

A constructivist view of learning suggests that cognitive approaches ignore the social aspect of learning. As a result, cognitive approaches tend to promote an impersonal and objective view of knowledge, skills, tasks and learning (Cushion et al, 2010). Constructivist theories on the other hand are concerned with how learners build their own mental structures through interaction with their environment and others. Examples of theorists advocating this approach include Vygotsky (1978) and Lave and Wenger (1991). Vygotsky (1978) studied the emergence of higher mental functioning in human beings. On the basis of rigorous experimental observations, Vygotsky concludes that the development of higher mental functioning in the individual, while dependent on biophysical processes such as the maturation of the brain, derives essentially from social interaction. Lave and Wenger's (1991) theory of situated learning suggests that individuals learn through participating in the social world and interacting with others. A primary focus of Lave and Wenger's theory of situated learning is on 'learning as social participation' within communities of practice (COPs). The COP concept is based around the idea that becoming a member of a community allows learning to take place. Lave and Wenger (1991) defined a COP as a "group of people who share an interest in some activity and who learn how to do it better through regular interaction" (p.98).

A similar definition has been provided more recently by Culver and Trudel (2006) who describe a COP as:

A group of people who share a common concern, set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting in an on-going basis.

(Culver & Trudel, 2006, p.98)

A COP is characterised by three dimensions: mutual engagement, joint enterprise and a shared repertoire. The members of a COP sustain dense relations of mutual engagement organised around what they are there to do. The 'what they are there to do' is known as the joint enterprise. The shared repertoire of a COP includes concepts such as words, tools, stories and actions that the community has produced or adopted in the course of its existence and which have become part of its practice.

2.3.4 Conceptualising learning

Sfard (1998) has conceptualised learning into the metaphors of acquisition and participation and these metaphors are related to the theories of learning described in the previous section. In the acquisition metaphor, learning occurs through the transfer of information from a teacher to a student. According to Sfard (1998) the acquisition metaphor sees the "human mind as a container to be filled with certain materials" (p.5) and the learner has to become the owner of these materials. Once these materials have been acquired the learner can transfer and share the knowledge with others. A strength of the acquisition approach is that it is a reasonably straightforward process in that a teacher provides information to a student. A weakness is that learning tends to happen outside of the real world i.e. in a classroom environment. A further issue with the acquisition metaphor is it is difficult for individuals to acquire a knowledge of something that is not yet known to them. Sfard (1998) states that "if this something does not yet belong to the repertoire of things we know, then, being unaware of its existence, we cannot possibly inquire about it" (p.7).

In the participation metaphor, the learner is viewed as someone interested in taking part in certain kinds of activities rather than in accumulating private possessions. This type of learning is seen as informal and occurs through participating in a number of activities in the real world. An advantage of the participation metaphor is that the learning activities are not separated from the real world. A weakness is that informal (participation) learning is less structured and the knowledge created through this method is often structured quite differently (Trudel & Gilbert, 2004). The participation metaphor is linked to the theory of constructivism as it focuses on individuals' interactions with others and the environment. Situated learning and experiential learning are two types of learning that fit with the

participation metaphor. Situated learning was discussed in detail in the previous section. Experiential learning is a similar concept to situated learning and proposes that individuals learn through participating in everyday experiences. Experiential learning has been defined in many ways and there is no single all encompassing definition (Cushion et al, 2010). However, a number of important characteristics have been identified and these include the following: experiential learning is not usually mediated or taught; the material of learning is usually direct experience; reflection is important; the learning is empowering but this may come from the experience rather than the learning; there is a mechanism for feedback; and there is a formal intention to learn. This final point is emphasised as the intention to learn is what makes experiential learning distinctive from the concept of learning from experience which is incidental and unintentional. However, it is unclear in the coaching literature the extent to which coaches intentionally seek learning experiences and therefore it is difficult to determine whether they are undertaking experiential learning or simply learning from experience.

Reflection is a key element in experiential learning because without a form of reflection individuals will simply accrue experience without it meaningfully impacting on their practice (Kolb, 1984). Many authors have described and defined reflection (e.g. Dewey, 1933; Bould, 1985; Schön, 1987; Reid, 1993; Ghaye & Lillyman, 1997). Typically, these descriptions view it as an active process which involves evaluation and learning. For example, Reid (1993) defines reflection as “a process of reviewing an experience of practice in order to describe, analyse, evaluate and so inform learning about practice” (p.305). Similar to reflection, numerous definitions also exist for the term reflective practice. Ghaye et al (1996) suggest that reflective practice allows a person to “look back and make sense of practice, learning from this and using this learning to affect future action” (p.491). A similar description is provided by Anderson et al (2004) who believes that reflective practice is a strategy that can help practitioners explore their decisions and experiences and therefore increase their understanding of themselves and their practice. It is clear from these definitions that reflection and reflective practice have similar meanings in that they both involve reviewing experiences and learning from them. Therefore the two terms will be used interchangeably in this thesis.

There are three levels at which reflection can take place and these are: a technical, practical and critical level (Van Manen, 1977; Zeichner & Liston, 1987; James & Clarke, 1994). Technical reflection is concerned with standards, competencies and the development of mechanical aspects of practice. Reflection at this level may refer to a coach evaluating the length of a pitch for a small sided game or deciding on how much time will be spent on each drill. Practical reflection involves the individual being concerned with exploring meaning. For example, a coach might consider which of the various methods is most appropriate for teaching the dribble to a novice group of hockey players or whether a skill should be taught in isolation as opposed to in a game situation. Critical reflection considers the political, social and economic factors that influence action. At this level individuals should question their practices, particularly in connection with equity and social issues. For example, a coach of a team sport may reflect on the amount and type of communication he/she gives to each athlete. In addition to the levels, reflection can take place during or after action (Gilbert, 1999; Knowles et al, 2001; Anderson et al, 2004). 'Reflection in action' occurs in the midst of practice while 'reflection on action' takes place after the experience has finished. Gilbert and Trudel (2001, 2005, 2006) suggest a third form of reflection known as 'retrospective reflection on action'. They suggest 'reflection on action' can be during the action but not in the midst of the activity i.e. between practice sessions. Whereas, 'retrospective reflection on action' occurs outside the action present i.e. after the season or once a coach's reflection can no longer affect the situation.

2.3.5 Summary

This section has discussed in detail the concept of learning and how it can be conceptualised. How an individual views learning will influence their understanding of the most effective ways to design and conduct professional learning. In regards to coach education, current programmes are based around the acquisition metaphor (and the behaviourist and cognitive approaches of learning) as they involve participants acquiring knowledge from course tutors (Trudel & Gilbert, 2004; Erickson et al, 2008; Cassidy, 2010). However, research in the field of coach learning (e.g. Gould et al, 1990; Irwin et al, 2004; Jones et al, 2004; Erickson et al, 2008) has shown that coaches prefer and value learning through a range of other sources which are mainly associated with the participation

metaphor and constructivist approaches to learning. This research on coach learning is discussed in the next section.

2.4 Coach learning

Coombs and Ahmed (1974) separate coach learning into three categories; formal, non-formal and informal. Formal learning is something that takes place in an “institutionalised chronologically graded and hierarchically structured educational system” (p.8). It is mediated or guided by some knowledgeable other and is characterised by compulsory attendance, standardised curricula, and assessments. Learners in these formal situations have less control over what information is delivered and assessment tends to drive what is learnt. In the coaching field, activities of this type of learning include large scale coach education programmes and higher education courses relating to coaching and the sport sciences. Non-formal learning is defined by Coombs and Ahmed (1974) as “any organised, systematic, educational activity carried on outside the framework of the formal system to provide select types of learning to particular sub groups in the population” (p.8). Non-formal learning tends to be short-term, voluntary and have few, if any, prerequisites. Research (e.g. Schempp et al, 1998; Erickson et al, 2008) has shown that coaches do engage in non-formal learning but there has been a tendency in the coach learning literature to consolidate all forms of external provision under headings such as formal education or learning (e.g. Irwin et al, 2004; Nelson et al, 2006). Due to this, the research on non-formal and formal learning will be discussed together in this review.

Coombs and Ahmed (1974) define informal learning as “the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment” (p.8). This definition has similarities with Sfard’s description of the participation metaphor as both emphasise learning from daily experience and interacting with the environment. In coaching, there are a variety of informal activities through which a coach can learn from, such as previous experiences as an athlete, interactions with others, informal mentoring, practical coaching experiences, and observation.

The coach learning research has shown that coaches are involved in formal learning situations (e.g. Gould et al, 1990; Fleurance and Cotteaux, 1999; Lemyre et al, 2007; Wright et al, 2007). However, the research has indicated that formal learning has less impact on coaches and is not valued as much by coaches as informal learning (e.g. Gould et al, 1990; Irwin et al, 2004; Erickson et al, 2008; Werthner & Trudel, 2009). This is not surprising given that the amount of time an individual is involved in informal learning is much greater than the time they spend undertaking formal education. This is emphasised by Cushion et al (2003) who state that “coach education is unable to compete with the coaches’ integrated sporting and coaching experiences” (p.218). One of the clearest messages to emerge from the coach learning literature is that informal learning has become a well established learning pathway for coaches. A recurring theme in the literature is that coaches learn mainly through experience and interactions with other coaches (e.g. Gould et al, 1990; Salmela, 1995; Cushion et al, 2003; Jones et al, 2004; Erickson et al, 2008). For example, Gould et al (1990) examined the learning situations of 130 US elite coaches from a variety of sports. The coaches completed a questionnaire concerning their formal and informal coach education and from this data the researchers concluded that the coaches’ primary means of knowledge development was through experience and interaction with other coaches. More recently, Erickson et al (2008) studied the sources of knowledge used by developmental coaches in Canada. The researchers interviewed 44 coaches from a variety of sports and found that learning by doing and interacting with peers were the two most frequently reported sources of knowledge. Learning through experience and interactions can be seen as experiential or situated learning.

The coach learning research has also shown that informal learning is valued highly by coaches and in particular they place an importance on practical experiences and learning from others (e.g. Gould et al, 1990; Irwin et al, 2004; Jones et al, 2004; Erickson et al, 2008). The study undertaken by Gould et al (1990) showed that experience and other successful coaches were ranked the most important sources of knowledge with coaching classes ranked as least important. Jones et al (2004) undertook qualitative research in the form of in-depth interviews with a number of elite coaches in order to gather information on their learning and development. Numerous coaches in the research identified the importance of

experience and engaging with other coaches. For instance, Hope Powell, an elite coach of women's football, highlighted that her experiences as a player and a coach "have been invaluable and influential in shaping her views on coaching" (p.34). Another coach in the study, Graham Taylor, identified the influence other coaches had on his coaching practice. He believed that borrowing ideas and learning from others was a major factor in his development as a coach. Despite the range of research showing the importance and value of informal learning compared to formal learning, little is known about how the different types of learning (formal and informal) interact and how they are inter-related at different stages in the development of a coach (Gilbert et al, 2006).

The research on informal learning is discussed in the next section. Although this study is an evaluation of a formal learning situation, it is important to be aware of the informal learning literature as this type of learning accounts for a large part of a coach's lifelong learning and development. Following the review of the informal learning research the remainder of the chapter examines the formal learning literature.

2.5 Informal Learning

Informal learning involves gaining knowledge, skills and insights through everyday experiences and interacting with the environment. Research examining coaches' learning sources has found that coaches prefer and value informal learning opportunities over formal education (e.g. Gould et al, 1990; Cushion et al, 2003; Irwin et al, 2004; Lemyre et al, 2007; Erickson et al, 2008; Werthner & Trudel, 2009). This section discusses informal learning through practical experience, engagement with other coaches, and reflection.

2.5.1 Informal learning through practical experience

Coaches can gain practical experience as an athlete and as a coach. In terms of the former, the literature has shown that elite performance coaches (Salmela, 1995; Irwin et al, 2004; Jones et al, 2003), university coaches² (Carter & Bloom, 2008) and voluntary sport coaches

² This research applies to university coaches in Canada. The difference between university sport in Canada compared to the UK is it is characterised by full time coaches, professionalisation, higher paid salaries, and more structured training and competition programmes.

(Lemyre et al, 2007; Wright et al, 2007; Erickson et al, 2008) have all acquired a great deal of understanding and knowledge of coaching through participating as an athlete. Sage (1989) refers to the athletic experience as “an informal apprenticeship of prolonged observation” (p87) because athletes can watch their coaches and learn from them throughout their time participating in their sport. Although it has been found that experience as an athlete is not a necessary pre-requisite for becoming a coach (e.g. Salmela, 1995; Lynch & Mallet, 2006; Erickson et al, 2007; Mallet et al, 2007) this informal apprenticeship seems typical of most coaches, especially those in the developmental and elite sport domains. For example, Trudel and Gilbert (2006) undertook interviews with 15 developmental and elite coaches to gather information on their learning experiences. The data demonstrated that 75% of the coaches in the development sport domain had experience as competitive athletes in the sport they now coach and over 90% of elite coaches were former competitive athletes. Trudel and Gilbert also found that coaches had, on average, accumulated over 4,600 hours experience as athletes and that they tended to play a number of different sports. In addition to this study, several Australian studies have shown that, typically, high performance coaches averaged between 10 and 20 years of playing the sport they now coach (e.g. Lynch & Mallet, 2006; Rynne, 2008).

Sage (1989) believes that the ‘apprenticeship of observation’ provides coaches with tacit knowledge about their sport and the coaching roles. A number of other benefits of participating as an athlete have also been identified. Researchers have found that coaches’ experiences as an athlete have enabled them to gain the basic understanding of their sport (Bloom et al, 1998; Cushion et al, 2003; Lemyre et al, 2007), allowed them to learn from different coaches (Lemyre et al, 2007; Wright et al, 2007), equipped them with the ability to adequately demonstrate and understand techniques (Potrac et al, 2002), and helped them to better relate to the athletes (Schemmp et al, 1998; Jones et al, 2003; Irwin et al, 2004). Despite these benefits, there is still no conclusive evidence to show that pre-coaching experience is related to future coaching competency (Trudel & Gilbert, 2004).

Along with athlete experience, coaches repeatedly cite direct experience as a coach as a valuable source of their knowledge (e.g. Gould et al, 1990; Salmela, 1995; Saury & Durand, 1998; Jones et al, 2004; Wright et al, 2007). For example, several of the elite coaches in

Jones et al's (2004) research believed that their practical experiences along with observation and discussions with other coaches were more important in their development than coach education.

Similar findings regarding practical experience have emerged from the workplace learning research (e.g. Billet, 2000; Colley et al, 2003, Colley et al, 2003a). This research found that everyday participation was the strongest identifiable contribution to learning. For example, Billet (2000) undertook mixed method case studies with five different organisations and found that everyday participation at work contributed to participants' learning and development. However, Billet (2000) also found that participation at work was not sufficient on its own for developing the requirements of expertise at work and recommended that this informal way of learning needed to be supported with more formal ways of learning. This has also been identified in the coach learning literature. Numerous researchers believe that the simple accumulation of experience does not guarantee coaching competency and have recommended that a mix of both informal and formal learning situations are needed for optimal development to occur (e.g. Douge & Hastie, 1993; Bell, 1997; Gilbert, 1999; Cassidy & Rossi, 2006; Werthner & Trudel, 2006; Reade, 2009). For instance, Reade (2009) states that informal, sport-specific learning through means such as experience and reflection is less effective in the absence of the foundational knowledge that coaches receive through formal learning.

Practical experiences, as a coach and an athlete, have been shown to be a major source of learning for coaches. During these practical experiences coaches engage with others and learn from this engagement. Coach interaction and engagement is discussed in the following section.

2.5.2 Informal learning through engagement with other coaches

There are a number of different ways a coach can engage with other coaches. One way is to spend time observing and learning from a more experienced coach. This is known as mentoring and can take place formally through an organised and structured programme or informally on a casual ad hoc basis. It has been shown in the coach learning literature that mentoring often takes place informally (Salmela, 1995; Irwin et al, 2004; Werthner & Trudel,

2009). For example, the Olympic coaches in Werthner and Trudel's (2009) study indicated that they benefited from the expertise of a mentor but the relationship was informal and several of the coaches were reluctant to even use the term mentor because they were in communication with more than one individual. The need to formalise mentoring has been identified by a number of researchers (e.g. Bloom et al, 1998; Salmela, 1995; Saury & Durand, 1998; Dickson, 2001; Lyle, 2002; Cushion et al, 2003; Jones et al, 2004; Trudel & Gilbert, 2004; Walsh, 2004). For instance, Trudel and Gilbert (2004) note that the call for mentoring to be an integral part of coach education has grown louder as increasingly the interview data gained from coaches has emphasised how much they have learned by watching and working with a more experienced coach. This support for formalising mentoring has however not been based on research evidence. The literature has tended to offer theories and ideas 'for' mentoring rather than evidence 'of' mentoring's effectiveness (Cushion et al, 2010).

There has been support for the use of formal mentoring in a range of other domains such as business, education and nursing (e.g. Andrews & Wallis, 1999; Dymock, 1999; Enrich et al, 2004; McCaughy et al, 2005). However, similar to the coaching domain, there is a lack of evidence to support these claims for mentoring. For example, systematic reviews in nursing (Dorsey & Baker, 2004) and business (Underhill, 2006) found a lack of valid evidence for the effectiveness of formal mentoring due to limited experimental data. Similarly a review of 300 articles across the domains of business, education and medicine found that the majority of studies were descriptive and focused on the benefits of mentoring (Enrich et al, 2004). These findings were supported by Jones et al (2009) in their recent review on mentoring. Jones and his colleagues concluded that the claims about the use of formal mentoring in a range of fields are not supported by evidence.

In addition to coach engagement on a one to one basis, coaches can also learn from each other in a group context by having discussions and sharing knowledge. This can take place formally or informally. When it happens informally it is often referred to as an informal knowledge network. If a group of coaches come together more formally in a structured environment to discuss ideas and share knowledge it is known as a Community of Practice (COP). COPs have been used as a way of learning in a variety of fields, such as teaching,

because the group interaction can help people negotiate meaning and develop knowledge. Recently, the use of COPs has attracted increasing attention in the coaching literature and has been suggested as a way of improving coach education (e.g. Armour, 2004, 2010; Cassidy et al, 2004, 2006; Lyle, 2007; Erickson et al, 2008). For instance, Lyle (2007) states that “there is a consensus within the literature that a supportive and interactive learning COP is required for appropriate coach education to take place and be reinforced” (p.32).

Only three studies (Trudel & Gilbert, 2004; Cassidy et al, 2006; Culver & Trudel, 2006) have examined the use of COPs in the field of coaching. More extensive research has been conducted in other contexts such as teacher education (e.g. Stein et al, 1999; Little, 2002; Armour & Duncombe, 2004; Deglau & Sullivan, 2006; O’Sullivan, 2007; Lieberman & Miller, 2008). The research in this area has found that being part of a COP is an effective way to enhance teachers’ learning (Little, 2002; Deglau & Sullivan, 2006; O’Sullivan, 2007; Lieberman & Miller, 2008). Little (2002) states that “research spanning more than two decades points consistently to the potential educational benefit of vigorous collegial communities” (p.43). Research conducted after this period has also supported the concept of COPs (e.g. Deglau & Sullivan, 2006; Armour & Yelling, 2007; O’Sullivan, 2007). For example, O’Sullivan’s (2007) study on the use of a COP with Physical Education professionals reported that when teachers collaborate in a COP they are more willing to take risks, reflect on their failures, and share successful practices. The research in teacher education has also identified some challenges with using COPs. The most commonly cited challenge is that professional development providers lack the skills and expertise to establish and support COPs (Stein et al, 1999; Armour & Duncombe, 2004; Armour & Makopoulou, 2008).

In the coaching context, Trudel and Gilbert (2004) examined the use of a COP in youth ice hockey and found that coaches do not participate in a COP or that their COP is very limited. Trudel and Gilbert suggested that the hockey subculture limited the emergence of a COP because coaches were too competitive and were therefore reluctant to give away any information and knowledge to their rivals. Furthermore, Trudel and Gilbert suggested that this competitive culture is common in all sports and as a result the sharing of knowledge tends to be restricted to a team or club and is unlikely to appear between rival coaches.

These authors concluded that the competitive nature of sport may be at odds with the idea of a COP.

Culver and Trudel (2006) examined the use of a COP in three different environments: an alpine ski club, a karate club, and a high school. The COPs in the alpine ski and karate clubs were facilitated by a co-ordinator while the high school coaches' COP did not have a facilitator. The study showed that the participants in the facilitated COPs enjoyed the discussions and found them valuable. However, the COP with the high school coaches was less effective. In explanation the participants thought it lacked direction and leadership due to having no facilitator. Therefore, Culver and Trudel (2006) concluded that the presence of a facilitator was important for the group learning process.

Cassidy et al (2006) examined how a coach education programme in rugby (the CoDe programme) designed along COP lines was understood by participating coaches. The CoDe programme was a coach education initiative which was small scale, short term (2 hour session every 2 weeks for 6 months), community orientated, classroom based, and free of charge. The programme covered a range of topics such as roles and responsibilities, coach and athlete interaction, coaching methods, reflective practice, and motivation. Throughout the CoDe programme the importance of reflecting and engaging with other coaches was stressed. As a result of participating in the programme, the coaches felt they had become more aware of the learning preferences of their athletes and that they had learned how to critically reflect on their approach to coaching. The coaches also attached considerable value to the opportunities to discuss, debate and share ideas with colleagues throughout the course. However, similar to Culver and Trudel's (2006) findings, some of the coaches thought that the group interaction needed to be facilitated in order for it to be of optimal value.

The research on the use of COPs in coaching has suggested that they can be valuable and beneficial to coaches. Nevertheless, two potential problems with the implementation of coaching COPs were identified. Firstly, the competitive nature of sport means coaches may be reluctant to share information and ideas, and secondly a facilitator may be needed to

cultivate successful COPs. More research is needed in the area of coaching to determine the effectiveness of COPs.

2.5.3 Informal learning through reflection

In order for coaches to learn from their experience and engagement with others, they must reflect on their actions. The importance of reflection, as part of the learning process, has been emphasised by many researchers both in the field of coaching (e.g. Gilbert & Trudel, 2001; Cushion et al, 2003; Irwin et al, 2004; Cassidy et al, 2006) and in other fields such as medicine and teaching (e.g. Schön, 1987; Argyris, 1998, Mamede & Schmidt, 2005; Cronin & Connolly, 2007). According to researchers in the coaching domain, reflecting on experience can improve one's coaching knowledge and understanding. For example, Cassidy et al (2006) state that reflecting can provide coaches with a greater knowledge and understanding of why certain practices and approaches are effective or ineffective, as well as highlighting alternative strategies where appropriate.

It has been argued that reflection should be made more formal and incorporated into coach education (e.g. Borrie & Knowles, 1998; Borrie et al, 1999; Knowles et al, 2001; Mayes, 2001; Anderson et al, 2004; Jones et al, 2004; Knowles et al, 2006; Nelson & Cushion, 2006). For instance, Borrie and colleagues (1998, 1999) suggested that the teaching of reflective skills alongside structured support programmes could enable coaches to generate more effectively the experiential knowledge required for more effective practice. More recently, Nelson and Cushion (2006) argued that reflection is useful for coach education as it provides a bridge linking knowledge gained from professional experience, observations, coaching theory, and education. However, this support for formalising reflection is based on the researchers' experience and knowledge of coaching and education rather than research evidence. Only three studies (Knowles et al, 2001; Knowles et al, 2005; Knowles et al, 2006) have investigated the use of reflection in formal coach education. In contrast, extensive research has been undertaken on the use of reflection in other domains such as nursing (e.g. Kim, 1999; Burns & Bulman, 2000; Ghaye and Lillyman, 2000, Johns, 2000), healthcare (e.g. Taylor & White, 2000), and teaching (e.g. Kember et al, 1999; McAlpine & Weston, 2002; Moon, 2004). This work has shown reflection to be an effective way of learning. It

has also identified that the depth of reflection can influence learning in that superficial technical reflection may not be as effective as deeper critical reflection (Kember et al, 1999; Kim, 1999).

In the coaching context, Knowles et al (2001) examined the impact of incorporating a reflective practice module into a higher education coaching programme. The aim of the research was to explore whether a year of reflective practice coursework would have an influence on the students' reflection skills. The participants in the study were eight BSc coaching science students at Liverpool John Moores University. The students were first required to attend lectures on the theory and practice of reflection. This was followed by the completion of a 60 hour coaching placement in their specialised sport, individual journal writing, reflective workshops, and the completion of a post-placement reflective writing exercise. Individual semi structured interviews were undertaken at the beginning and end of the placement to gain the students' views on the reflective practice programme.

The comments from the students were generally positive about the reflective practice programme. Six out of the eight students involved in the study believed the programme was beneficial to coach development and thought that their reflection skills had developed. Six of the students also appreciated the reflective workshops as it gave them an opportunity to openly discuss coaching issues with others. Along with the interview data, analysis of the students' reflective writing highlighted that course attendance had resulted in an enhanced ability to reflect. Due to these results, the authors concluded that their research had demonstrated the potential effectiveness of reflective practice as a learning and development method in coach education. This study also demonstrated the potential use of reflective journals to measure the impact of a coach education programme.

Following on from the previous study, Knowles et al (2006) examined whether coaching graduates use reflective skills in their coaching practice. The research aimed to find out whether six graduates from the previous study utilised reflective practices within their coaching after they had left the university environment. In-depth interviews were undertaken with each coach and prior to the interview the participants were asked to revisit reflective journals, end of year reflective reports and reflections since graduation. The

participants identified that reflection still existed as an important element of their coaching practice however the participants' approaches to reflection were different to those used during the university course. Critical levels of reflection were not sustained and the participants only engaged in technical reflection. As well as this, the participants' reflective practice had become increasingly informal as they no longer kept reflective diaries or carried out any other reflective writing, instead the participants' reflection was now limited to mental notes or peer discussion. A further change was that the participants' reflections had become more negative than before. These changes in the nature and methods of reflection after leaving the university environment demonstrated that there was a difference between the academic experience and the 'real world' reflective practice of graduates.

Overall, the study indicated that the reflective practice course provided during university was not effective in establishing reflective practices that were sustainable because the participants did not reflect in the same manner once they left the university environment. Knowles et al (2006) argued that this could be due to the environment that coaches have to work in. The authors believe that the coaching environment has a culture which lacks accountability, requires coaches to practice in isolation, and tends not to present coaches with opportunities to engage in structured reflection.

Knowles et al (2005) examined the use of reflective practice as a learning strategy within six governing body award coaching programmes. They analysed programme documents and found that none of the governing bodies had any structures or processes for directly teaching or overtly nurturing reflective skills. The researchers believed that this was a problem because without any form of reflection coaches were unlikely to transform their experiences into learning.

These three studies by Knowles and her colleagues are the only ones that have examined the use of reflection (and reflective writing) in coach education and thus more research is needed in the area. The research on reflection has shown that there is an opportunity to use reflection and reflective journals in coach education as a method of learning and also a

way to measure the impact of the programme. However, further research is needed to explore this.

2.5.4 Summary

The research in this section has emphasised the importance of informal coach learning. Methods such as learning through experience, interactions and reflection have been shown to be important learning sources for coaches. However, the majority of the research on informal learning has been conducted in the US and Canada and little is known about what coaches in the UK think about their informal learning and its role within overall coach development. This is an area needing further research.

Due to the value placed on informal learning methods, it has been suggested in the research that these methods should be incorporated into coach education. However, it is clear from reviewing the literature that more research is needed on the effectiveness of 'formalising' these informal methods. Nevertheless, this is not a focus of this study.

2.6 Formal Learning

Formal learning activities in coaching include large scale coach education programmes and courses in higher education relating to coaching and the sport sciences. Research into formal coach learning has recently attracted considerable attention with numerous researchers having studied (e.g. Gilbert & Trudel, 1999; Lee et al, 2002; Hammond & Perry, 2005; Knowles et al, 2005; Cassidy et al, 2006; Demers et al, 2006; Nelson & Cushion, 2006; Misener & Danylchuk, 2009) and specifically written about the topic (e.g. Abraham & Collins, 1998; Lyle, 2002, 2007; Cushion et al, 2003; Trudel & Gilbert, 2006). Within this growing body of literature there have been a number of studies that have evaluated coach education programmes. These studies are discussed in detail in this section. The studies have been separated into the following three categories which are based around the focus of the evaluation:

- Studies that evaluate the programme itself. This includes an examination of the participants' perceptions of the programme, and/or an analysis of whether the programme does what it says and is delivered in accordance with what is intended.

- Studies that evaluate the impact of the programme on the coaches' behaviour.
- Studies that evaluate the impact of the programme on the coaches' self perceptions.
This includes examining perceptions of efficacy and competency.

2.6.1 Evaluating the programme

The studies that have evaluated coach education programmes through examining their design, content and delivery and/or by gathering the participants' perceptions of the programme are summarised in table 1. These studies differed in their focus, the programme being studied, the sample size, and their methodological approach.

McCullick et al (2000) undertook research on golf teacher education (GTE) in the US. These researchers analysed the Ladies Professional Golf Association National Education Programme (LPGA-NEP) through a comparison with eight of Goodlad's (1990) tenets of effective teacher education. Eight of Goodlad's original presuppositions for good teacher education were chosen because they were the most transferable to the training and education of golf instructors. In summary, the eight tenets identified that good teacher education requires good organisation, knowledgeable tutors who model the behaviours they wish to see from their graduates, a range of learning opportunities, and continual evaluation. In addition to this, good teacher education was believed to be grounded in research. The participants involved in the study were 43 women, 38 of which were taking part in the LPGA-NEP and the remaining five were programme educators. Data was collected through several methods such as interviews, participant journals, observations and document analysis. The research found that the programme adhered to the eight tenets of effective teacher education.

Table 1: Studies that have evaluated coach education programmes by gathering the participants' perceptions and/or by examining the programmes' design, content and delivery.

Authors	Context	Participants	Coach Education Programme	Method	Key findings
McCullick et al (2000)	Golf	38 coaches 5 coach educators All female	Ladies Professional Golf Association – National Education Program (LPGE – NEP)	Interviews Participant journals Observation Document analysis	The programme adhered to the eight tenets of effective teacher education.
McCullick et al (2005)	Golf	26 coaches 5 coach educators All female	Ladies Professional Golf Association – National Education Program (LPGE – NEP)	Group interviews Journals Observation	Four strengths of the programme were identified: well structured; knowledgeable educators; good balance between class and practice time; supported by research.
Dickson (2001)	Rugby	12 coaches 5 coaching consultants 2 coach educators	National Coach Accreditation Scheme (NCAS)	Interviews	NCAS led to improvements in coaching. Coaches were gaining new skills/knowledge at each level.
Walsh (2004)	Range of sports	10 team sport coaches (basketball, cricket, hockey, netball and volleyball) 10 individual sport coaches (athletics, cycling, diving, golf and gymnastics)	National Coach Accreditation Scheme (NCAS)	Interviews	Only four coaches were positively influenced by the NCAS, only two of these were inspired to engage in further formal learning. Networking with coaches was a valuable aspect of the NCAS.
The Coaching Association of Canada (2005)	Range of sports	Different samples for the different methods of collection	National Coaching Certification Program (NCCP)	Job task analysis Coach observation Model coach survey National and provincial sport organisation survey Provincial government position paper Review of literature Athlete survey CAC position paper Forums on coach education	A number of weaknesses were identified such as the programme lacked vision, there were few opportunities to apply content in practice, the focus was on information delivery, and content was not relevant.

Authors	Context	Participants	Coach Education Programme	Method	Key findings
Misener & Danylchuk (2009)	Range of sports	285 coaches Differing coaching experiences	National Coaching Certification Program (NCCP)	Two-part survey	Majority of the sample were aware of the NCCP. Half the participants perceived the value of the programme as 'good'.
Demers et al (2006)	Non-sport specific	Programme staff	Baccalaureate in Sport Intervention (BIS) 3 year undergraduate program	Interviews Author participation Review of programme documents and student feedback forms	Programme centred on a competency based approach. Action-based learning strategies were used.
Hammond & Perry (2005)	Football	30 university PE students 14 community based coaches	Football accreditation course	Questionnaires Interviews Hand notation and video analysis	The quality of the courses was ranked favourably. The courses deviated from the syllabus guidelines.
Heuze (2005)	Range of sports	20 coaches (7 cricket, 6 football, 3 rugby league, 4 rugby union) Range of coaching experience but 13 had a level 3 or 4 coaching award.	Women into High Performance Coaching Programme (WHPC)	Self completion surveys Interviews with a small sample	95% of coaches were either very satisfied or satisfied with the programme. Programme had helped increase 3 areas: confidence, knowledge and understanding of other sports.
Timson-Katchis & North (2008)	Range of sports	1264 coaches Range of coaching experiences	Coach education in the UK	Survey	92% of the sample rated the importance of qualifications as 'important'. Barriers to undertaking coach education: cost, location and timing.
Timson-Katchis & North (2010)	Range of sports	851 coaches Range of coaching experiences	Coach education in the UK	Survey	Identified similar barriers to those in the year one study. The types of knowledge coaches found important to their development were concerned with communication and interpersonal skills.

Five years later McCullick et al (2005) carried out another study on the LPGA-NEP with the aim to gather the participants' perceptions of the programme. Specifically, the research aimed to ascertain the strengths of the programme. The researchers employed a mixed method approach including group interviews, journals and observation. The participants involved in the study were 26 coaches and five coach educators. Four main strengths of the LPGA-NEP were identified. Firstly, the programme was well structured and the participants enjoyed the curriculum's progression. A second strength was that the educators were knowledgeable and modelled what they were teaching. Thirdly, there was a good balance between class and practice time. Lastly, the content of the programme was supported by up-to-date research.

Dickson (2001) investigated the effectiveness of the National Coach Accreditation Scheme (NCAS) in Australia by undertaking interviews with a sample of participants. The research aimed to answer three main questions: (1) Why do coaches undertake the NCAS? (2) What are the main benefits of undertaking the NCAS? (3) Do participants perceive that the NCAS has led to improvements in their coaching? Due to the size and scale of the NCAS, Dickson addressed the research questions through an analysis of one sport which was rugby. Interviews were carried out with 12 coaches, five coaching consultants and two coach educators who were involved in the NCAS for rugby. The coaches in the sample ranged from being qualified at level one to level three.

Dickson (2001) found that the rugby coaches had undertaken the NCAS for a variety of intrinsic and extrinsic reasons but mainly for the purpose of obtaining formal positions. A range of benefits for undertaking the accreditation were identified, the most notable being that the NCAS certification enabled coaches to increase their expertise in a variety of areas such as communication techniques and technical knowledge, and allowed coaches to develop contacts and networks to exchange ideas. There was a general perception from the 12 coaches that the NCAS had led to improvements in their coaching. The comments from the interviews indicated that the coaches were gaining new knowledge and skills at each level.

The NCAS in Australia has also been examined by Walsh (2004). As part of her research on the development of coaching expertise, Walsh (2004) examined the role that coach accreditation and education (NCAS) had played. In comparison to Dickson's (2001) study,

this research sampled coaches from a range of sports instead of just one. The participants in the study were 20 elite level coaches in Australia who were working with junior elite athletes. The coaches came from a range of sports; ten were team sport coaches (basketball, cricket, hockey, netball and volleyball,) and ten were individual sport coaches (athletics, cycling diving, golf, and gymnastics). Out of the 20 coaches, ten had international level coaching experience, six had national level experience, and four had state level experience. Data was collected through in-depth interviews with each coach during which two main questions about their coach education were asked: (1) how has your coaching accreditation helped you as a coach? (2) what was beneficial about your coach accreditation programme?

Similar to Dickson's (2001) findings, the coaches highlighted that they participated in the NCAS because it was necessary to obtain a coaching position. Out of the 20 coaches, only four said that the NCAS had positively influenced their coaching and out of those four, two were inspired to engage in further formal learning. The participants in the study believed that coaching qualifications were more beneficial to coaches with a minimal background in coaching or education. In addition, the participants thought that networking with other coaches was the most valuable aspect of their coach education and actually saw it as more important than the educational outcomes. Walsh stated that "the majority of coaches in the study questioned the value of coach education beyond being an opportunity to communicate with other coaches" (p.195).

Along with these two studies undertaken in Australia, there have also been several evaluations of coach education schemes in Canada. The Coaching Association of Canada (CAC) (2005) conducted an evaluation of their national programme (the NCCP) which involved a review of its curriculum, structure, content and philosophy. The evaluation was extensive and consisted of nine data collection methods. These included the following: job task analysis, coach observation, model coach survey, national and provincial sport organisation survey, provincial government position paper, review of literature, athlete survey, CAC position paper, and forums on coach education. Sample size differed for each of the nine data collection methods. Analysis of the data revealed a number of weaknesses of the NCCP relating to its curriculum, structure, content and philosophy. The main

weaknesses were: a) the programme lacked vision, value statements and programme outcomes; (b) courses at all levels offered few opportunities for coaches to apply concepts and receive feedback; (c) the focus of the courses was on information delivery; (d) the original content selection did not reflect a formal task analysis of coaching; (e) the structure of the programme needed to be more flexible to accommodate the specific reality of diverse sports organisations.

A more recent study on the NCCP in Canada was undertaken by Misener and Danylchuk (2009). This study examined the participants' perceptions of the NCCP, specifically looking at their awareness and perceived value of the programme. The participants in the research comprised of a random sample of coaches who had undertaken a NCCP course (n = 251) and a random sample of coaches who had never taken a NCCP course (n = 34). The participants were from a range of sports and had differing coaching experiences. Data was collected from the participants using a two-part survey. Data regarding the participants' awareness of the NCCP was collected from the whole sample (n = 285). The results indicated that the majority of participants were aware of the NCCP and the most frequent means for finding out about a course was through their sports organisation. The participants identified a range of barriers to taking a NCCP course with cost, frequency and location of the courses being the most common barriers. To examine the perceived value of the NCCP, data was only collected from the participants who had taken a course (n = 251). More than half of these participants perceived the value of the programme as "good" and this perceived value increased after taking a course. Most of the coaches (95%) thought the course either met (68%) or exceeded (27%) their expectations, and three strengths of the NCCP were identified. The participants thought that the NCCP courses had: provided thorough information which was especially helpful for individuals early in their coaching careers; improved their decision making; and provided an opportunity to network with other coaches and learn from others' experience.

In addition to the research on the NCCP, Demers et al (2006) undertook research on a university coaching programme in Canada. These researchers discussed the design and implementation of a three year coaching undergraduate programme at Laval University called the Baccalaureate in Sport Intervention (BIS). The researchers also briefly discussed

evaluating the programme however no evaluation was actually conducted. The main method of collecting data was through interviews with the members of staff involved in the programme. Another method of collecting data was researcher participation. The researchers were involved on a daily basis with the BIS programme and were therefore able to observe how the programme was running. Along with these two methods, the researchers reviewed programme documents and student feedback forms.

Demers et al (2006) found that the design and implementation of the programme were centred on a competency based approach. Professional competencies that were deemed essential for coaching effectiveness formed the basis upon which decisions relating to curriculum content were made. In order to develop competencies in coaches, learning strategies that were action based, as closely related to the real task as possible, and which took place in authentic settings were used in the programme. Examples of these types of learning strategies were co-operative learning, experiential learning, problem based learning and reflective practice. In terms of evaluating the programme, the researchers decided that the two most important questions to ask in order to assess the quality of the programme were: (1) had the students acquired the competencies by the end of the programme? (2) if so was the acquisition of these competencies a result of the programme? However, Demers and his colleagues (2006) did not suggest how the faculty might evaluate the programme or attempt to answer these two questions.

Hammond and Perry (2005) evaluated two football coach education courses (Junior Licence coaching course) in New Zealand by using a mixed method research approach including participant questionnaires, hand notation, video analysis, and interviews with the course conductor. The first course consisted of 30 university Physical Education students and the second course was delivered to 14 community based coaches. Data was collected from all 44 coaches from the two courses along with the course conductors. The main purpose of the research was to determine the relationship between the aims of the course providers and the events within a course. A further purpose was to explore the participants' experience of the football coach education courses. The questionnaire data showed that participants ranked the quality of the courses favourably with 88% of rankings for all

questions falling between four and five on a five point Likert scale³. In particular the participants valued the practical aspects of the courses. A major finding of the study, which emerged from the hand notation and video analysis, was that the delivery of the two courses deviated from the syllabus guidelines. The syllabus document recommended that delivery should be primarily practical in nature however participants passively received information for more than 70% of the course duration.

Moving onto evaluations that have been undertaken on coach education in the UK, Heuze (2005) examined the Women into High Performance Coaching (WHPC) Programme on behalf of sports coach UK. One of the main aims of the research was to evaluate the impact of the programme on the development of the coaches involved. The methodology used a combination of postal surveys, which were sent out to the 28 coaches on the WHPC programme, and face to face interviews with a small sample of the coaches. Out of the 28 coaches, 20 completed the surveys (74%) of which seven were from cricket, six were from football, three were from rugby league and four were from rugby union. The 20 participants differed in terms of their experience and background, however 13 of them had a level three or higher coaching qualification. The results of the study were mainly positive with 95% of the coaches indicating that they were either 'very satisfied' or 'satisfied' with the programme by scoring four or five on a five point Likert scale. According to Heuze, this suggested that there was an overwhelming support for the programme by those involved. All the coaches reported at least one aspect in which they had developed since starting the WHPC programme and there was agreement that the programme had helped increase three main areas: their knowledge; their confidence; and their understanding of other sports. The coaches also identified three main strengths of the programme and these were: (1) access to high quality speakers and presenters; (2) the ability to take away new ideas and implement them in their coaching; and (3) the opportunity to network with other coaches.

Another study that has examined coach education in the UK is the 'UK Coach Tracking Study' conducted on behalf of sports coach UK. The Coach Tracking Study is a four year research project that tracks UK coaches' experiences and opinions in terms of their learning and

³ The Likert scale went from 'none of the time' (the most negative response) ranked 1 to 'all of the time' (the most positive response) ranked 5 (Hammond & Perry, 2005)

development, deployment and employment, and use of support. Although coach education is not a main focus of the research, part of the study does examine the coaches' opinions of coach education. Data for the year one study (Timson-Katchis & North, 2008) was collected through surveys, which were sent out to 3000 coaches. Out of the 3000 surveys distributed, 1264 were returned (42% response rate). The demographic data showed that the sample of participants coached various levels and ages, with the highest number coaching at club level (29%) and coaching young people under 21 years old (43%).

When the participants were asked to rate the importance of coaching qualifications on a four point Likert scale from not important to very important, 60% of the sample suggested that they were very important and 92% said they were important (Timson-Katchis & North, 2008). The coaches identified a number of benefits of undertaking coach education with the most cited benefits linked to improving knowledge and practice. The participants believed that coaching qualifications had a number of other advantages such as: providing them with new information; keeping them up to date with recent developments; helping to increase their self-confidence as a coach; and providing them with the opportunity to network with other coaches. However, only 41% of the participants indicated that coaching qualifications gave them the basic skills to start coaching. Due to this, Timson-Katchis & North (2008) suggested that experience may be more important for individuals at the start of their coaching and then qualifications become more useful once coaches have gained a level of knowledge and experience. This contradicts earlier findings from Walsh (2004) and Misener and Danylchuk (2009) who suggested that coach education was particularly useful for those with limited coaching experience. These contradicting results may suggest that the worth of coach education depends on the participants' context i.e. in some circumstances it may be more useful to gain experience first before undertaking education and in other circumstances the opposite might be true. Along with the benefits, the participants in the study were also asked to identify barriers to undertaking coach education. The most cited barriers were related to the practical aspect of the courses such as the cost (38%), location (32%) and timing (35%). A further barrier was concerned with a lack of information available about the courses.

In year two of the Coach Tracking Study (Timson-Katchis & North, 2010), surveys were sent out to the 1264 coaches who had participated in year one, of which 927 coaches re-engaged in the study and returned the year two survey. Out of the sample of 927 coaches, 851 were still active while 76 had stopped coaching. The results which are discussed in the following paragraphs are from the active coaches.

The demographic data showed that the majority (82%) of the active coaches were primarily working with young people (under 21 years old). The data also indicated that nearly a third (32%) of the participants were coaching at club level, with improver (22%) and beginner levels closely following. In Year One, the most cited benefits of participating in coach education were concerned with improving knowledge and practice. In Year Two, although these two benefits remained important for 70% of coaches, the most important benefit of undertaking coach education was that it 'builds up confidence' (80%). Following this, 77% of the participants identified that networking and sharing ideas with other coaches was a benefit of coach education. Due to these results, Timson-Katchis and North (2010) suggested that coaching qualification may be more important earlier in a coach's career, whereas networking and confidence building may be more beneficial for coaches who have acquired knowledge through earlier qualifications. The participants in the year two sample identified similar barriers to those found in the year one study. Cost, location and timing of courses were common issues identified by the year one and two sample. A further issue which was identified by the year two participants was that there was a lack of actual coaching practice in the qualifications. This issue was cited by a greater percentage of coaches in year two compared to year one. This may suggest that as coaches get more experienced they want more practical coaching experience in order to develop further.

Out of the 851 active coaches in the year two sample, only 10% were currently working towards another qualification. This was much lower than the 42% noted in year one. The researchers suggested that the coaches in the year two sample were instead focussing more on informal and non-formal learning opportunities however there was no evidence to support this claim. It may be the case that these coaches were not participating in any further learning. The coach tracking study was expanded in year two and data was collected on the types of knowledge and information the coaches wanted and found important to

their development. The coaches identified a range of knowledge preferences such as technique and tactics, planning and programming, motivating athletes, interpersonal skills, and evaluating sessions. Nevertheless, the types of knowledge which were most important to coaches' development were concerned with communication and interpersonal skills.

The research reviewed in this section has evaluated coach education programmes through examining their design, content and delivery, and/or by gathering the participants' perceptions of the programme. The majority of the research has gathered the coaches' perceptions and the coaches have provided their views on a range of topics such as reasons for undertaking coach education, the perceived value of participating, the strengths and weaknesses of the programme, the design and delivery of the programme, barriers to undertaking coach education, and the influence the education has made on their coaching. However, a great deal of this research has been undertaken in North America and Australia and less is known about coaches' perceptions of coach education in the UK, specifically their views on the UKCC.

2.6.2 Evaluating the impact of the programme on the coaches' behaviour

The studies that have evaluated the impact of coach education on coaches' behaviour are summarised in table 2 below.

Table 2: Studies that have evaluated the impact of coach education programmes on the coaches' behaviour

Authors	Context	Participants	Coach Education Programme	Method	Key findings
Smith et al (1979); Smith & Smoll (1990); Barnett et al (1992); Smoll et al (1993)	Baseball	Little league baseball coaches	Coach Effectiveness Training (CET) 2 hour workshop	Coaching Behavioural Assessment System (CBAS) Washington Self Description Questionnaire (WSDQ)	Trained coaches gave more encouragement, reinforcement and technical instruction. More positive sport experiences for athletes as a result of the training.
Conroy & Coatsworth (2004); Coatsworth & Conroy (2006)	Swimming	7 youth coaches 135 athletes	Coach Effectiveness Training (CET) 2 hour workshop	Coaching Behavioural Assessment System (CBAS) Performance Failure Appraisal Inventory (PFAI) Washington Self Description Questionnaire (WSDQ)	In general the behaviour of the CET trained coaches changed in the way that was intended by the prog. Type of intervention did not significantly predict the rate of fear of failure change in the athletes. Type of intervention did not significantly predict the rate of self esteem change.
Smoll et al. (2007); Smith et al. (2007)	Basketball	37 youth coaches 216 athletes	Mastery Approach to Coaching (MAC) 75 minute workshop	Motivational Climate Scale for Youth Sports (MCSYS) Achievement Goal Scale for Youth Sport (AGSYS)	MAC trained coaches had higher mastery climate scores compared to the control group. Athletes who played for MAC trained coaches had significant increases in mastery goal orientation and significant decreases in ego orientation. Athletes who played for MAC trained coaches had lower levels of anxiety.
Gilbert & Trudel (1999)	Hockey	1 youth coach	National Coaching Certification Programme (NCCP) level two theory course	Observation Semi structured interviews Video analysis Simulated recall interviews	Course had a negligible impact upon the coach's knowledge, decision making and instructional behaviours. Discrepancy between recommended time and actual time allocated for course delivery.

A number of researchers (e.g. Smith et al, 1979; Smith & Smoll, 1990; Smoll & Smith, 2002; Conroy & Coatsworth, 2004, 2006; Smoll et al, 2007) have examined the impact of coach training programmes on the behaviour of coaches and their athletes. One training programme that has been the focus of a great deal of evaluation is Coach Effectiveness Training (CET). CET was developed by Smith et al (1979) and is a type of training which provides youth coaches with specific behavioural guidelines for fostering positive coach-athlete relationships, reducing evaluation apprehension, and enhancing team cohesion. The training is also designed to promote principles of positive control, to help coaches conceptualise winning as giving maximum effort, and to nurture self awareness in coaches. The overall aim of CET is to educate the coaches in the types of behaviours that will have a positive effect on their athletes. One of the earliest studies on CET was undertaken by Smith et al (1979). In their study, 31 little league baseball coaches were randomly assigned either to an experimental group, who received the CET, or to a no treatment group. The coaches in the experimental group received a two hour session on CET and following this they coached a group of little league baseball players for a six week period. The participants in the no treatment group received no training before coaching little league baseball players for the same six week period. All the young athletes rated the coaches' behaviour at the end of the six week period by completing the Coaching Behavioural Assessment System (CBAS). The athletes also rated their self esteem both before and after the six week period by completing a questionnaire known as the Washington Self Description Questionnaire (WSDQ). The main results of the study were as follows:

- Trained coaches gave more encouragement, reinforcement and technical instruction.
- Trained coaches were liked better by the athletes and were rated as better teachers.
- Players who had the trained coaches liked each other more, enjoyed their sport experiences more and demonstrated greater increases in self esteem from the previous year than did the athletes playing for the control group coaches.
- Low self esteem athletes were the group who exhibited the greatest positive change in attitudes towards their coaches.

Since the initial study on CET, Smith, Smoll and colleagues have undertaken further research on the training programme (e.g. Smith & Smoll, 1990; Barnett et al, 1992; Smoll et al, 1993; Smith et al, 2007; Smoll et al, 2007) and have consistently demonstrated more positive sport experiences for young athletes as a result of the training. The research has found that youngsters who play for trained coaches tend to enjoy their sport experience more, evaluate their coach and team mates more positively, show increases in self esteem over the sport season, and are less likely to drop out of the sport in the following season.

Conroy and Coatsworth (2004) extended the research conducted by Smith, Smoll and colleagues and investigated the efficacy of CET, compared to a control training programme, for influencing the fear of failure among youth swimmers in a summer swim league. This study used a randomised trial design, collected data at three points over the season (beginning, middle and end), and sampled both male and female participants.

The participants in the study were 52 boys and 83 girls who were divided into two groups (a control and an experimental group). Seven coaches (6 female, 1 male) participated in the research of which four received the CET and three received the control training programme. The coaches were from the youth swimming environment and had on average 2.4 seasons of experience prior to the present season. Coaches in the control group received a two hour training session on injury prevention and emergency first aid while the coaches in the experimental group received two hours of psychosocial training based on the principles of CET. These training programmes were delivered after the beginning of season data collection. At the beginning, middle and end of the season, the athletes assessed the coaches' behaviour by completing the CBAS and also rated their own fear of failure by completing the Performance Failure Appraisal Inventory (PFAI).

Conroy and Coatsworth (2004) hypothesised that coaches who received the CET would increase their level of reward and reinforcement following desirable player performances. It was also hypothesised that the athletes who were coached by the CET trained coaches would experience a decrease in fear of failure at a greater rate than the athletes who were coached by the control group coaches. The first hypothesis was supported as the findings demonstrated that the CET increased the coaches' use of reward and reinforcement. In fact the results from the CBAS showed that in general the behaviour of the CET trained coaches

changed in the way that was intended by the programme. However, the size of the change varied from moderate to non-existent depending on the behaviour in question. The second hypothesis was not supported as the results indicated that the type of training the coaches received did not significantly predict the rate of fear of failure change in the athletes.

A second part to this research (Coatsworth & Conroy, 2006) was to examine the effect of CET on the self-esteem of athletes. The athletes in the study rated their self-esteem by completing the WSDQ. The athletes who swam for the trained coaches demonstrated small increases in self-esteem. A further finding was that the type of coach intervention received did not significantly predict the rate of self-esteem change. The research also found that the effect of the CET-trained coaches on the athletes' self-esteem was moderated by age, gender and initial level of self-esteem. The CET-trained coaches had the strongest effect on younger participants and girls with initially low levels of self-esteem. This finding adds to the growing body of literature (e.g. Smith et al, 1983; Smith and Smoll, 1990; Brown, 2003) that training programmes are often most effective for those participants who stand to benefit from them the most.

More recently, Smoll et al (2007) have undertaken additional research on the effects of CET. However, this research examined a modified version of CET which is known as the Mastery Approach to Coaching (MAC) programme. The MAC programme is "designed to help youth sport coaches create a mastery-orientated motivational climate within the context of a positive coach-athlete interpersonal relationship" (Smoll et al, 2007, p26). A mastery climate is one in which teachers or coaches define success in terms of self-improvement, task mastery, and exhibiting maximum effort and dedication (Ames, 1992, 1992a). Intervention studies in both academic and sport settings (e.g. Ames & Archer, 1988; Chi, 1993; Walling et al, 1993; Carpenter & Morgan, 1999) have shown that if a teacher or coach creates a mastery-orientated motivational climate then this can have positive effects on the participants being taught or coached. These positive effects on the participants include: a stronger mastery goal orientation; greater feelings of enjoyment and satisfaction, group cohesion; stronger intrinsic and self-determination motivation; and lower levels of performance anxiety. In contrast to a mastery climate, an ego goal orientated climate emphasises the importance of winning. Coaches who create this climate will concentrate

positive reinforcement on athletes who are most competent and instrumental to winning, and will focus on developing skill for the purposes of winning rather than personal improvement (Duda & Hall, 2001).

Smoll et al (2007) evaluated the MAC programme, specifically looking at two main areas: (1) whether the programme helped youth sport coaches create a mastery-orientated motivational climate; (2) whether the programme influenced the athletes' goal orientations over a sport season. The study involved 37 youth basketball coaches (20 in the experimental group, 17 in the control group) who had on average six years of coaching experience. The study also involved 216 basketball athletes (155 in the experimental group and 70 in the control group) who were between the ages of 10 and 14 years old. The coaches in the experimental group participated in the MAC programme which involved a 75 minute workshop on behavioural guidelines. This took place in week two of a 12 week season. The coaches in the control group received no training. The Motivational Climate Scale for Youth Sports (MCSYS) was used to measure the coaches' motivational climate. This was done at the end of the twelve week sport season. The Achievement Goal Scale for Youth Sports (AGSYS) was used in the study to examine the athletes' goal orientation in sport. Unlike the MCSYS, the AGSYS was completed by the athletes on two occasions, at the beginning and end of the season.

Smoll et al (2007) hypothesised that the MAC training would help promote a mastery motivational climate for coaches that would, in turn, influence athletes' goal orientations over the duration of the season. It was also hypothesised that athletes who were coached by the MAC trained coaches would increase in mastery goal orientation and decrease in ego goal orientation. The results of the study supported the first hypothesis. The coaches who participated in the MAC training programme had higher mastery-climate scores and lower ego-climate scores compared to the coaches in the control group. However, the data showed that the coaches in both groups generally had higher mastery orientated scores than ego orientated scores. The research also supported the second hypothesis as the athletes who played for trained coaches exhibited a significant increase in mastery goal orientation and a significant decrease in ego orientation across the season, while the control group did not.

A second part of this study (Smith et al, 2007) was to test the effects of the MAC programme on the athletes' performance anxiety by utilising the Sport Anxiety Scale-2. Smith et al (2007) predicted that the athletes who had coaches that created a mastery orientated motivational climate would have lower levels of anxiety. This was hypothesised because previous research had shown that mastery orientated climates were related to lower levels of anxiety (e.g. McArdle & Duda, 2002; Vazou, et al, 2006). This hypothesis was supported as the participants who played for the MAC trained coaches exhibited decreases on all items of the Sport Anxiety Scale-2 and on the total anxiety score from preseason to late season. In contrast, the athletes in the control group reported increases in anxiety over the season.

In addition to the research discussed above on CET and MAC, Gilbert and Trudel (1999) have evaluated the impact of the NCCP on coaching behaviour. This study is often cited by leading researchers in the coach education field (e.g. Lyle, 2007; Lyle, 2007b; Cushion et al, 2010) as the only 'true' evaluation study. These researchers believe that Gilbert and Trudel (1999) still remain the only researchers to have measured whether course attendance directly impacted upon both the knowledge and behaviour of the participant. However, it is important to recognise that the main goal of Gilbert and Trudel's research was to test out an evaluation strategy that they had designed rather than examine whether the coach education programme had made an impact on coach behaviour. Gilbert and Trudel tested their evaluation strategy with one youth hockey coach who was undertaking the Canadian NCCP level two theory course. A mixed methodology was used which included observation, semi-structured interviews, video analysis, and simulated recall interviews. The data was collected in three phases: (a) baseline phase (three games and two practices); (b) intervention phase (Level 2 theory course); and (c) post-intervention phase (three games and two practices).

The study found that the NCCP theory course had a negligible impact upon the coach's knowledge, decision making and instructional behaviours. The research also found that the course had minimal impact on the coach once he returned to the field. Gilbert and Trudel (1999) believed that this was due to a gap between the course content and the actual coaching context. In addition to these findings, the evaluation highlighted that the course

was not delivered as designed. The researchers found a large discrepancy between the recommended time and the actual time allocated for course delivery and it was also noted that the course presenter did not follow the suggested guidelines for conducting the course.

Apart from this study, the rest of the research presented in this section showed that the behaviour of trained coaches (CET/MAC) changed in the way that was intended by the coach education. However, a gap in the research on CET and MAC is that the athletes' rated the coaches' behaviour and none of the studies gathered the coaches' perceptions of their own behaviour. A further issue with the research is that it mainly focused on the impact the training programme had on the athletes' behaviour. Therefore, future research needs to examine in more detail the impact of coach training on the coaches' behaviour and gather the coaches' perceptions of their own behaviour. In comparison to the CET and MAC research, the study conducted by Gilbert and Trudel (1999) showed that the NCCP had a negligible impact upon the coach's knowledge and behaviour. However, this study only examined one coach and due to this it is not known whether the findings would be the same or the evaluation strategy would be effective for a larger sample of coaches. Therefore, it would be useful to examine the impact of coach education on a larger sample of coaches from a range of sports.

2.6.3 Evaluating the impact of the programme on the coaches' self perceptions

A number of researchers (e.g. Weiss et al, 1990; Weiss et al, 1991; Maleté & Feltz, 2000; Lee et al, 2002; Campbell & Sullivan, 2005) have evaluated the impact of coach education on the coaches' self perceptions of efficacy and competency. These studies are summarised in table 3 below.

Table 3: Studies that have evaluated the impact of coach education programmes on the coaches' self perceptions

Authors	Context	Participants	CEP	Method	Key findings
Maleté & Feltz (2000)	Range of sports	50 coaches Range of coaching experience	Program for Athletic Coaches Education (PACE) 12 hour workshop	Coaching Efficacy Scale (CES)	Course attendance had a significant impact on PACE participants' coaching efficacy compared to the control group. PACE programme had a minimal impact on the participants' knowledge and practice.
Lee et al (2002)	Range of sports	235 coaches Range of coaching experience	National Coaching Accreditation Program (NCAP) Level 1 or higher	Coaching Efficacy Scale (CES)	The efficacy of certified coaches was significantly more than uncertified coaches. The dimensions of game strategy and technique efficacy showed the strongest effects.
Campbell & Sullivan (2005)	Range of sports	213 coaches Novice coaches (less than 3 years experience)	National Coaching Certification Program (NCCP) Level 1 16 hour workshop	Coaching Efficacy Scale (CES)	All aspects of coaching efficacy increased after taking course. Females significantly more confident on the dimensions of motivation and character building.
Weiss et al (1990)	Range of sports	43 female coaches Limited coaching experience	The Oregon Women in Coaching Workshop	Questionnaire	An increase in competency for all 18 skills after participating in the workshop.
Weiss et al (1991)	Range of sports	28 female coaches Limited coaching experience	One year coaching internship	Questionnaire	Perceived strength after the internship – ability to communicate. Perceived weaknesses – inadequate sport related knowledge, leadership skills, planning and management skills.

Malete and Feltz (2000), Lee et al (2002) and Campbell and Sullivan (2005) have all evaluated the impact of large scale coach education programmes on coaching efficacy using the Coaching Efficacy Scale (CES). Coaching efficacy is defined as “the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes” (Malete & Feltz, 2000, p.410). It is multidimensional in nature encompassing four components: motivation, game strategy, technique and character building. Motivation efficacy is the confidence coaches have in their ability to affect the psychological skills and states of their athletes. Game strategy efficacy is the confidence coaches have in their ability to coach during competition and lead their team to a successful programme. Technique efficacy is the belief coaches have in their instructional/diagnostic skills. Character building efficacy involves the confidence coaches have in their ability to influence a positive attitude toward sport in their athletes.

Malete and Feltz (2000) examined the effect of the Programme for Athletic Coaches (PACE) on the participants’ coaching efficacy. PACE is a 12 hour programme which provides coaches with the latest information about their daily coaching responsibilities (NASPE, 1995). The study involved 51 coaches, which were either in the PACE group or a control group. The PACE group comprised of 36 high school coaches who were participating in the PACE programme. The control group consisted of 24 coaches who had not attended any formal coach education. This group was a mixture of high school coaches and university coaching students. The participants in the PACE group had, on average, more years of coaching experience ($M = 6.03$, $SD = 3.69$) than the control group participants ($M = 1.25$, $SD = 1.59$). All the participants in the study completed the CES on two occasions. The PACE group filled in the CES at the start and end of the programme while the control group completed the post CES two weeks after their pre-test. The CES contains 24 items measured on a ten point Likert scale ranging from ‘not at all confident’ (0) to ‘extremely confident’ (9). The 24 items measure the four dimensions of coaching efficacy. According to Malete and Feltz (2000), previous studies have shown the CES to be psychometrically sound and there is also strong evidence of construct validity.

The results showed that course attendance had a significant impact on the participants’ coaching efficacy when compared to the control group, with the dimensions of game

strategy and technique efficacy showing the strongest effects. Nevertheless, it is important to note that all four dimensions of coaching efficacy showed less than a one point improvement on the CES. According to the researchers, this moderate effect on coaching efficacy may be because the participants had high coaching efficacy scores prior to the course (PACE M = 7.91, SD = 0.75) and therefore there was little room for improvement. These high pre course efficacy scores may be due to the coaches having on average six years experience. A further finding was that the PACE programme had little impact on the participants' knowledge and practice. The participants indicated that the programme simply confirmed their current coaching knowledge and practice. This may be because the participants had high levels of confidence in their ability and knowledge before they started the programme or they had a greater knowledge and experience than what was provided in the course.

Lee et al (2002) examined whether coaching efficacy differed between certified and uncertified coaches in Singapore. Specifically, the study aimed to examine whether the two types of coaches differed on the four dimensions of coaching efficacy. A further aim of the study was to find out if there were any gender differences in coaching efficacy. The study involved 235 coaches, of which 98 were uncertified and 137 were certified. The certified coaches in the study had completed level one or higher of the National Coaching Accreditation Program (NCAP) while the uncertified coaches were currently participating in the level one qualification. The certified and uncertified coaches were asked to complete the CES on one occasion. The study showed that, in general, the efficacy of the certified coaches was higher than the uncertified coaches, with the dimensions of game strategy and technique efficacy showing the strongest effects. It is interesting that certified coaches did not significantly differ from uncertified coaches on the dimensions of motivation and character building efficacy and the researchers suggest that this may be due to an absence of specific training in the NCAP on motivational and character building techniques. In regards to differences between genders, the study found a weak effect for game strategy efficacy with males scoring slightly higher on this (M = 6.71, SD = 1.07) than females (M = 6.21, SD = 1.61).

Campbell and Sullivan (2005) examined the effect of the NCCP level one theory course on the coaching efficacy of the participants. As part of the study the researchers examined gender as an issue in the relationship between education and coaching efficacy. The research involved 214 novice coaches from a range of sports, of which 120 were male and 94 were female. Campbell and Sullivan (2005) described novice coaches as having less than three years experience. The participants in the study completed the CES before the start of the course and then again immediately after the course had finished. The course involved 13 hours of contact time and aimed to give the participants a broad introduction to coaching. Given the results of the previous two studies, it was hypothesised that all aspects of coaching efficacy would increase after completing the course. This hypothesis was supported as coaching efficacy was higher for all dimensions after completing the course. No hypothesis was put forward for gender due to the limited and inconsistent research in the area. The female coaches in the study were significantly more confident on the efficacy dimensions of motivation and character building compared with the male coaches. Given this finding, and the results of Lee et al's (2002) research, it appears that female coaches are more confident in the socio-emotional functions of a coach (e.g. motivation and character building) whereas male coaches are more confident in the task orientated aspects of the role (e.g. game strategy) (Campbell & Sullivan, 2005). The study also examined the interaction effect between time (Pre to post course efficacy) and gender (male and female). A non significant interaction effect was found, indicating that the difference between pre and post course efficacy was similar for both males and females.

The results from these three studies demonstrate that coaches generally have higher levels of coaching efficacy after participating in coach education programmes. However, it is important to note that the change may not be solely due to the content of these courses. Lee et al (2002) highlight that there is uncertainty as to whether the coach education has resulted in a higher coaching efficacy or whether it is due to experiences outside the formal environment. This is supported by Campbell and Sullivan (2005) who state that confounding experiences such as interacting with other coaches may have influenced coaching confidence. This is an important consideration to take into account when examining the impact of coach education because although the participants involved in a coach education programme are exposed to the same course content, they all return to different coaching

contexts which may influence them in different ways. It is therefore difficult to attain whether a coach has changed due to the coach education course or due to influences in their coaching environment. These influences are described by Coalter (2002) as 'parallel influences' and can be difficult to disaggregate.

Weiss et al (1990, 1991) examined coaches' perceptions of competency following a period of coach education. Competency is described as an individual's ability and knowledge to perform particular skills. It has been argued that competency and efficacy are similar concepts. According to several researchers (e.g. Feltz & Chase, 1998; Moritz et al, 2000; Marback et al, 2005), they both refer to similar cognitive processes by which people make judgements about their capabilities to accomplish a task or goal. For instance, Marback et al (2005) undertook a study on coaching efficacy and found there was no operational distinction between coaching efficacy and coaching competency.

In the first phase of the study, Weiss et al (1990) investigated the attitudes, perceptions and motives of novice women coaches prior to and following a coach education workshop (The Oregon Women in Coaching Workshop). This workshop lasted one week and included sessions on sport science topics and sport specific techniques. The study involved 43 female coaches from a range of different sports (athletics, basketball, cross country, football, tai kwon do, tennis, and volleyball). Their mean age was 27 years old and they all had limited coaching experience (i.e. one year or less). The female participants were asked to complete a background questionnaire at the start of the workshop. The background survey was designed to gather demographic information from the coaches such as age, occupation, playing experience and coaching experience. The participants were also asked to complete a coaching questionnaire at the start and end of the workshop. This questionnaire assessed the participants' perceptions about their knowledge and abilities in 18 sport science and skill areas. The coaches rated themselves on a five point Likert scale from 'not good at all (1) to 'very good' (5). The coaches also identified their three strongest and weakest topics. The pre-workshop measures of the participants' perceptions ranged from 2.56 to 3.91, while the post workshop scores ranged from 3.61 to 4.77. The researchers suggested that this increase in competency for all eighteen skills showed that the workshop was having a positive effect on the female coaches. The majority of the coaches felt their strengths were

communication skills, demonstrating and explaining skills, and motivating athletes whereas their weaknesses were legal liability, dealing with parents and organising a season plan.

Following the week long workshop the participants of the previous study were required to take part in a one year coaching internship. The second phase of the study (Weiss et al, 1991) collected data on the participants' attitudes, perceptions of ability, and motivations after the internship. More specifically, the researchers explored the positive and negative aspects associated with the participants' coaching experience and their perceptions of coaching strengths and weaknesses as a result of the internship. Out of the 43 female coaches in the previous study, 28 were interviewed. The 28 coaches in the study identified four positive aspects of the internship. These were satisfaction of working with children, the development of coaching skills, the social support from peers, and the fact that it was fun. However, the coaches identified that the mentoring relationship with their cooperating coach during the internship was often difficult. In addition to this, other negatives of the internship were the time demands required, negative relationships with athletes, and the lack of administrative support. The coaches' perceived strengths following the internship were their ability to communicate, such as teaching skills and motivating athletes. Their perceived weaknesses were identified as inadequate sport related knowledge, leadership skills, planning and management skills, and physical skills.

The research reviewed in this section has shown that participating in coach education can have a positive effect on coaches' perceptions of efficacy and competency. A strength of this research is the large samples of coaches from a range of sports. However, it is clear from this section that only a small number of studies have examined the impact of coach education on coaches' self perceptions of efficacy and competency and thus more research is needed in this area.

2.7 Summary

From reviewing the literature on informal and formal learning, several research questions were identified. The research on informal learning showed that this form of learning was an important part of a coach's overall development and coaches' valued learning informally over formal coach education. Much of this research on informal learning has been

undertaken in the United States and Canada. This present study expands the current research by examining the importance and relevance of both formal and informal learning for the coaches involved in a UK based coach education programme, namely the UKCC. The first two research questions shown below cover this area.

A large amount of the research on formal learning has gathered the participants' perceptions of coach education. This research has gathered the participants' views on a range of topics such as reasons for undertaking coach education, the perceived value of participating, the strengths and weaknesses of the programme, barriers to participating in coach education, and the influence the education has made on their coaching. The majority of this research has been undertaken in North America and Australia. This study follows a similar line to the previous research and gathers the participants' perceptions of coach education. However, it extends the research in the area by gathering perceptions on a coach education programme in the UK (see research question 3).

It is clear from reviewing the literature on formal learning that examining the impact of coach education on the participants' self perceptions is an area that lacks research. In particular there has been limited research on the impact of coach education on the coaches' perceptions of competency. Therefore, this study examines the impact of the UKCC on the participants' perceived coaching competency (see research question 4).

Given the purpose of the research is to evaluate the UKCC, it is important to use the findings from the first four research questions to provide implications and recommendations for the design of the UKCC programme. This therefore provides a fifth research question. The five research questions for this study are shown below:

1. Is the UKCC relevant to participants' needs?
2. How important is the UKCC in the participants' overall learning and development as a coach?
3. What are the participants' perceptions of the UKCC?
4. What impact has the UKCC had on the participants' perceptions of competency?

5. Based on the findings of the above questions, what are the implications for the design of the UKCC?

Recently Lyle (2010a) developed a toolkit for monitoring and evaluating the UKCC. The toolkit outlines five stages of evaluation and possible methods to use in each stage. Although the current research was developed prior to the toolkit, the first four research questions identified above relate to the first three stages. The five evaluation stages are shown in table 4 below and more detail on each stage can be seen in appendix 1.

Table 4: The five stages of Lyle’s (2010a) monitoring and evaluation model

Stage	
Relevance	Is the programme devised on sound theory, and adhering to any regulatory guidelines?
Legitimacy of the programme; adherence to good practice in coach education design; relevant to roles within the sport; evaluation strategy in place; evaluation themes identified	
Fidelity	Is the programme being delivered as intended, and to identified targets?
The programme is being delivered as designed, to an appropriate audience; coaches are appropriately engaged; factors influencing fidelity identified; coach response; completion rates	
Effectiveness	This is the extent to which the intervention is creating the desired change in coaches
The ‘learning’ or ‘change’ intended by the intervention has taken place; knowledge, skills, attitudes, competence; evidenced in practice in the short/ medium term; may be course and level specific	
Transfer	The practice of individuals/coaches within relevant roles reflects these changes
The coach behaviours identified as outcomes of coach education are evident in coaching practice; award holders demonstrate this practice	
Impact	Measures the extent to which desired sporting indices have improved
Measurements of sporting indicators (standards, numbers, quality) are showing improvement; some evidence of better indices in circumstances in which coach education shown to be effective	

(Lyle, 2010a, p.77)

Lyle (2010a) suggests that relevance is about checking what the UKCC is meant to be doing and assessing its structure, content and delivery. This is one way of defining relevance

however this study views relevance in a different way. This study examines relevance from the participants' perspective i.e. whether the UKCC is relevant to them and what they think they need from the UKCC to make it more relevant. This is an important area to examine because if coaches are to learn effectively and change their practices, they need to be convinced that their education is relevant to their needs (Armour, 2010). Therefore, the first two research questions fit into the relevance stage of Lyle's (2010a) evaluation model. According to Lyle (2010a), the fidelity stage involves examining how the programme is being implemented and delivered. This involves looking at delivery quality and extent. Lyle (2010a) suggests numerous ways to examine fidelity, one of which is to get coach candidate feedback. Thus, the third question fits into the fidelity stage of the model. The effectiveness stage examines the short term effect of the programme on the individual. In this stage, changes in skills, attitudes, behaviour and competency can all be evaluated. Therefore, the fourth research question relates to this stage of the evaluation model. The fact that four research questions of this study relate to the stages of Lyle's (2010a) recent monitoring and evaluation toolkit, despite being developed before the toolkit emerged, adds strength to the research design and approach.

3. METHODOLOGY

3.1 Research approach

The broad research approach was a pre-post methodology utilising multiple methods of data collection and analysis. The methods were undertaken at the start and end of the sampled UKCC courses. Lyle (2010, 2010a) believes that pre-post methodologies are the most appropriate when evaluating coach education programmes. He states that “a straightforward pre-post research design should be at the heart of a ‘change agenda’ and an effective evaluation model” (Lyle, 2010, p.5). Multiple methods were used in the study to address the four research questions (see table 5 below). Both quantitative and qualitative methods were employed in the form of surveys, focus groups and reflective journals.

Table 5: Research Design

STAGE	METHODS
<p>RELEVANCE</p> <ul style="list-style-type: none"> • Is the UKCC relevant to participants’ needs? • How important is the UKCC in the participants’ overall learning and development as a coach? 	<p>Focus Groups (e.g. Morgan, 1993; Krueger, 1998)</p> <p>Reflective Journals (e.g. Knowles et al, 2001; Moon, 2006)</p>
<p>FIDELITY</p> <ul style="list-style-type: none"> • What are the participants’ perceptions of the UKCC? 	<p>Focus Groups (e.g. Morgan, 1993; Krueger, 1998)</p> <p>Reflective Journals (e.g. Knowles et al, 2001; Moon, 2006)</p>
<p>EFFECTIVENESS</p> <ul style="list-style-type: none"> • What impact has the UKCC had on the participants’ perceptions of competency? 	<p>Focus Groups (e.g. Morgan, 1993; Krueger, 1998)</p> <p>Reflective Journals (e.g. Knowles et al, 2001; Moon, 2006)</p> <p>Surveys (e.g. Veal, 1997; Bryman, 2001)</p>

Using multiple methods in this research was advantageous for several reasons. The main advantages of using a multi-method approach are summarised by Greene and Caracelli (1997). These researchers identify three major strengths: 1) triangulation: combining methods to study the same phenomenon in order to gain convergence and increase validity, 2) compensatory: using the strengths of each method to overcome the weaknesses of the other, 3) expansion: using each method to obtain a more comprehensive picture of a phenomenon. These three strengths will be discussed in turn in more detail.

It is believed that a strength of using multiple methods is that it allows triangulation to occur (e.g. Denzin, 1978; Brewer & Hunter, 1989; Tashakkori & Teddlie, 1998; Lincoln & Guba, 1999; Patton, 2002; Silverman, 2010). Clarke (2005) defines triangulation as:

The creation of multiple data sets by collecting data in a variety of contexts and settings at different points in time. This may involve using the same method on more than one occasion or using different methods.

(Clarke, 2005, p.86)

Triangulation can provide a better understanding of the research problems because the data from one method can be combined with the data from another method. Triangulation can also be used to enhance the trustworthiness of the data. For instance, if the different methods are used to examine the same research questions then the researcher can use the data from one source to cross check the accuracy of the data gathered from the other source to see if similar findings are emerging (LeComote & Preissle, 1993). Cross checking the data from different sources can give the researcher greater confidence that the findings are trustworthy and valid. This is emphasised by Morgan (1993) who states that using multiple methods can “strengthen the ability to draw conclusions as well as confidence in the nature of the conclusions themselves.” (p.133)

The second advantage of a multiple methods approach is that the strengths of one method can be used to overcome the weaknesses of another method (Tashakkori & Teddlie, 1998; Patton, 2002; Clarke, 2005; Teddlie & Tashakkori, 2009).

This advantage is identified by Clarke (2005) who states:

Given that each method has its own strengths and weaknesses, the strengths of one method can be expected to compensate for the weaknesses of another, and therefore the overall quality of the data will be improved by using more than one method.

(Clarke, 2005, p.88)

For example, when interviews are used alongside surveys in a multi-method design the strengths and weaknesses of these methods complement each other. A limitation of the survey method is that it cannot explore the participants' responses in any great detail. However, a strength of interviews is that they can gather in-depth information on the participants' thoughts and feelings. A weakness of the interview technique is that it is time consuming and as a result only a small number of participants can be sampled. This weakness is compensated by the surveys as they can collect data from a large number of participants.

The third strength identified by Greene and Caracelli (1997) is that using multiple methods allows the researcher to get a more comprehensive picture of the phenomenon being studied. This is because the data from one method can be used to expand and elaborate on the data from another method. Despite these strengths of multiple methods, a weakness is that the different methods may produce conflicting results (Clarke, 2005). Furthermore, this approach requires greater effort and expertise as the researcher needs to be familiar with, and be able to use, different research methods (Silverman, 2010).

Qualitative methods in the form of focus groups and reflective journals were used to collect data on the relevance and fidelity of the UKCC. To examine effectiveness, the multiple methods strategy was taken one step further as a mixed methods approach was utilised. A mixed methods approach is when the researcher mixes or combines quantitative and qualitative research methods. In this research, surveys were used in combination with focus groups and reflective journals to collect data regarding the impact of the UKCC on the participants' perceptions of competency. A mixed method approach was used because previous literature has suggested that it is the best way of evaluating the impact of coach

education programmes (e.g. Australian Coaching Council, 1994; Trudel and Gilbert, 1995; Gilbert & Trudel, 1999; Lyle, 2010a).

The concept of mixing methods has been (and still is) subject to debate and researchers have questioned whether or not quantitative and qualitative data can be (and should be) combined. The researchers that are against mixing methods believe that quantitative and qualitative approaches should not be mixed because they have different paradigms⁴ associated with them and that these paradigms have separate epistemological assumptions, values and methods which are incompatible (e.g. Smith, 1983; Guba, 1985; Smith & Heshusius, 1986; Guba & Lincoln, 1988; Lincoln, 1992; Sechrest, 1992). These researchers have been referred to as Purists (Clarke, 2005). Purists believe that method choices are determined by the particular paradigm stance. Thus, Purists choose one paradigm and this effectively determines subsequent methodological decisions. However, this is not a view that attracts universal support and numerous researchers advocate for the integration of different paradigms and their methods in a single study (e.g. Cook & Reichardt, 1979; Bulmer, 1986; Patton, 1990; Tashakkori & Teddlie, 2003; Clarke, 2005; Creswell & Plano-Clark, 2007). For instance, Cook and Reichardt (1979) question the view that the two paradigms cannot be combined and state “there is every reason to use them together to satisfy the demands of evaluation research” (p.27). Patton (1990) also supports the possibility of integrating methods and believes that in order to be situationally responsive and methodologically flexible the researcher must be able to move between the different paradigms as and when is needed.

3.2 Programme description

The UKCC is an endorsement framework for sport-specific coach education programmes, within which award programmes and their supporting structures are Kitemarked against a set of standardised UK-wide criteria that reflect a number of pre-defined underlying principles. The UKCC was initially introduced in 2002 and was designed to address many of

⁴ A paradigm is an interpretative framework which is guided by a set of beliefs and feelings about the world and how it should be understood and studied (Patton, 1990). The set of beliefs influence what should be studied, how the research should be done and how the results should be interpreted.

the weaknesses or shortcomings of the previous coach education provision. These weaknesses have been summarised by Lyle (2007b) and included:

- concerns about the comparability of provision and certification among sports;
- an absence of rigorous quality-control measures;
- differences between quality of content, delivery and assessment both within and across sports;
- limited scale and depth of preparation, with an overemphasis on sport-specific technical content;
- lack of training for the coach education workforce (tutor, trainer, assessor, and verifier);
- a lack of variety in delivery methods and lack of attention to individual needs;
- poorly developed delivery and 'how to' skills;
- too much classroom activity and limited workplace learning.

The development of the UKCC was guided by a number of broad aims and these again have been summarised by Lyle (2007b). The first of these aims was to replace the previous ad hoc coach education system with a consistent, structured and resourced coach education programme. The second broad aim of the UKCC was to develop consistent and robust qualification specifications, learning programmes and resources based on good practice principles from emerging coach practice and the wider education sector. The teacher centred approach was to be rejected in favour of learner centred coach education and problem-based learning. Thirdly, the UKCC aimed to emphasise the 'how', 'what' and 'why' of coaching rather than simply the 'what' which was the case with the pre-UKCC provision. Therefore, the UKCC was to be based less on sport-specific technical knowledge and more on how to deliver athlete-centred coaching practice.

To begin with 31 sports were invited to participate in the development of the UKCC and these sports were divided into three areas of priority – fast track, phase two and phase three (see table 6). Before these sports can deliver UKCC courses they must go through the

endorsement process to ensure their coach education programmes meet the required UKCC criteria. For example, if a sport wants to run level one courses their level one qualification needs to be endorsed first. The endorsement is judged against agreed criteria such as a transparent endorsement process, the development of appropriate resources to deliver effective and high quality coach education programmes, quality assured administration and management, and quality assured training provision for coach educators and other personnel.

Table 6: The sports originally involved in the UKCC

Phase 1 (Fast Track)	Phase 2	Phase 3
Athletics	Badminton	Angling
Cricket	Basketball	Archery
Rowing	Canoeing	Bowls
Rugby Union	Cycling	Karate
Swimming	Equestrian	Mountaineering
Triathlon	Football	Movement/Dance
	Golf	Orienteering
	Gymnastics	Rounders
	Hockey	Volleyball
	Judo	Sailing
	Netball	
	Squash	
	Table tennis	
	Tennis	

(sportscotland, 2006, p.21)

The six fast track sports shown in table 6 were used to pilot the UKCC. These sports were the first to go through the endorsement process and therefore were the first to start delivering UKCC courses. Intensive support was provided to these six sports from Sports Coach UK to help them do this. These fast track sports are now used as models for other sports to learn from in regards to how to get endorsed and start delivering courses. There were 15 sports that were identified as phase two. These sports receive one-to-one support from Sports Coach UK to help implement the UKCC. The ten phase three sports have the least support as they only receive workshop and documentary support from Sports Coach UK. Due to these three levels of priority, some sports are further ahead than others in terms of gaining endorsement and delivering courses.

3.2.1 UKCC in Scotland

sportscotland recognise the importance of developing coaches and therefore provide financial support to sports in order to help them gain access to the UKCC by contributing to the cost of qualifications. **sportscotland** have invested £2.5 million over a four year period (starting in 2007) into the UKCC in Scotland to subsidise course candidate fees (**sportscotland**, 2010). In total, 26 sports have received funding. The amount of investment to each sport was allocated based on the Governing Bodies' projections of candidate numbers per level and expected course costs. The highest amount of investment from **sportscotland** has been at level one, with less investment at level two and three. **sportscotland** have invested more heavily at level one in order to support new coaches entering the education system. The amount of investment at each level over the last three years is shown in table 7 below. This investment from **sportscotland** has enabled over 8000 candidate places on courses, supporting 84% of coaches at level one, 14% at level two and 2% at level three (**sportscotland**, 2010).

Table 7: sportscotland's financial investment into the UKCC in Scotland since 2009

2009/2010			2010/2011			2011/2012		
Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
£632,615	£494,223	£94,170	£722,980	£524,530	£86,200	£671,575	£599,410	£127,250

(**sportscotland**, personal communication, October, 2011)

Since 2007, over 7000 coaches across the 26 sports have completed the level one qualification in Scotland. There is however a drop off at level two with 1,400 coaches having completed the qualification and then a further decrease at level three as only 42 coaches have completed the award. Table 8 on the following page shows a breakdown of the number of coaches in each of the 26 sports who have completed a level one to three UKCC qualification.

Table 8: UKCC completions in Scotland for each sport from 2007 to 2010 (Dec 31st)

Sport	Total Candidate completions - SQA figures			
	Level 1	Level 2	Level 3	TOTAL
Angling	-	63	-	63
Archery	-	-	-	-
Athletics	220	-	-	220
Badminton	215	36	-	251
Basketball	327	24	-	351
Canoeing	568	97	-	665
Cricket	84	-	-	84
Curling	22	4	-	26
Cycling	-	26	-	26
Equestrian	186	80	1	267
Golf	1,070	54	-	1,124
Gymnastics	430	125	-	618
Hockey	312	16	-	328
Judo	59	50	-	109
Netball	250	38	-	288
Orienteering	13	-	-	13
Rugby League	24	10	-	34
Rugby Union	1,022	178	30	1,230
Squash	74	10	1	86
Swimming	1,859	480	10	2,349
Table Tennis	17	-	-	17
Tennis	365	103	-	468
Triathlon	33	10	-	43
Volleyball	88	-	-	88
TOTAL	7,238	1,404	42	8,747

(sportscotland, personal communication, October, 2011)

It is clear from table 8 that swimming⁵, rugby and golf qualifications dominate in Scotland as they have the highest number of completions. Several of the sports, such as angling, cycling, hockey and volleyball, do not have completions at every level. This is most likely because they do not have all their levels endorsed. For example, volleyball has not yet submitted their level two or three qualification to be endorsed. Alternatively, sports may have all their levels of qualification endorsed but not actually run courses for all levels. This is the case in hockey as they have their level three qualification endorsed but this course is not run in Scotland due to a lack of participants and tutors.

⁵ Swimming includes the following qualifications: teaching aquatics, coaching swimming, coaching diving, coaching synchronised swimming and coaching water polo.

This study sampled four out of the 26 sports and these were rugby, squash, swimming and triathlon. Data was collected at their levels one, two and three courses. Rugby, squash and swimming were chosen because they are the only sports in Scotland which run courses for all three levels of qualification. Although triathlon has not run any level three qualifications, it was selected for the study because it has its levels one, two and three coach education programmes endorsed by the UKCC and intended to run level three courses during the time of the research. However, in reality this did not happen.

Table 9 provides some background information on these four sports in terms of how many courses they have run and how many coaches have attended and passed. For rugby, squash and swimming this data is from 2007 when these sports started running UKCC courses. Triathlon started delivering courses later so their data is from 2009. This data was provided by the governing bodies of the four sports and includes courses up until October 2011. The swimming data only includes the ‘coaching swimming’ qualifications as this study only sampled these courses.

Table 9: Number of courses run and number of coaches attended and passed for the four sports sampled in this study

Sport	Qualification	No. of courses *	No. of coaches attended	No. of coaches passed
Rugby	Level 1	87	1832	1711 (93%)
	Level 2	24	382	322 (84%)
	Level 3	4	75	48 (64%)
Squash	Level 1	21	175	105 (60%)
	Level 2	8	62	17 (27%)
	Level 3	2	18	6 (33%)
Swimming (‘Coaching swimming’)	Level 1	53	440	418 (95%)
	Level 2	25	180	141 (78%)
	Level 3	5	73	35 (48%)
Triathlon	Level 1	4	46	46 (100%)
	Level 2	2	30	18 (60%)
	Level 3	0	0	0

*Data is from when the sports started delivering UKCC courses up until October 2011 (SGBs of rugby, squash, swimming & triathlon, personal communication, November, 2011)

This table again highlights the domination of rugby and swimming. Rugby has delivered 115 courses in total and this has resulted in just over 2000 coaches completing their qualifications. This is followed by swimming who have run 83 'coaching swimming' courses since 2007 and 594 coaches have passed these qualifications. However, it is important to recognise that if the swimming data had included all their qualifications (e.g. teaching aquatics, coaching diving, coaching synchronised and coaching water polo) then the numbers would have been much higher. In comparison to rugby and swimming, the number of courses delivered by squash and triathlon is much less. For example, triathlon has only delivered two level two qualifications since 2009 which is one a year. This may cause problems for potential participants if, for example, the course is booked up or is at an unsuitable time because then these participants have to wait another year to do the qualification.

The data in table 9 again emphasises the drop off in participants at level two and three. For example, in rugby 1,832 coaches have undertaken a level one qualification however only 382 coaches have undertaken a level two award and this number again decreases at level three as only 75 coaches have participated in the qualification. The table also shows that, in general, completion rates decrease with level. Squash has the poorest completion rates and this is particularly evident at level two and three. At level two 27% of the participants who attended the course have passed the qualification and at level three 33% of the participants who enrolled on the course have completed the qualification.

3.3 Pilot study

A pilot study was conducted prior to the start of the research to test the following: the appropriateness of the research approach; the three research methods being used in the study; and the effectiveness of online data collection. Piloting the research approach performed a number of important functions. Firstly, it helped determine whether the methods served the purpose for which they were designed. Secondly, the pilot allowed the researcher to test the questions that were going to be used in the data collection. This enabled the researcher to find out if any questions were ambiguous, open to different interpretations or made the respondents feel uncomfortable. Along with this, the piloting process allowed the researcher to check whether the participants understood what to do

for each of the three methods of data collection. Checking understanding was especially crucial for the surveys and journals because the participants completed these on their own. Lastly, piloting the research process allowed the researcher to assess the likely completion time for each method, to check the administration procedures, and to practice analysing the data.

The pilot study was undertaken during a six month period (March 2009 – September 2009) and involved four courses. The surveys and reflective journals were trialled at a level one and two course in rugby and a level two course in squash. A pre and post course focus group was trialled at a swimming level three course. Triathlon was not used in the pilot as they did not run any courses during the six month time period. Overall, 34 participants were involved in the pilot study, 12 at level one, 18 at level two, and 4 at level three. Out of the 34 participants, 85% were male and 15% were female. The age of the participants ranged between 19 and 61 years old, and the mean age was 37 (SD = 12.85). Over three fifths of the participants (62%) were aged 30 or above.

To test whether the data could be collected without the researcher being present at the courses, the surveys and journals were either handed out by the course organiser or completed online. For the rugby level one and two courses, the course organiser handed out the pre-course surveys and all 28 participants on the two courses completed a survey. The course organiser however forgot to hand out the post course surveys. Therefore, the researcher sent them out via email and only 12 of the 28 participants (43%) completed the survey online. The reflective journals were handed out and collected in by the course organisers. Out of the 28 rugby coaches on the two courses, 9 completed a journal (32%). For the squash level two course, the surveys and journals were sent out via email. There were eight coaches on the course however only two replied to the email. These two coaches completed the pre and post course surveys and the reflective journals. From piloting the surveys and journal at these three courses, it was clear that the researcher needed to attend the courses in order to help increase response rate. There were 16 participants on the swimming level three course of which four volunteered to take part in the focus group. These four participants were involved in both the pre and post course group discussions.

As a result of piloting the research approach, a number of alterations were made to the three data collection methods. These changes were based on the researchers' perceptions and experiences during the pilot and/or feedback from the participants. For the surveys, the layout was changed to make it easier for participants to provide answers. Some of the competencies were also altered and simplified. For example, "rewarding positive behaviour and managing inappropriate behaviour in a fair manner" was separated into two competencies because rewarding positive behaviour and managing inappropriate behaviour are two different skills. Along with these changes, additional demographic questions were included at the start of the survey. For example, questions such as 'what is your current coaching position?' and 'how many years have you been coaching?' were added. The reason for this was to gain more information on the 'types' of coaches attending UKCC courses.

Through piloting the reflective journals, the number of questions was reduced in order to reduce the demand on the participants and increase the likelihood that they would complete them. In addition to this, the timing of when to reflect was adjusted. The original plan was to get the coaches to reflect at certain planned points over the course. However, it was decided that in order to avoid forcing reflection an unstructured format would be used. An unstructured format means that the participants can reflect whenever they feel is necessary (Moon, 2006). After trialling the focus group interview, the number of questions was reduced to avoid repetition. Piloting the focus groups was also an important learning experience for the researcher. It reinforced the importance of encouraging the participants to talk amongst themselves rather than directing their conversation to the researcher and also striking a balance during the group interview between helping the conversation flow and saying too much.

3.4 Participants

Four sports were involved in this study and these were rugby, squash, swimming and triathlon. The intention was to collect data at one course from each level across the four sports i.e. 12 UKCC courses in total. However, during the time of the research no level three courses were run for triathlon or squash. There were two main reasons for this: a lack of

interest and having no trained level three tutors available. Due to this, data was collected at 10 courses.

3.4.1 Demographic profile

A total of 136 participants were involved in the 10 sampled courses of which 54 were at level one, 51 at level two and 31 at level three (see table 10). Out of the 136 sampled coaches, 71% were male and 29% were female. The age of the participants ranged from 16 to 55 years old with the mean age being 35 (SD = 10.93). About three fifths (61%) of the sample were aged between 30 and 49 years old. Over half of the coaches (54%) had limited coaching experience (0-2 years), with a further 23% having three to five years experience. For the coaches' level of participation in their sport past or present, 76% of the sample had participated as an athlete at club level and nearly half (47%) were above club level standard. The demographic data will now be discussed on a level basis (the demographic data is also broken down by sport and this can be seen in appendix 2)

Table 10: Demographic data for all the participants involved in the study

		No. OF COACHES	PERCENT (%)
LEVEL	1	54	40
	2	51	37
	3	31	23
GENDER	Male	96	71
	Female	40	29
AGE	19 & under	17	12
	20-29	29	21
	30-39	28	21
	40-49	54	40
	50 +	7	5
	Did not answer	1	1
COACHING EXPERIENCE (Years)	0-2	73	54
	3-5	31	23
	6-10	16	12
	11-15	10	7
	16+	5	4
	Did not answer	1	1
LEVEL OF PARTICIPATION	Recreational	32	23
	Club	40	29
	County	26	19
	National +	38	28

Level one

Of the 54 level one participants, 72% were male and 28% were female. The age of the level one participants ranged from 16 to 54 years old (mean = 34.09, SD = 11.96). Over half the participants (55%) were aged between 30 and 49, with 38% of the sample being under the age of 30. When asked about their coaching position, the most popular response was 'no position' with 44% of the level one participants providing this answer. Following this, 35% of the participants indicated that they were club coaches, 30% in the youth context and 5% in the senior environment. The majority of the participants (83%) had limited coaching experience (0-2 years). For level of athletic participation past or present, the majority of the sample were club level athletes (42%) or recreational participants (30%). The level one data is summarised in table 11 below.

Table 11: Demographic data for the level one participants

		No. OF COACHES	PERCENT (%)
GENDER	Male	39	72
	Female	15	28
AGE	19 & under	11	20
	20-29	10	18
	30-39	5	9
	40-49	25	46
	50 +	3	6
COACHING POSITION	None	24	44
	Club coach (youth)	16	30
	Club coach (senior)	3	5
	Poolside helper	10	18
	PE teacher	1	2
COACHING EXPERIENCE (Years)	0-2	45	83
	3-5	6	11
	6-10	3	6
LEVEL OF PARTICIPATION	Recreational	16	30
	Club	23	42
	County	5	9
	National +	10	18

Level two

The demographic data for all the level two participants can be seen in table 12. Of the 51 level two participants, 37 were male (73%) and 14 were female (27%). This is a similar

gender ratio to level one. The participants' age ranged from 17 to 51 years old (mean = 34.51, SD = 10.75). Three fifths (60%) of the sample were aged between 30 and 49 and a third (33%) were under the age of 30. The majority (82%) of the level two coaches stated they were club coaches, 43% of which were youth coaches and 39% senior coaches. About half of the level two participants (51%) had three or more years of coaching experience. However, there was still a substantial number of participants at level two with limited coaching experience (49%). For athletic experience, 31% of the participants were club level standard and nearly half of the sample (49%) identified themselves as above club standard (i.e. 'county level' or 'national level or above').

Table 12: Demographic data for the level two participants

		No. OF COACHES	PERCENT (%)
GENDER	Male	37	73
	Female	14	27
AGE	19 & under	5	10
	20-29	12	23
	30-39	15	29
	40-49	16	31
	50 +	3	6
COACHING POSITION	Club coach (senior)	20	39
	Club coach (youth)	22	43
	School coach	2	4
	Coach co-ordinator	1	2
	Disability coach	1	2
	Learn to swim coach	1	2
	Personal Trainer	1	2
	None	2	4
	Did not answer	1	2
COACHING EXPERIENCE (Years)	0-2	25	49
	3-5	16	31
	6-10	5	10
	11-15	4	8
	16+	1	2
LEVEL OF PARTICIPATION	Recreational	10	20
	Club	16	31
	County	11	22
	National +	14	27

Level three

Out of the 31 coaches involved in the level three courses, 20 (65%) were male and 11 (35%) were female (see table 13). The age of the level three participants ranged from 19 to 55 years old (mean = 36.10, SD = 9.42). Over two thirds of the participants (68%) were aged between 30 and 49.

Table 13: Demographic data for the level three participants

		No. OF COACHES	PERCENT (%)
GENDER	Male	20	65
	Female	11	35
AGE	19 & under	1	3
	20-29	7	23
	30-39	8	26
	40-49	13	42
	50 +	1	3
	Did not answer	1	3
COACHING POSITION	Club coach (senior)	10	32
	District age group coach	2	6
	Club coach (youth)	15	48
	National age grade coach	2	6
	Head of Sport College	1	3
	Army Scotland coach	1	3
COACHING EXPERIENCE (Years)	0-2	3	10
	3-5	9	29
	6-10	8	26
	11-15	6	19
	16+	4	13
	Did not answer	1	3
LEVEL OF PARTICIPATION	Recreational	6	19
	Club	1	3
	County	10	32
	National +	14	45

Similar to the level two data, the majority of the participants (80%) were club coaches, either in the youth (48%) or senior context (32%). In regards to coaching experience, 90% of the sample had three or more years experience and 58% had six or more years. For the level of participation, the majority of the sample (77%) were above club level standard. The

most popular response was 'national level or above' with 45% of the sample identifying themselves as participating at that standard.

3.4.2 Summary of the demographic data

From examining the demographic data from this research, a number of conclusions can be drawn regarding gender, age, coaching position, coaching experience and athletic experience. Overall, more males participated in the sampled UKCC courses than females. Out of the 136 participants, 71% were male and 29% were female. This gender ratio is consistent with previous research on coaching in the UK (e.g. Townsend & North, 2007; North, 2009; Timson-Katchis & North, 2010; Sports Coach UK, 2011). For example, Townsend and North (2007) found that between 60 and 75% of the coaches in the UK were male. More recently, Sports Coach UK (2011) found that 69% of all coaches were male. This gender ratio was similar across all sports except swimming. Of the 45 swimming coaches involved in the study, 60% were female and 40% were male. A similar gender ratio was highlighted in Scottish Swimming's Workforce Development Plan, which indicated a female to male ratio of 2:1 (Lyle & Lynn, 2005).

At all three levels of qualification, the highest number of participants were in the 40 to 49 age category. At level one, there was also a high number of participants aged 19 or under. However, this high number of young participants did not continue into level two and three. A reason for this is that a higher level of experience is needed for the level two and three qualifications and it is unlikely that a coach has acquired this experience before the age of 19. At level two and three, there was a high number of participants aged between 30 and 49. There were very few participants aged 50 or above taking part across the three levels.

The majority of the coaches in the sample were club coaches. This supports the findings of previous research undertaken on coaching in the UK (e.g. Townend & North, 2007; North, 2009; Timson-Katchis & North, 2010, Sports Coach UK, 2011). These studies showed that most coaching roles occurred at the club level in the UK. Around half of the participants in this study were working with children and young athletes and very few of the participants were coaching at the performance and elite level. These findings are consistent with the recent research undertaken by Sports Coach UK (2011).

The participants' coaching experience increased with the level of qualification. This is a fairly obvious finding given that a greater level of experience and knowledge in coaching is required in order to undertake the higher qualifications. The participants' athletic experience also increased with level. The coaches taking the higher qualifications have participated in their sport at a higher level. The data showed that nearly half of the coaches undertaking the level three qualification had participated in their sport at national or above level. Based on this data, it could be suggested that these types of people are picked out and fast tracked through the coach education system because these are the types who want to do the level three qualification and who want to be a high level coach.

3.4.3 Response rate

All the coaches (n = 136) attending the ten sampled courses completed the pre-course surveys. Out of this sample, 112 participants (82%) completed post course surveys, 49 at level one, 42 at level two and 21 at level three. Out of the 136 participants, only thirty six handed in reflective journals (26%). The response rate was highest at level one with 24 out of the 54 participants (44%) completing journals. Out of the 51 level two coaches, eight (16%) reflected in writing while only four level three coaches (13%) completed the diaries. The size of the focus groups ranged from three coaches to seven coaches. Overall 47 participants took part in the pre-course focus groups; 22 at level one, 17 at level two; and 8 at level three. From these participants, 36 were involved in the post course discussions; 18 at level one, 14 at level two, and 3 at level three.

3.5 Procedures

Ethical approval for the research was obtained from the University of Stirling Postgraduate Research Committee. Following this, the initial step in the data collection process was to contact the coach education manager from each of the four sports to explain the research and gain permission to gather data at their UKCC courses. All four of the managers agreed and meetings were arranged to discuss the research process in more detail. Once consent from the four sports was provided, the researcher examined the course timetables and selected courses for the data collection. The researcher then liaised with the course tutors of the chosen courses to arrange a suitable time for the data collection to take place.

The researcher's first visit was at the start of each course and this was to carry out the pre-course data collection. During this visit the researcher introduced the study, outlined the data collection procedures for each method, and explained that participation in the study was completely voluntary. An information sheet was handed out to the coaches to provide them with more detail on the study (see appendix 3). After reading this, the coaches had a chance to have any questions about the research answered. The coaches who were willing to be involved were asked to sign an informed consent form (see appendix 4).

At the first visit, pre-course surveys were completed by the coaches, reflective journals were handed out, and a focus group was undertaken with a small sample of coaches. Following this visit, the researcher emailed a copy of the reflective journal to the participants. This allowed participants to complete them electronically if they wished. The post course data collection took place at the end of the course and followed a similar procedure to that of the pre-course collection. The researcher reiterated the procedures involved in the data collection process and emphasised that participation was voluntary. For the post course data collection, post course surveys were completed by the coaches, reflective journals were collected, and a focus group was carried out with the same sample of coaches that participated in the pre-course discussion.

Although the process of collecting data was the same for each course, the time between the pre and post course data collection differed between sports and levels. For example, rugby level one courses tend to occur over a weekend from Friday night to Sunday afternoon. For a course like this, data was collected at the start of the course on the Friday night and then again on the Sunday afternoon once the coaches had completed their assessments. In comparison, squash level one courses run over two weekends approximately a month apart. In the time between the first and second weekend, the participants are expected to carry out certain coaching activities in their own environment as well as complete written tasks. During the second weekend of the course, the participants undertake assessments. The data collection process for these courses involved gathering pre-course data on the first day of the course and then collecting post course feedback during the second weekend once the assessments were completed. Differences in timing and structure also existed between

level two and three courses across the four sports. The length of the 10 sampled courses and details of when the data was collected can be seen in appendix 5.

Throughout the data collection process, the importance of providing honest answers was stressed to the participants. Honesty was an important consideration because the data collected for this research was based on the participants' self perceptions of the UKCC. One way to help promote honesty was to emphasise the confidentiality and anonymity of the participants' responses (Gratton & Jones, 1994). To protect confidentiality and anonymity, the data was kept in a secure place with access only to those with permission from the researcher, and the participants' names or any other potentially identifying information was removed from all written work. With the focus groups the issues of confidentiality and anonymity were more difficult to ensure as information was shared not only with the researcher but also with other participants (Morgan, 1993). To overcome this, an agreement was made between the group members that the information divulged during the interview would not get discussed outside the focus group context. Another strategy employed to promote honesty was to present the research as independent from the UKCC and state that the researcher had no connection to the UKCC. By doing this, it was hoped that the participants would be more open about the courses.

3.6 Methods of data collection

3.6.1 Reflective journal

In order to gather the participants' perceptions of the UKCC and the impact it had made, reflective journals were used. Reflective journals were handed out to the coaches who were willing to be part of the study. The journals were structured in the form of guiding questions. Moon (2006) states that questions are widely used as a means of starting novice journal writers and are an easy way to help learners to reflect on their own processes. The questions in the journal provided prompts and aimed to guide the learner to cover particular topics or appropriate areas of material. Examples of questions in the journal included: "have any key incidents had an impact on your learning experience or competency level?", "has your competency level changed?", "what methods of learning did you find effective?" and "have there been any barriers or factors restraining your learning

experience?” Coaches were encouraged to be as open and honest as possible and to reflect on both positive and negative experiences. The reflective journal can be seen in appendix 6.

For the timing of reflection, a relatively unstructured approach was followed as the participants were told they could reflect whenever they felt was appropriate during the period of their coach education. This unstructured approach aimed to encourage spontaneous and meaningful reflection instead of obtaining unreflective and superficial entries because participants felt forced to complete the journals at certain times (Moon, 2006). Despite the unstructured approach, the participants were encouraged to reflect both during the practical ‘face to face’ part of the course and throughout the out of course time when they were back in their coaching environment. The reason for this was to gather data on the overall experience rather than solely the ‘face to face’ part of the course. The reflective journals were collected in on the final day of the course, once the participants had completed the required course work and assessments. An issue with collecting the journals in at the end was that they may have been ‘produced’ the weekend before they had to be submitted rather than written over a period of time. In an attempt to overcome this, the participants, especially on the longer courses, were encouraged to email or hand in their reflections on a regular basis so that they were continually reflecting throughout the duration of the course. Emails were sent out by the researcher to remind the coaches to do this.

There are several benefits of using reflective journals. Firstly, reflective journal writing has the ability to promote learning and development. The value of reflective practice for personal and professional development has been well documented in a number of fields including nursing (e.g. Ghaye & Lillyman, 2000; Johns, 2000; Williams, 2001), education (e.g. Osterman & Kottkamp, 1993; Crockett, 2002) and more recently sports coaching (e.g. Saury & Durand, 1998; Knowles et al, 2001). For example, the study undertaken by Knowles et al (2001) found that a reflective practice curriculum which contained reflective writing exercises had a positive effect on the student coaches involved. Six out of the eight participants believed that the programme was beneficial to their development as a coach and thought that their reflection skills had improved. A second benefit of writing a reflective journal is it can promote self-awareness and self-evaluation. Yinger (1985)

believes that reflective journal writing sets up a 'self-provided feedback system' and can help people to understand their feelings, attitudes, strengths, weaknesses, and skills. A number of other researchers have also advocated the use of reflection as a tool for individuals to self-evaluate and improve their understanding of the effectiveness of their own practices (e.g. Partington & Orlick, 1991; Simons & Andersen, 1995; Anderson et al., 2002; Moon, 2006). Thirdly, writing a journal can help develop confidence (Cox, 2005). Increases in confidence have been found with teaching students (e.g. Dart et al, 1998; Rovegno, 1992), nursing students (e.g. Dimino, 1988) and medical students (e.g. Ashbury et al, 1993) after a period of journal writing.

Along with the benefits, there are several challenges to using reflective journals. Firstly, reflecting is a highly skilled and complex activity which is difficult to do effectively without proper training (Tomlinson, 1999; Lucas, 2001). In order to reflect effectively individuals need to learn and practice the skill (Mallet, 2004; Moon, 2006). This is emphasised by Mallet (2004) in his article on reflective practice in teaching and coaching. Mallet says that the "ability to self-reflect requires both structured guidance as well as regular practice with constructive feedback." (p.150). However it was unlikely that the participants in this study had been exposed to much self-reflection because coach education courses tend not to cover the concept. To overcome this issue, the researcher used questions in the journals to help guide the coaches' reflections. Along with this, instructions and guidance were provided by the researcher. Another challenge to using journals is concerned with time. Several researchers have found that it is common for participants on courses to feel that they do not have time to engage in activities like journal writing whose value may not be as obvious at the time (e.g. Hettich, 1976; Francis, 1995; Moon, 2006). For this study, the coaches were already giving a large time commitment to the course and all the associated work, and therefore they may not be willing to take the time to complete the journals regularly and in any great detail. Furthermore, the participants on the longer courses may lose enthusiasm or forget to complete the journals on a regular basis. This issue is highlighted by Bryman (2008) who notes that diaries can suffer from a process of attrition as people decide that they have had enough of the task of completing them. To overcome these challenges, it was important to 'sell' the journals to the participants as a worthwhile and beneficial exercise. To do this, the researcher emphasised the benefits that reflecting

can have to the participants' coaching and personnel development. In addition, regular emails were sent out by the researcher to remind the participants about reflecting.

3.6.2 Focus groups

Focus groups were also used in the study to gather the coaches' thoughts about the UKCC and its role within their overall learning. A focus group is a group of individuals selected and brought together by a researcher to discuss, from personal experience, the topic that is subject of the research (Powell & Single, 1996). Focus groups were undertaken at the start and end of the sampled courses and the same participants were involved in both pre and post course discussions. All the focus group interviews were semi-structured in nature, employing an interview guide to ensure that certain topics were covered but also maintaining the flexibility to explore additional issues. This freedom to deviate from the guide meant that each interview was individualised but yet still allowed for comparisons of answers to standardised questions among all participants (Graber, 1995). The participants were encouraged to respond in detail to each question and probing was used in order to obtain elaboration or clarification of the participants' answers. The pre-course focus groups aimed to get the participants views on four topics which were as follows: their previous coaching experience, their previous learning, their current competence and skill level, and their motivations for undertaking the course. Examples of questions included: "what learning have you done prior to this course?", "what coaching experience do you have?", "what do you want to get out of the course?", and "what do you feel least competent at and want to improve?" See appendix 7 for the full list of questions. The post course focus group aimed to gather the participants' thoughts on the following: whether their competency level had changed, the structure and delivery of the course, and what they planned to do next in their coaching and coach education. Examples of questions included: "how do you feel about your competency level now?", "were there any changes in specific skills?", "what are your general opinions of the course in terms of design, content and delivery?", and "are you planning on doing the next level of qualification?" (see appendix 8 for more details).

At the start of each focus group, information was provided regarding its purpose and structure, along with privacy and confidentiality issues. Each focus group was audio-taped and transcribed immediately after. Along with this, notes were taken during the interviews.

Once the transcription of a group interview was completed, the researcher read over it and reflected on the questions asked and the information given. This process was extremely useful as it helped become familiar with each interview and add new themes for future interviews. It also helped check the credibility, plausibility and trustworthiness of the interview process (Côte et al, 1995).

It was the intention to have four to six participants in each focus group as this is the recommended number in the literature (e.g. Morgan, 1993; Carey, 1994; Krueger, 1998). Small groups of four to six participants are seen to be effective as participants are likely to feel more comfortable and it gives each person a greater opportunity to talk. A small group also allows the researcher to manage the group dynamics, process the information and attend to each member. In reality, the size of the focus groups ranged from three to seven coaches. The numbers depended on two factors: how many coaches were undertaking the course and how many coaches were willing to be involved. The coaches involved in the focus groups were randomly selected from a course attendance list. By using a random sampling technique each coach on the course had an equal chance of being included in the focus group. Advantages of using this method were that representativeness was achieved and bias was minimised. Once the coaches were selected, they were either contacted by email prior to the course or asked in person on the day of the course regarding whether they wanted to take part in the interview. If any participants were unwilling or unavailable then another coach was randomly selected from the attendance sheet.

Employing the focus group method in this study was beneficial in a number of ways. Firstly, the method allowed the researcher to hear the different perspectives from a group of coaches. In the group context it was possible to elicit multiple opinions on the same issue, clarify points of agreement and disagreement, and identify the diversity of perspectives within the group (Denzin, 1989). A second benefit of the focus group method was that the interviewer's influence was reduced due to being in a group rather than in a one-to-one situation. The group setting may have also encouraged people to speak with greater openness and in more detail than they would have done in a one-to-one interview with the researcher (Carey, 1994; Francis, 1995). A further benefit was that the group setting allowed the participants to qualify their original responses in the light of comments made by

other group members. Therefore, the focus groups contained an element of quality control because the participants provided checks and balances on each other which can weed out false or extreme views (Patton, 1987). However, participants altering their views after listening to group members can also be seen as a weakness of the focus group method. The group context can be inhibiting and participants may suppress or modify their true feelings in the presence of others (Carey, 1994; Clarke, 2005; Seale, 2005). For instance, individuals may feel uncomfortable voicing their opinions in front of other people in the group, especially if they perceive other members to be more dominant or powerful. As a result, these individuals may hold back their true views and conform to the consensus of the group. To help minimise this potential issue, the researcher emphasised the importance of honesty at the start of the focus groups and stressed that every person's opinion was valuable no matter whether it was different to the other group members. The researcher also tried to make sure that all group members had a chance to make their views known. For example, if members of the group were not saying much then the researcher would direct questions at them in an attempt to get them more involved. A further issue with the method is that successful focus groups require the researcher to facilitate and guide the discussion effectively. The facilitator has a major impact on the data that focus groups produce and just as poorly prepared surveys yield inadequate data so will a poor facilitator (Morgan, 1993). The pilot study helped overcome this issue as practicing the focus group method increased the researcher's experience and confidence to lead a group interview.

3.6.3 Coach competency survey

Surveys were used in the study to assess the impact of the UKCC on the coaches' perceptions of competency. The competencies used in the surveys reflected a summarised and simplified version of those identified in the UKCC-endorsed requirements (Sports Coach UK, 2004). As previously mentioned, the UKCC is competency based in that the coaches are expected to achieve a number of competencies by the end of their qualification. The surveys in this study use the competencies and learning outcomes that Sport Coach UK established for each level of qualification. This meant that the participants' assessment of competency was directly linked to what they are learning on the course. The UKCC competencies are different for each level of qualification and therefore there were separate

surveys for the three levels. Competencies were measured on a 5-point Likert scale from 'not at all competent' (1) to 'extremely competent' (5). At the start of the surveys, there were a number of questions that aimed to gather demographic and background information from the participants. Examples of these questions included: "what is your current coaching position?", "how long have you been coaching for?", and "what level did/do you participate in your sport?" A copy of the full surveys for level one, two and three can be seen in appendix 9.

The level one survey consisted of 22 competencies which measured three learning outcomes. Learning outcome one was the preparation for the delivery of coaching activities (7 items) and an example of a competency in this outcome was "identifying potential risks in the coaching environment." Learning outcome two was delivering prepared activities of the coaching sessions (10 items) and example competencies included "supporting participants' behaviour through rewarding positive behaviour" and "providing technically correct explanations and demonstrations during activities." Learning outcome three was evaluating the effectiveness of coaching activities (5 items) and a competency in this section was "reviewing the effectiveness of the activities with participants."

The level two survey consisted of 36 competencies which measured four learning outcomes. Learning outcome one was planning a series of coaching activities (7 items) and an example of a competency was "designing plans for a series of sessions that support participants' development." Learning outcome two was preparing the coaching environment for the delivery of coaching sessions (7 items) and an example competency was "checking participants' readiness to participate." Learning outcome three was delivering a series of coaching sessions to develop participants' performance (14 items) and competencies in this section included "delivering realistic volumes and intensities" and "providing constructive feedback to participants." Learning outcome four was monitoring and evaluating coaching sessions and personnel practice (8 items) and an example competency included "analysing current coaching practice using self-reflection."

The level three survey consisted of 42 competencies which measured six learning outcomes. Learning outcome one was analysing participants' current and potential performance, needs and aspirations (4 items) and example of a competency was "identifying participants'

potential performance.” Learning outcome two was planning a coaching programme according to agreed goals (9 items) and a competency in this section was “planning a coaching programme that meets participants’ needs.” Learning outcome three was managing a safe and effective coaching environment (8 items) and an example competency was “communicating effectively to establish supportive working relationships.” Learning outcome four was delivering programme goals using a range of coaching styles and methods (11 items) and example competencies included “analysing participants’ performance during the programme” and “providing technically correct explanations, coaching points and demonstrations throughout the programme.” Learning outcome five was monitoring and evaluating the effectiveness of coaching programmes (5 items) and one of the competencies was “evaluating participants’ performance and development.” Learning outcome six was managing and developing personal coaching practice (5 items) and an example of a competency was “reviewing current coaching practice using self-reflection.”

The reliability of the scales was tested using Cronbach’s alpha. An acceptable value for Cronbach’s alpha is 0.7 to 0.8 and values substantially lower indicate an unreliable scale. At level one, the three learning outcome subscales of the survey all had high reliabilities of 0.92 and the overall scale had a reliability of 0.97. At level two the four learning outcome subscales of the survey had high reliabilities ranging from 0.91 to 0.95 and Cronbach’s alpha for the overall scale was 0.97. The learning outcome subscales of the level three survey demonstrated high reliabilities ranging from 0.78 to 0.91 and the overall scale had a high reliability of 0.97.

In addition to reliability, it is important to consider the validity of a survey. Validity is defined as “the extent to which the information collected by the researcher truly reflects the phenomenon being studied” (Veal, 1997, p.35). There are two types of validity, internal and external. Internal validity is concerned with the researcher’s ability to draw correct inferences from the data (Creswell, 2003). The internal validity of the survey was enhanced by using a mixed method approach as the researcher was able to cross check the inferences drawn from the survey with the results from the qualitative methods. External validity is the degree to which findings can be generalised across alternative types of persons, settings, and past and future situations (Tashakkori & Teddlie, 1998). Since the surveys used

the competencies from the UKCC endorsed requirements (Sports Coach UK, 2004) this helped increase external validity. These competencies are used by all the sports that are endorsed by the UKCC and therefore the survey results of this study could be generalised across these sports. External validity can be maximised over time with further use of the survey with different sports and participants.

3.7 Methods of data analysis

3.7.1 Qualitative data analysis

The analysis of the qualitative data followed a similar pattern to that of Scanlan et al (1989), Weiss et al (1991) and Turner and Nelson (2009). The analysis started with a selection of quotes or 'meaning units' from the data, to the categorisation and labelling of similar quotes into lower order themes, and then the development of higher order themes.

The first step of selecting quotes was the most crucial as the remainder of the analysis was dependent upon these choices. Selecting quotes involved separating the qualitative data into distinct segments of information which comprised of a single idea or concept that was able to stand on its own. To help do this effectively, the researcher repeatedly read all the qualitative data to get a sense of familiarity with the content. Once the quotes or meaning units were selected, they were coded according to the content involved. A code is defined as "a tag or a label for assigning units of meaning to the descriptive or inferential information compiled during a study" (Miles & Huberman, 1994, p.56). The coding scheme was based loosely on the questions used in the focus groups and reflective journals. Examples of codes included coaching experience, previous learning, expectations for the course, fulfilment of expectations, changes to competency, and recommendations for the course. Along with the pre-defined coding scheme, additional codes were allowed to emerge from the data. These new codes were made if a quote did not fit into the pre-defined coding scheme. Therefore, the analysis of the qualitative data was a combination of both inductive and deductive analysis as a number of pre-determined themes and categories were identified in advance but these remained open to continual revision to fit emerging interpretations of the data. This type of coding process, in which a general accounting scheme is defined beforehand and specific codes are then inductively

developed, is considered by Miles and Huberman (1994) as a middle ground approach between pre-defined codes and a completely inductive approach. Following the coding process, the quotes with similar tags were reorganised into broader categories known as lower order themes. The lower order themes were then analysed for similarities in order to make higher order themes.

This approach to qualitative analysis is often referred to as the 'constant comparative method' (Glaser & Strauss, 1967) and is recommended by Côte and colleagues (Côte, Salmela, Baria & Russel, 1993; Côte et al, 1995; Côte et al, 1995a). According to Côte et al (1995), this method:

Involves the process of constantly comparing and contrasting the data until saturation is reached, that is, when no more encompassing categories emerge and no new concepts can be developed from the data.

(Côte et al, 1995, p.7)

The qualitative analysis process resulted in the emergence of 4 higher order themes and 14 lower order themes. These themes were structured in relation to the topics of relevance, fidelity and effectiveness. The themes relating to relevance, fidelity and effectiveness, along with example quotes for each theme, can be seen in appendix 10.

3.7.2 Trustworthiness of the qualitative data

As highlighted in a previous section, the terms validity and reliability are associated with quantitative research. The use of the terms in qualitative research has however been widely debated and it has been suggested that qualitative studies should be judged or evaluated according to quite different criteria from those used by quantitative researchers. To assure that the data is adequate it has been suggested that qualitative researchers need to take measures to meet standards of trustworthiness instead of validity and reliability (e.g. Lincoln & Guba, 1985; Guba & Lincoln, 1989; Guba & Lincoln, 1994; Miles & Huberman, 1994; Tashakkori & Teddlie, 1998; Bryman, 2001; Denzin & Lincoln, 2005; Yin, 2006).

Lincoln and Guba (1985) provide the following description of trustworthiness:

The basic issue in relation to trustworthiness is simple: How can an inquirer persuade his or her audiences (including self) that the findings of an inquiry are worth paying attention to, worth taking account of? What arguments can be mounted, what criteria invoked, what questions asked, that would be persuasive on this issue?

(Lincoln & Guba, 1985, p.290)

According to Bryman (2001), trustworthiness is made up of the following four criteria:

1. Credibility – Whether there is a good match between researchers' observations and the theoretical ideas they develop.
2. Transferability – Whether findings hold in some other context or even in the same context at some other time.
3. Dependability – Is a parallel to the term reliability. Whether the findings are the same if the research was repeated at a later date or with a different sample of participants.
4. Confirmability – Is concerned with ensuring that the researcher has not overtly allowed personal values or theoretical inclinations to influence the conduct of the research and the findings deriving from it.

A number of measures were used in this study to enhance the trustworthiness of the data. Methodological triangulation has been identified by researchers as an effective way to maximise trustworthiness and this was used in this study (e.g. Lincoln & Guba, 1985; Maxwell, 1996; Tashakkori & Teddlie, 1998). Triangulation is when multiple sets of data are collected either by using different methods or by using the same method on more than one occasion. Member checking was another method employed to establish trustworthiness. Member checking, which is also referred to as informant reviews, is reported to be one of the most important tactics for addressing the trustworthiness of qualitative data (Lincoln & Guba, 1985; Maxwell, 1996). The process of member checking allows the participants to review and comment on the accuracy of both the data and the researcher's interpretations. The aim of the process is to reduce possible errors or discrepancies in the reported findings. In the case of the focus group data, the member checking process involved sending copies

of the transcripts to the participants, together with a summary of results, and inviting the participants to confirm whether these accurately represented their views. In this study, no corrections or elaborations were received from the participants. In addition to this, on the spot member checks were used during the focus groups. This involved the researcher using interview techniques such as probes, paraphrases and follow up questions. This type of check was very useful as it provided instant validation of the data and the researcher's initial interpretations (Rubin & Rubin, 1995).

A third method that was used to increase the trustworthiness of the qualitative data was peer review. This method involved discussing the analysis and coding process with peers familiar with and knowledgeable about the subject (e.g. supervisors and colleagues). Peer review is used and supported by a number of researchers (e.g. Lincoln & Guba, 1985; Maxwell, 1996; Bloom et al, 1998; Creswell, 2003). For example, Maxwell (1996) states that "peer feedback is an extremely useful strategy for identifying validity threats, your own biases and assumptions, and flaws in your logic or methods" (p.94). The peer review mainly took place during the coding and analysis of the data to ensure that this process was not overtly influenced by the researcher's assumptions and biases. Lastly, trustworthiness was enhanced through prolonged engagement in the field as the researcher spent an adequate amount of time at the courses collecting data. Engagement in the field and the data collection process helped increase the accuracy of the data analysis as it eliminated the distance between the analyst and subject being studied.

3.7.3 Quantitative data analysis

The survey data was analysed using SPSS 16.0. The data for the three levels of qualification was analysed separately because they were made up of different competencies. For the analysis, the participants' overall competency scores (all learning outcomes together) at pre and post course were calculated and used. The analysis of the survey data had two key aims. The first aim was to examine the difference between pre and post course overall competency. The second aim was to explore whether the difference between pre and post course competency was influenced by gender and level of coaching experience. The reason for examining differences by gender and coaching experience was to extend and expand the previous literature in these two areas (e.g. Walsh, 2004; Campbell & Sullivan, 2005; Timson-

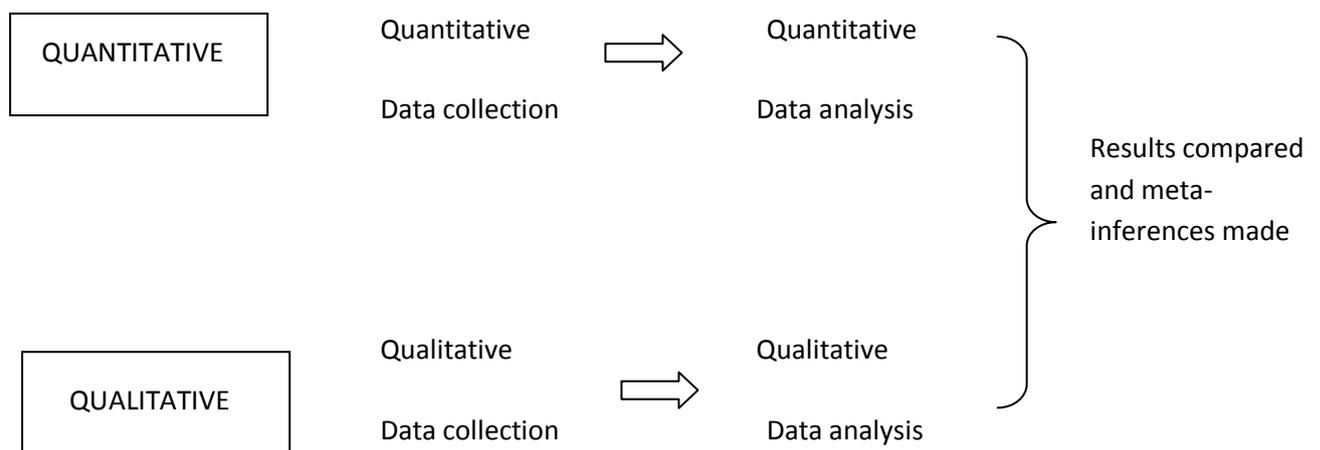
Katchis & North, 2008; Misener & Danylchuk, 2009). Only one study (Campbell & Sullivan, 2005) has examined the difference in impact of coach education between genders and thus more research is needed in the area. The study undertaken by Campbell and Sullivan (2005) found that the National Coaching Certification Programme (NCCP) had a similar impact on both males and females. In regards to the influence of coaching experience on the impact of coach education, there are conflicting views in the research (e.g. Walsh, 2004; Timson-Katchis & North, 2008; Misener & Danylchuk, 2009). The participants in Walsh (2004) and Misener and Danylchuk's (2009) research believed that coaching qualifications were more beneficial to coaches with a minimal experience in coaching or education. On the other hand, Timson-Katchis & North (2008) suggested that experience was more important for individuals at the start of their coaching and then qualifications were more useful once coaches had gained a basic level of knowledge and experience. To examine the influence of coaching experience, the five categories shown earlier (e.g. 0-2 years, 3-5 years, 6-10 years, 11-15 years, and 16+ years) were not appropriate for the analysis due to the small sample sizes and therefore experience was split into two categories. The two categories were below average experience and above average experience.

To achieve the two aims of the quantitative analysis, a 2 (Time: Pre to Post course competency) x 2 (Gender: Male & Female) x 2 (Coaching Experience: Above average experience & Below average experience) mixed model ANOVA was undertaken. The assumption of sphericity for the mixed model ANOVA was met. The mixed model ANOVA calculated the main effect for time. A significant result for this test ($p < 0.05$) indicated that there was a significant difference between pre and post course competency. Main effects were also calculated for gender and coaching experience. Taking gender as an example, a significant main effect ($p < 0.05$) indicated that males and females were significantly different in how they rated their competency. After exploring the main effects, the interaction effects for Time x Gender and Time x Coaching Experience were calculated. A significant effect for the Time x Gender interaction indicated that the change in competency from pre to post course was significantly different between males and females. A significant effect for the Time x Coaching Experience interaction indicated that the change in competency from pre to post course was significantly different between participants with above average experience and participants with below average experience.

3.7.4 Integrating the quantitative and qualitative data

As mentioned earlier, a mixed method approach was used to examine the effectiveness of the UKCC. In mixed method designs the integration of the quantitative and qualitative data is very important. Infact it has been suggested that research is not mixed if there is no integration (e.g. Creswell et al, 2003; Teddlie and Tashakkori, 2006). Creswell et al (2003) believe that for the research to be considered a true mixed methods study there must be genuine integration of the data at one or more stages in the process of the research. It is common in mixed method studies for the integration to take place during the interpretation phase (Creswell et al, 2003) and this was the case for this study. The researcher collected and analysed the quantitative and qualitative data separately and then integrated the different results during the interpretation phase. This is known as the concurrent triangulation strategy (Morse, 1991; Onwuegbuzie & Johnson, 2006; Teddlie & Tashakkori, 2006; Andrew & Halcomb, 2009) and can be seen in figure 1. The concurrent triangulation strategy was the most appropriate design given that the quantitative and qualitative data were weighted as equal and collected at the same time.

Figure 1: Model of the concurrent triangulation strategy



The model shows that in the concurrent strategy the quantitative and qualitative data are collected separately but at approximately the same point in time. Following the data

collection, the data is analysed separately and inferences⁶ are made. During this stage neither the quantitative or qualitative analysis builds on the other. Following the separate analyses of the quantitative and qualitative data, meta-inferences are drawn which integrate the conclusions made from the separate quantitative and qualitative strands of the mixed methods study. The meta-inferences will either note the convergence of findings or explain any lack of convergence that may result. Therefore, to examine the impact` of the UKCC, the survey, reflective journal and focus group data was collected separately but at approximately the same point in time. The quantitative and qualitative data was then analysed separately and conclusions were made for each. Following the separate analyses of the quantitative and qualitative data, the conclusions from each were integrated and meta-inferences were drawn.

The concurrent triangulation design offers a number of strengths to researchers. These are centred on the strengths identified by Greene and Caracelli (1997) of triangulation, compensatory and expansion. Despite these strengths, it can be challenging to integrate and compare sets of different data and results in a meaningful way. To help with this, it was important to make sure that the different research methods were employed to collect data on similar topics. A further issue with the concurrent design arises if the results from the quantitative and qualitative methods do not agree with each other. If this occurs the researcher should gather additional data to help resolve the contradiction or attempt to explain the lack of convergence. However, this issue did not arise in this study.

⁶ Inferences are conclusions/interpretations that are made on the basis of collected data in a study.

4. RESULTS AND DISCUSSION

4.1. Introduction

This chapter presents and discusses the findings in relation to the relevance, fidelity and effectiveness of the UKCC. To examine relevance and fidelity, data was collected through qualitative methods in the form of focus groups and reflective journals. The sections on relevance and fidelity start by introducing the higher and lower order themes that were derived from the qualitative analysis. Following this, the results related to each theme are presented. The sections then end by outlining the main findings and discussing them in relation to relevant literature. To examine the effectiveness of the UKCC, a mixed method approach, of surveys, focus groups and reflective journals, was used. The section on effectiveness presents the integrated results from the quantitative and qualitative data. Following the three sections, the main findings are summarised and discussed in relation to the first four research questions of the study. The final section of this chapter focuses on the fifth research question and discusses the implications that these findings have for the design of the UKCC.

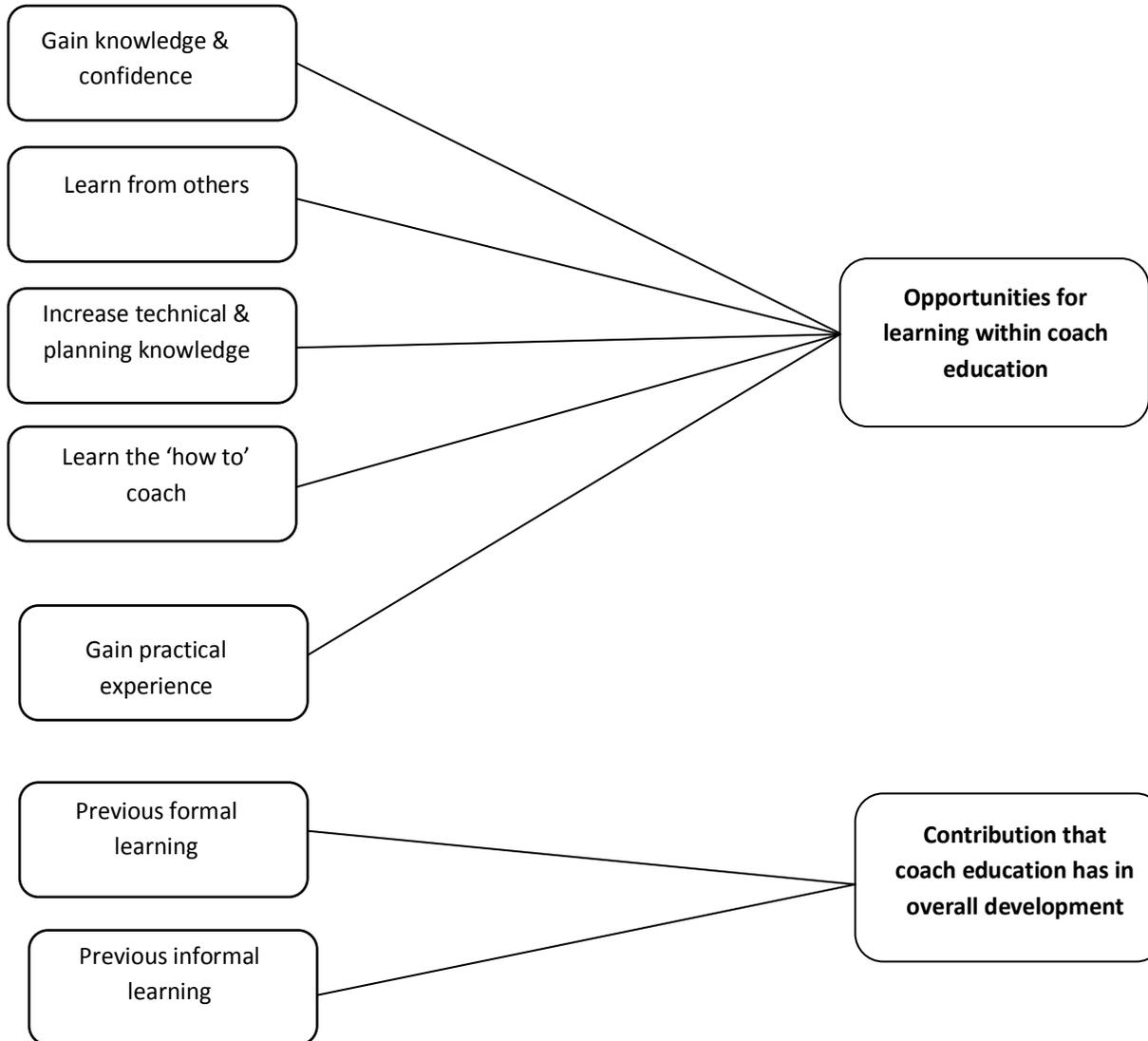
4.2 Relevance

One of the areas the research examined was the relevance of the UKCC. This involved investigating whether the programme was meeting the participants' needs and examining the importance of the UKCC in the participants' overall development as a coach. For relevance, there were two higher order themes and these were opportunities for learning within coach education and the contribution that coach education has in overall development. Opportunities for learning within coach education was made up of five lower order themes and the contribution that coach education has in overall development was made up of two lower order themes. These themes can be seen in figure 2 on the following page.

Figure 2: Relevance themes

Lower order theme

Higher order theme



4.2.1 Opportunities for learning within coach education

Opportunities for learning within coach education represented lower order themes that focused on the participants' expectations for the course and what they gained from their subsequent involvement. The five lower order themes were gain knowledge and confidence, learn from others, increase technical and planning knowledge, learn the 'how to' coach, and gain practical experience.

Gain knowledge and confidence

In the pre-course data collection, the participants identified that they were undertaking a UKCC course to gain knowledge and confidence with the overall aim to become a better coach. Comments from the participants included "I feel I need to get more knowledge since I am moving up a level to coach full rugby" (Rugby level one coach), "I would like to get confidence to be able to walk down there knowing that I don't need to turn around and look for someone to help me" (Swimming level one coach), "I am on the course to gain more knowledge" (Triathlon level one coach), "I enjoy it and just want to move up, gain more knowledge and become a better coach" (Swimming level two coach), and "Hopefully this course will be able to give me the authority to say look this is how it should be and this is how it is" (Swimming level three coach). The level three rugby coaches identified that they wanted to increase their knowledge by gaining new ideas and tools from the UKCC qualification and they hoped that this new knowledge would "freshen up" their coaching. One of the coaches stated:

I want new tools, new ways to work, things I can take back to the club so I am not static so the club and the players aren't static. I think that is really important in terms of getting better. (Rugby level three coach)

From examining the post course qualitative data it was clear that the participants, in general, believed that taking part in the UKCC courses had increased their competency, confidence and knowledge. This is positive because at the start of the course these were areas that the participants identified they wanted to improve.

A swimming level one coach described this improvement by stating:

After my first weekend of the coaching course I went to do my weekly one hour coaching session that I had been doing previously to the course, I felt a lot more confident and found it easier to communicate with the swimmers effectively. I feel like my competency has started to change gradually and I feel by finishing this course I will gain even more confidence in coaching. (Swimming level one coach)

Other comments from the participants included “The course has certainly increased my level of competency on the subject” (Triathlon level one coach), “My knowledge of swimming is much improved” (Swimming level two coach), and “I feel that my confidence in all aspects has increased in relation to coaching due to my increased knowledge and skill” (Swimming level three coach). Although the participants believed that the course had a positive influence on their competency, confidence and knowledge, a recurring theme was that they wanted more knowledge in order to feel fully competent at their level of qualification. A rugby level one coach remarked “I learnt a lot of technical skills and ways to coach them. Made me realise I need to learn more about them.” A swimming level three coach had a similar view and stated “I have increased my knowledge but there are still areas where I want to learn more and I will be doing further reading in these areas.”

Learn from others

The participants identified that a reason for taking part in the UKCC was to learn from the other coaches attending the course. This is highlighted in the following two comments from a triathlon level one coach and a rugby level two coach:

I have basically come on the course to gain more experience from the rest of the coaches and tap into the knowledge they have, and also sharing what I have in terms of my swimming background. (Triathlon level one coach)

I want to learn from the other people within the course. I want to see other people coaching. Seeing someone else doing something, picking up some ideas really for me is the biggest benefit you can get from these courses rather than just a piece of paper at the end. (Rugby level two coach)

At the end of the courses, the participants believed that this had happened and identified that the opportunity to learn from others was one of the main strengths of the UKCC. Learning from other coaches on the course was seen as an important source of learning for the participants and this was emphasised by a rugby level three coach who remarked:

A major strength of the course is the fact you have so many experienced and senior coaches and tutors and so many qualified candidates. And part of that is the dissemination of information every time you meet up. There are nuggets getting pulled out left, right and centre.

A number of the participants recommended that there should be more opportunities to interact with others during their formal education. The rugby coaches at level two and three identified several ways this could be achieved such as watching more experienced coaches in action, informal discussions, coaching forums and an informal buddy system. Responses from the rugby coaches included:

I think there could be model sessions in these courses. It was all about the experience of the people on the course however the course tutors never delivered anything, we didn't see a high quality or high calibre coach take a session. It is great seeing other coaches but it is even better seeing other coaches that you know are of a high standard. (Rugby level two coach)

I think having informal buddies would be a really good way of moving this forward. If you have someone you get paired up with that would really help. Someone you can pick up the phone and bounce stuff off. (Rugby level three coach)

We normally meet up every two or three months. If there was an intermediate where we could meet up of our own accord and go through things but because we have been so geographical diverse it is very difficult to do that. But that would be something that would be beneficial to the course and the individuals. People could meet up and they could discuss certain areas, sort of like a forum. (Rugby level three coach)

Increase technical and planning knowledge

The coaches in this study, particularly in swimming and triathlon, identified that they were undertaking a UKCC course to increase their technical knowledge. This is reflected in statements such as “I am least competent on the technical side of it” (Swimming level one coach), “I think for me it’s some of the technical stuff and the positions that I don’t regularly coach” (Rugby level two coach) and “Personally for me it is more sport science, periodisation, applying training over a year that I want” (Swimming level three coach). However, the triathlon level one coaches were aware that it may not be possible to get as much technical detail as they hoped due the short length of the course. One of the coaches remarked “I guess sometimes you hope it will go into slightly more technical detail but this is just a level one course and it is quite basic.” A number of participants also hoped to improve their knowledge of planning. Responses included “That’s a similar area that I feel I am weak at, session planning, because I don’t have much time. Hopefully I can get a few tips on that” (Rugby level two coach) and “For me it is how you structure and plan triathlon style training that I am interested in” (Triathlon level two coach).

At the end of the courses, the participants, in general, believed that they had improved their technical and planning knowledge. Responses included: “I have a vastly improved tool kit of stroke coaching, more drills and session plans” (Swimming level one coach), “I would say I have improved my planning and the idea of keeping everything linked together rather than just jumping between things” (Squash level two coach), and “Yes I feel more technically minded” (Swimming level two coach).

Nevertheless, the swimming and triathlon participants identified that they wanted more technical and sport science knowledge. This is emphasised in the comments below:

It would be nice if we could have it written down like we do this drill and this is the reason why we do this drill. Just basically the drills, more techniques and why we use certain drills. (Swimming level one coach)

I think they should cover it in more detail. Physiology and anatomy and all the basics of how the body works because that is obviously fundamental to coaching. (Triathlon level two coach)

I think a lot of focus was on all this admin stuff like risk assessments, emergency procedures. That is the stuff, that while it definitely created awareness and made us realise we needed to pay attention to it, it didn't really need that much space in the course, they could have used some of that space for physiology or biology. (Triathlon level two coach)

In addition to this, the triathlon participants' pre-course assumption about not getting as much technical information as they hoped for from the level one course was confirmed. Two triathlon coaches stated the following:

I feel in terms of the how to coach aspect, I have done similar types of coaching courses, I don't think they really taught us anything that I hadn't done in other courses. I think maybe because we are craving technical knowledge, we want more of the 'what' rather than the 'how'.

The course set itself up to teach more 'How to' rather than 'What to'. Realistically the course could not look to go into great depth about the 'what' given the relatively limited time available.

Learn the 'how to' coach

At the start of the course, the level one participants identified that they wanted to focus on the 'how to' such as how to deliver sessions, how to communicate, and how to plan. This is reflected in responses such as "I think there is rugby knowledge there but it is about how to put that rugby knowledge across to the kids so that they understand it" (Rugby level one

coach), “My concern is how you manage a group with mixed abilities” (Squash level one coach), and “I don’t know how to explain what they should be doing, I know what I should see but I don’t know how to put it across” (Swimming level one coach).

By the end of the course the level one participants felt more confident in the ‘how to coach’ as well in their coaching in general. Comments from the level one coaches included “I am more confident in how to deliver and demonstrate” (Rugby level one coach), “I feel a little more confident on how to give instructions and how to demonstrate clearly” (Squash level one coach), and “You were learning how to coach. I found it all quite positive” (Triathlon level one coach).

Gain practical experience

Unlike the other four themes, the participants did not identify gaining practical experience as an expectation for the course. A reason for this may be because they thought this would be a given as the UKCC is a practical based coach education programme. However, in the post course data collection the participants indicated that they needed more practical experience in order to feel more competent in their coaching. Comments from the participants included: “You have the basics and the basic knowledge for doing it but now you have to practice it and get better” (Squash level one coach), “I just think we just need more practice and we will get better” (Swimming level one coach), “I think it is a bit better because you know what’s going on now, you know what to expect. I just need more practice now” (Squash level two coach), and “It is just a step, we now need to get the experience” (Triathlon level two coach).

4.2.2 Contribution that coach education has in overall development

The second higher order theme was the contribution that coach education has in overall development and this was made of two lower order themes: previous formal learning and previous informal learning.

Previous formal learning

The majority of the level one participants were new to coach education and had done very little previous formal learning. For example, a squash level one coach stated: “This is my

first coach education course". The triathlon level one coaches differed from the coaches in the other three sports. Although they did not have coach education experience in triathlon, they had undertaken qualifications in other sports. One of the triathlon participants stated "I recently did my UKCC level one teaching and coaching for swimming and I have started doing a wee bit with that."

In comparison, the level two and three coaches had been exposed to more formal learning opportunities. This is reflected in responses such as "I have done the foundation, the basic level refereeing one and then went onto do the UKCC level one course last year" (Rugby level two coach), "I did the original level one before the UKCC so I had to do a bridging module, so I did that two or three years ago" (Squash level two coach), "I did level one in 2007 and level two last year" (Swimming level three coach), and "Personally I did the assistant teachers and teachers course rather than the new level one and level two" (Swimming level three coach).

The participants across all three levels recognised they needed to undertake formal learning. The level one participants identified that they needed the UKCC qualification in order to get more involved with coaching at their club. Comments included "When I played there wasn't certified coaches and stuff like that but nowadays you need to do the courses if you want to be involved" (Rugby level one coach) and "Getting the qualification means I can get more involved in terms of helping out at the club" (Triathlon level one coach). The level two participants believed they needed the qualification because it allows them to coach on their own instead of simply assisting other coaches. This was emphasised by a squash level two coach who stated "I think it is important to get level two because this is the first level that you can work independently. Once you have the qualification you can work on your own." The rugby participants at level three identified that it was necessary to get the qualification for two main reasons; firstly so they had the best coaching qualification available and secondly they believed it would help them get higher coaching positions. For example one of the coaches said "getting the qualification for me is important in terms of professional development."

Informal learning

In general, the level one participants were new to coaching their sport and had limited experience in the field. Comments from level one coaches included “I have not done much coaching at all so it’s all quite new. I have helped out on the odd occasion but that is about it” (Squash level one coach), “I have done no coaching at all” (Swimming level one coach), and “I have very little coaching experience. So I am probably starting on the first rung of the ladder in terms of coaching” (Triathlon level one coach). Due to this limited experience of coaching, the level one participants had not been exposed to much informal learning.

The level two and three participants had been involved in more informal learning and this is reflected in the following responses “I have done a lot of observation of the other coaches in our club” (Triathlon level two coach), “In terms of chatting to other coaches, I am always involved in that. I sometimes come down to watch other coaches as well because I find that very interesting” (Squash level two coach), and “I go on poolside regularly and I listen to everything the coach at the club says. Maybe not what she says all the time is right but I steal ideas” (Swimming level three coach). It was clear from the data that that the level two and three participants placed considerable importance on their informal learning, specifically learning from others. It was believed by the participants that learning from other coaches through observing them in practice or having informal discussions plays (and has played) an important part in their development as a coach. This was emphasised by a squash level two coach who said “I think one of the best ways to become a good coach is to learn from other coaches.”

The level two and three participants also believed that other coaches had influenced their coaching style and practice. A common response was that other coaches, whether it was fellow coaches, past coaches they had as an athlete, or more experienced coaches, had been influential. Examples of responses from the participants were as follows:

I think I must say that bad coaches have influenced me a lot in the way I want to do it better because there are loads of bad coaches out there.
(Triathlon level two coach)

I think for me it is the guy who gets you involved in coaching in the first place which for me was my Principal Teacher in PE. Two other guys who I kind of look up to and who I almost want to be like, the mix between the two. One is Wayne Smith who does the player empowerment side of things and the other one Vince Lombardi because he just wants to win all the time which is brilliant. (Rugby level two coach)

When I was younger I had a coach who took me from the age of eight to thirteen and he had a very big impact. I still keep in touch with him, he moved to America. His style and coaching methods were not what I want to be but he has influenced me. (Swimming level three coach)

In addition to learning from others, the level two and three participants also placed an importance on their athletic experience. The participants believed that they had learned about coaching through participating as an athlete in their sport. This is reflected in statements such as “Getting coached yourself when you are an athlete helps” (Squash level two coach), “Learning from coaches when I was an athlete has definitely been a big thing for me” (Squash level two coach), and “The coach I had as an athlete I would take quite a lot from his style of doing things” (Triathlon level two coach).

4.2.3 Discussion

The participants’ expectations of the course were to: gain knowledge and confidence; learn from others; increase their technical and planning knowledge; and learn more on the ‘how to’ coach. These findings are consistent with several other studies that have examined coaches’ motives for participating in coach education (e.g. Weiss et al, 1998; Dickson, 2001; Timson-Katchis & North, 2008; Turner & Nelson, 2009, Timson-Katchis & North, 2010). For instance, in the coach tracking year one study (Timson-Katchis & North, 2008) the most cited benefits of participating in coach education were linked to improving knowledge and practice. The participants in the coach tracking study also believed that coaching qualifications provided them with new information, kept them up-to-date with recent developments, helped increase their self confidence, and provided a unique opportunity to network with other coaches. Turner and Nelson (2009) explored why the coaches in their

study wanted to participate in a university based coach education programme and found that a major reason was to develop their coaching knowledge and practice in order to become a better coach. According to a number of other researchers (e.g. Woodman, 1993; Lyle, 2002; McCullick et al, 2005) developers of coach education have claimed that increased knowledge, experience and confidence are expected outcomes of educational programmes. The findings from this study suggest that coaches also expect these outcomes from coach education.

The UKCC qualification fulfilled the participants' expectations. The UKCC provided the participants with increased knowledge, competency and confidence; the opportunity to learn from others; increased technical and planning knowledge; and more confidence in 'how to' coach. However, the participants identified that they needed more practical experience, knowledge and opportunities to learn from others. The swimming and triathlon participants also believed that the UKCC needed to provide more technical and sport science information. A similar need was identified by the coaches in Dickson's (2001) study on the National Coaching Accreditation Scheme (NCAS). The coaches identified that the NCAS needed an increased amount of technical content.

The importance of the UKCC appeared to differ between levels of qualification. The level one participants had been exposed to little previous formal or informal learning and therefore it can be argued that the course was a big part of their initial learning and development as a coach. In comparison, the level two and three participants were involved in more formal and informal learning and therefore the UKCC seemed to play a smaller role in their overall development as a coach. The level two and three participants placed considerable value on their informal learning, in particular learning from others and learning as an athlete. This supports previous research which has found that these two methods are major sources of coach learning (e.g. Gould et al, 1990; Salmela, 1995; Cushion, 2001; Jones et al, 2003; Irwin et al, 2004; Erickson et al, 2007; Lemyre et al, 2007; Wright et al, 2007; Carter & Bloom, 2008; Cushion et al, 2010). The level two and three participants also believed that other coaches had influenced their practice and philosophy. A number of other researchers have discovered similar findings (e.g. Gould et al, 1990; Cushion, 2001; Irwin et al, 2004; Jones et al, 2004; Cushion et al, 2010). For instance, the elite coaches in Jones et

al's (2004) research emphasised the influential nature of others. Graham Taylor, for example, noted that other football coaches and managers had an important influence on his coaching style. Despite the differing importance of the UKCC across the levels, the participants at each level recognised the need to undertake formal qualifications. The participants believed that they needed the UKCC qualification for various reasons such as to be able to coach on their own and to gain higher coaching positions.

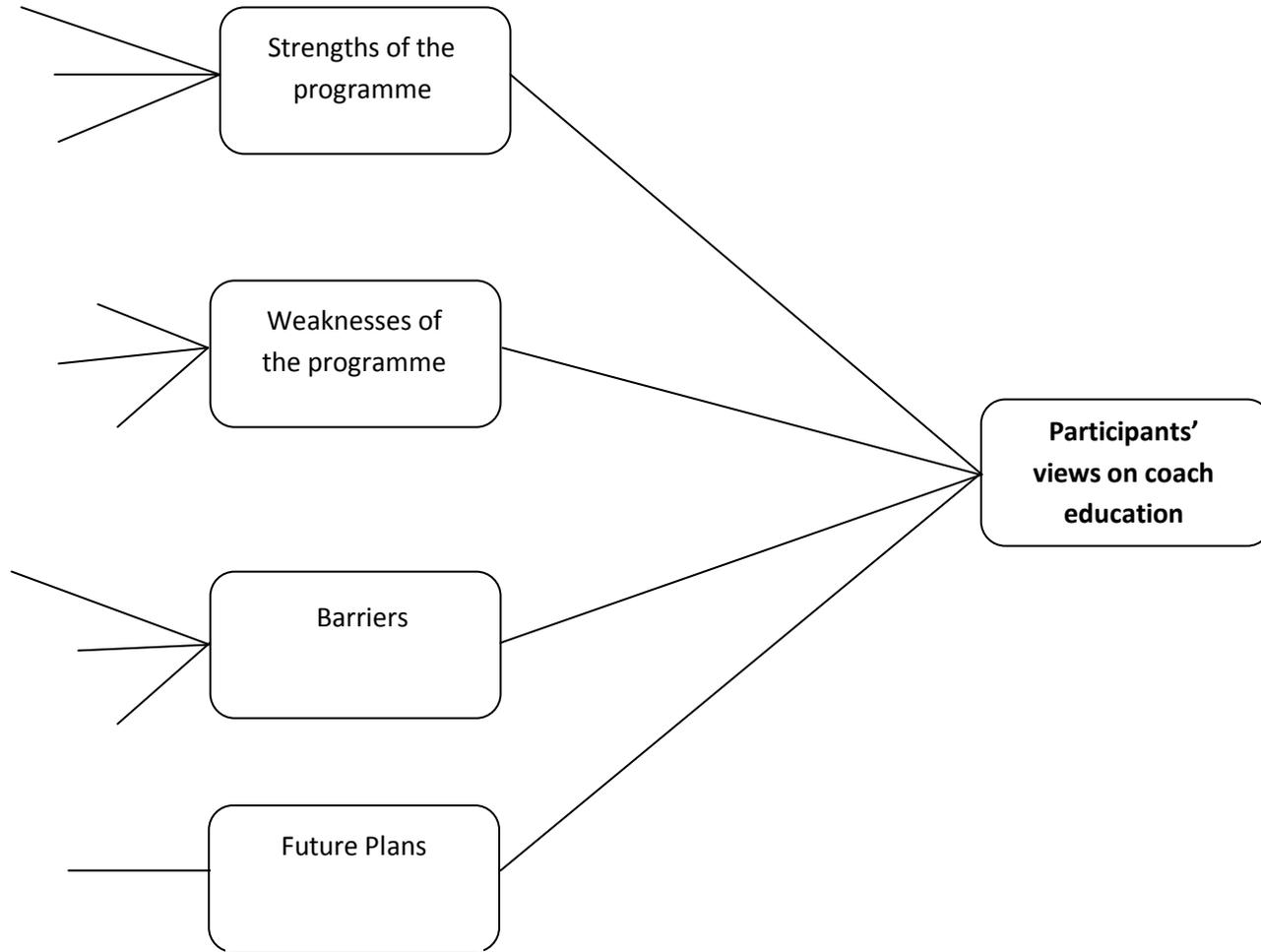
In summary, the UKCC was fulfilling the participants' expectations. However, to make the UKCC more relevant, the participants identified that it needed to provide more technical and sport science knowledge, practical coaching experience and opportunities to learn from others. In regards to the importance of the UKCC in the participants' overall learning and development as a coach, this differed between levels. At level one, the UKCC appeared to play a big part in the participants' initial development whereas the level two and three participants placed considerable value on their informal learning, especially learning from others and learning through athletic experience.

4.3 Fidelity

Examining the fidelity of the UKCC involved gathering the participants' opinions on the programme. Under the category of fidelity, there was one higher order theme which was participants' views on coach education. This higher order theme was made up of four lower order themes: strengths of the programme; weaknesses of the programme; barriers; and future plans. The themes relating to fidelity can be seen in figure 3 on the following page.

Figure 3: Fidelity themes

Categories Lower order theme Higher order theme



4.3.1 Participants views on coach education

Strengths of the programme

The participants identified several strengths of the UKCC courses and three responses were common across the levels. These were the tutors, the practical sessions, and the opportunity to learn from others on the course.

Tutors. In general the participants were positive about the tutors and thought they had contributed to their learning experience. This is reflected in comments such as “The course tutors were excellent and conveyed the skills needed to be a coach very well and very enthusiastically” (Triathlon level one coach), “I think it has been delivered well and the guys who have been on the course are good as well” (Rugby level one coach), and “The support the tutors gave us outside the classroom, for example giving us opportunities to coach, that was really helpful” (Triathlon level two coach).

Practicals. The participants also thought that the practical elements of the course were beneficial. There was a general belief among the participants that carrying out the practical coaching tasks was an effective way to learn. Examples of comments from the participants were as follows:

The practical was definitely the most useful. When you do it you actually realise what you don't know. It looks easy and then you go to do it yourself and you are unsure what you are meant to be doing. (Squash level one coach)

I think what has helped the most is delivering the eight practical sessions that we had to deliver. That gives you experience and brings it all together. (Triathlon level two coach)

The course has been very beneficial for me especially the parts when the course was integrated with the Scottish swimming national squads and when we worked on poolside with them. (Swimming level three coach)

Learn from others. A third positive was that the UKCC provided the participants with an opportunity to learn from others on the course. The participants enjoyed the engagement

with others on the course and found it important in their learning experience. This was emphasised by a rugby level two coach who stated “The main benefit of the course for me was just seeing other coaches working.” Other comments from the participants regarding learning from others are shown below:

There are so many other people on them who have different levels of experience and you are learning off everyone, not just the guys who are running the course because everyone has different ideas of coaching. (Rugby level one coach)

I do think the fact that the course had a range of people on it, I think that has been quite interesting. I think that has had a bit of an impact, I have actually picked up some new things. (Triathlon level two coach)

I get on with all participants on the course – certainly some more than others but I felt that shared knowledge with other coaches has been very important and useful. (Swimming level three coach)

Weaknesses of the programme

Three weaknesses of the programme were identified by the participants and these were the volume of content, the volume of paperwork and the structure of the paperwork.

Volume of content. The participants’ believed that there was a large volume of content to cover during their course. As a result, they thought that parts of the course were rushed and there was not enough time to actually learn. Responses from the participants included the following:

Yeah there is so much, she is telling you so many things, I am not being rude but it is going in one ear and out the other because there is so much you have to try to take in. (Swimming level one coach)

The ‘small group tasks’ tended to feel rushed and having to prepare a session within 10 to 15 minutes and then be expected to deliver the session was a tall order for those in the group with no coaching experience. (Triathlon level one coach)

If I have one criticism of the course so far, the group activities take far too long. I feel there is still a lot of material to get through (especially the examinable part, Unit 4) and not a huge amount of time left. There is also a considerable amount of homework each night. If group activities were fewer or shortened, this would allow students some study/homework/free time. (Swimming level two coach)

We had a 20 minute session on video analysis and I would suggest that resources like that is something that should have more depth because if you are not used to doing video analysis, which I don't think many of us are, then you have missed key points and a key element of this course is observation, analysis, interpretation and development. (Rugby level three coach)

This issue was emphasised heavily by the triathlon level two coaches. These coaches believed that there was too much to cover and learn over the duration of their coach education course. This may be because triathlon is made up of three different disciplines which all require extensive attention. Comments from the triathlon coaches included "Although I don't find the course academically demanding there seems a large amount to just fit in and remember for the purpose of assessment", "It is really just a case of remembering it. It is not about knowing it and I think that's very different", "I think the number of topics that is covered in the level two course is quite extensive. I didn't actually expect it to be that extensive", and "There are too many other topics. You really don't have the opportunity to learn."

Volume of paperwork. Another negative identified by the participants was concerned with the volume of paperwork. The participants thought there was too much paperwork and at times they felt they were simply filling it out in order to "tick a box". This was emphasised by a triathlon level two coach who remarked "You were feeling you were just filling in a piece of paper to tick a box."

A squash level two coach had a similar view:

There are a lot of questions which are the same but written in a different way. You think well I have just answered that before but then you just end up writing something in just so there is something in the box. (Squash level two coach)

Structure of paperwork. A further issue with the paperwork was that the course booklet and materials were badly structured. This was identified by several level one and two coaches:

Finding my way around that folder we were given with the course work in it, I couldn't work out what bits were what. I took ages to sort it all. (Swimming level one coach)

I found the material not so good. They were just not structured in a way that was intuitive so they would jump from one chapter to the next and you wondered what the connection was. It didn't flow nicely. (Triathlon level one coach)

The forms themselves are crap. There is not enough space to write on them. Some of the questions, you think well I have just answered that two questions ago. So there is a lot of repetition of questions. (Squash level two coach)

I wasn't really sure how long they wanted your answers to be and because there is not much space you are not sure if it is just a two word answer they want otherwise you are trying to squeeze your answer in. I wasn't 100 per cent what they wanted and how much they wanted in each box. (Squash level two coach)

The rugby level three coaches also identified that the course material needed improved. At times the coaches were unsure about what the questions were asking and what information they should be providing in their answers. For some questions, there were templates for the coaches to work to and clear guidance about what the tutors were looking for.

However, other questions did not have any templates or guidance and therefore the coaches were left wondering how to answer them. This was emphasised by one of the coaches who stated:

There were certain times for instance when you were doing your season review there was no template so you came in and you really did think have I nailed what they are expecting me to show to sign off my competencies or not. Ultimately we will get there but it would be nice to know even if there wasn't a template but instead it said we are looking for these competencies. I did spend a lot of time thinking is this going to be what they are after. So had I known that or least had an indicator I could have spent more time on the quality of what I was doing. (Rugby level three coach)

Barriers to participating in the UKCC

A third lower order theme was barriers to participating in the UKCC courses. The participants across all three levels indicated that time, the availability of courses and the location of the courses were barriers. Comments across the three levels regarding barriers included "Just busy lifestyle, all the other commitments you have and it is just trying to manage them" (Triathlon level one coach), "This is not a dig but the courses are not that frequent so that could be a barrier depending on what time of year you do it" (Squash level two coach), "For us it is location really. It's just these things don't come north very often" (Rugby level two coach), and "Accessing courses is challenging. Training is very much centred around the central belt of Scotland" (Swimming level three coach).

Future Plans

The fourth and final theme was the participants' future plans for coach education. The focus group participants were asked whether they would take the next level of qualification and the majority indicated that they did not intend to in the immediate future. A major reason for not progressing to the next level was that the participants wanted to gain more experience first. Comments from the participants included "I wouldn't do it straight away, I would wait a couple of years so I can get more experience" (Squash level one coach),

“Probably not right now but in the future. I want to get a bit more experience first” (Squash level two coach), and “I need to keep reviewing this course and keep learning and developing” (Swimming level three coach).

Other reasons for not doing further qualifications were lack of time and having no desire to go any further. This is reflected in statements such as “I don’t feel I have the time or the commitment at the moment” (Squash level one coach), “Not for a while for me I am quite happy with the level two at the moment and what I am doing. I also have a life out there” (Rugby level two coach), and “No intentions just now. I don’t have the time and I don’t want to” (Squash level two coach).

4.3.2 Discussion

The strengths of the UKCC were the tutors, the practical sessions, and the opportunity to learn from others. Similar results have emerged from previous research on coach education (e.g. McCullick et al, 2000; Walsh, 2004; Hammond & Perry, 2005; Heuze, 2005; McCullick et al, 2005; Cassidy et al, 2006; Nash, 2008; Misener & Danylchuk, 2009; Turner & Nelson, 2009; Timson-Katchis & North, 2010). For example, the coaches in Nash’s (2008) study identified the coach educator as an important and positive influence upon their learning. The coaches in this study also identified that it was beneficial to apply knowledge in a practical coaching situation. This finding is consistent with several other studies which have also found the practical elements of coach education courses to be beneficial to the participants (e.g. McCullick, 2000; Hammond & Perry, 2005; McCullick et al, 2005). Numerous studies on coach education have also shown that participants value the opportunity to engage with others involved on the course (e.g. Walsh, 2004; Heuze, 2005; Nash, 2008; Timson-Katchis & North, 2010). For instance, the coaches in Walsh’s (2004) study thought that networking with other coaches was the most valuable aspect of their coach education and actually saw it as more important than the educational outcomes. In addition to these studies, practical coaching experience and engagement with others have been shown in the coach learning literature to be important methods of learning for coaches (e.g. Gould et al, 1990; Salmela, 1995; Saury & Durand, 1998; Irwin et al, 2004; Jones et al, 2004; Wright et al, 2007; Werthner & Trudel, 2009). The results of this study provide further support for this literature.

The weaknesses of the programme were the volume of content, the volume of paperwork and the structure of the paperwork. These findings are consistent with the comments from coaches in previous studies who have identified the volume of work to be a problem of coach education programmes (Jones et al, 2004; Lemyre et al, 2007; Vargas-Tonsing, 2007; Nash, 2008; Turner & Nelson, 2009). For instance, the youth coaches in the research carried out by Lemyre et al (2007) believed that the theoretical courses had limited relevance because too much was covered in a short period of time. More recently, the coaches in Turner and Nelson's (2009) study believed that there was not enough time in their coach education courses to adequately cover theoretical underpinning concepts. No previous research has found the structure of the paperwork to be a weakness of coach education.

The barriers to participating in the UKCC were time, the availability of courses and the location of courses. Several researchers in the coaching field have examined barriers to taking part in education and have discovered similar findings (e.g. MORI, 2004; Timson-Katchis & North, 2008; Misener & Danylchuk, 2009; Timson-Katchis & North, 2010). For example, MORI (2004) carried out a study to explore the views of local authority and university representatives on what they thought was preventing coaches from obtaining coaching qualifications. These representatives perceived the associated cost of attendance, few locally run courses, and a lack of time as major barriers. More recently, Timson-Katchis and North (2008, 2010) found that cost, location and the timing of courses were the main deterrents that prevented the participants in their study from taking part in formal coach education. These results are also consistent with the adult education literature. Researchers in the field of adult education (e.g. Cross, 1981; Human Resources Development Canada, 2001; Sussman, 2002) have classified the main learning deterrents under three broad categories: (1) situational barriers (i.e. being too busy and lack of money), (2) institutional barriers (i.e. courses being held at inconvenient times, locations, and at too high a cost) and (3) dispositional barriers (i.e. lack of confidence and desire). The barriers identified by the participants in this study fall into the situational and institutional categories. It is not surprising that the availability and location of courses were identified as barriers given the data provided in the previous chapter regarding the number of UKCC courses delivered in Scotland. It was clear from the data that there have been a limited number of courses delivered in squash and triathlon. For example, squash have only run

eight level two courses in Scotland since they started delivering UKCC courses in 2007. This is roughly two courses a year. Triathlon has only run two level two courses since 2009 and both have been delivered in the central belt. Cost has consistently been found in previous research to be a common deterrent (e.g. Sussman, 2002; MORI, 2004; Timson-Katchis & North, 2008, 2010) however in this study it has not been mentioned. This is most likely because coaches attending UKCC courses in Scotland are heavily subsidised by **sportscotland** and therefore the cost of courses is less of an issue.

In regards to gaining further qualifications, it appears that the majority of coaches are content to stay at their current level of coaching qualification. Similar findings have emerged from other studies on coach education (e.g. Walsh, 2004; Nash, 2008; Timson-Katchis and North, 2010). Nash (2008) suggests that participants may not want to take part in further qualifications due to their “dissatisfaction with coach education courses as they are currently presented and assessed” (p139). However, the participants in this research do not indicate this as reason for not progressing to the next level of the UKCC. The coaches in this research seemed to want to stay at their current level of coaching and focus on gaining more experience and learning in their coaching environment. There are two interesting points to make about this finding. Firstly, the participants indicated that they would rather undertake informal learning than participate in more formal education. This finding again emphasises the importance participants place on their informal learning. Previous literature on coach learning has shown that coaches prefer and value informal learning opportunities over formal education (e.g. Gould et al, 1990; Cushion et al, 2003; Irwin et al, 2004; Lemyre et al, 2007; Erickson et al, 2008; Werthner & Trudel, 2009). Secondly, it is may be a concern for **sportscotland**, who have invested £2.5 million over the last four years to subsidise coaches to attend UKCC courses, that these coaches do not plan to progress their formal education in the near future. This lack of progression to the next level of qualification was evident in the data shown earlier on the number of UKCC completions in Scotland. Between 2007 and 2010, over 7000 coaches have completed a level one qualification, over 1000 have completed a level two award, and only 42 coaches are qualified at level three. It is clear from this data that a large amount of coaches go through the level one qualification however what then happens to these coaches? They may be content to stay as assistant coaches and help out at their club or team or alternatively they may have stopped coaching.

Either way, **sportscotland** have invested the largest amount of money at level one and the fact that many of these subsidised coaches are not progressing any further may be seen by some as a waste of money. Further research is needed to examine the impact of **sportscotland's** investment into the UKCC to examine questions such as are level one qualified coaches actively coaching?

To summarise the main findings in relation to the fidelity of the UKCC, the importance of informal learning was emphasised throughout the section, in particular learning from others and learning through practical experience. The participants believed that informal learning methods were effective ways to learn and would rather take part in more of these methods than undertake further UKCC qualifications in the near future. Along with this, the participants thought that the UKCC was a rushed learning environment in that there was a large volume of content and paperwork to get through in a short period of time. These findings are largely consistent with previous research.

4.4 Effectiveness

Evaluating the effectiveness of the UKCC involved examining the short term impact of the programme on the participants' perceptions of competency. The impact was measured by using a mixed method approach of surveys, focus groups and reflective journals. As outlined in the methodology, the mixed method approach used in this research was a concurrent triangulation strategy which involved collecting and analysing the quantitative and qualitative data separately and then integrating the findings in the interpretation phase. This section presents the integrated findings for each level of qualification. The qualitative data is used to understand and explain the quantitative findings. At the end of the section, a summary of the results across the three levels will be provided along with a discussion of the results in relation to relevant literature.

4.4.1 Level one

The quantitative analysis at level one showed that there was a significant main effect of time, $F(1, 43) = 64.79, p < 0.05$. Post course competency ($M=80.55, SD=10.72$) was significantly higher than pre-course competency ($M=59.23, SD=11.28$). The qualitative data supported this finding as there was a general belief from the level one participants that the

UKCC course had made a positive impact on them. A recurring response from the participants was that their confidence had increased as a result of undertaking the course. This is reflected in statements such as “I think generally my confidence of being able to deal with people in situations has improved and being able to simplify things for everyone to understand” (Rugby level one coach), “I think it gives you the confidence to start taking on more coaching” (Squash level one coach), and “I feel more confident, ready to get out there” (Triathlon level one coach).

Despite the significant increase in competency from pre to post course, the participants in general reported only moderate levels of competency at the end of the level one course. The competency score on average started at a Likert rating of two (out of five) and moved to a rating of three. This is partly explained by the qualitative data as the participants identified that they needed to gain more practical experience before feeling fully competent as a level one coach. Comments from the level one coaches included “You have the basics and the basic knowledge for doing it but now you have to practice it” (Squash level one coach), “I just think we need more practice and we will get better” (Swimming level one coach), “I feel like I do require further practice and teaching to build on the skills I am gradually learning” (Swimming level one coach), and “Competency will come with practice” (Triathlon level one coach). The triathlon coaches also identified that they needed more technical knowledge in order to feel fully competent. This response is not surprising given that at the start of the course the coaches questioned whether they would get as much technical detail as they wanted from the course.

In addition to this, several of the rugby coaches believed that they would not know the true impact of the course until they were back in their coaching environment. For example, a rugby coach stated:

I think it is difficult to tell because it is a short course and we are not going back into the season until seven weeks down the line so I think it might be more apparent then. (Rugby level one coach)

This comment is interesting in regards to the timing of courses. The rugby course took place during the off season and therefore coaches would not get a chance to implement what

they have learned on the course for a couple of months, by which point some of the content may have been forgotten. This may be an issue for sports to consider when organising courses.

Two participants differed from the general trend and scored themselves highly at the end of the level one course. These two participants had a post course competency score of 5 ('extremely competent'). From examining their demographic information, both these coaches had participated in their sport at a high level. One of the participants was a male squash coach aged 19 or under who had limited coaching experience but had competed in squash at national or above level. The other participant was a female rugby coach aged 20 to 29 who participated in rugby at county level. This participant also had six to ten years experience and this may have also contributed to her high competency score.

Analysis of the quantitative data at level one also found main effects for gender, $F(1,43) = 4.15, p < 0.05$ and coaching experience, $F(1, 43) = 5.47, p < 0.05$. On average, females had a significantly higher competency score ($M=77.65, SD=3.52$) than males ($M=69.57, SD=1.83$). For coaching experience, the participants with more than average coaching experience rated their competency significantly higher ($M=78.25, SD=3.59$) than participants with less than average experience ($M=68.97, SD=1.68$).

In addition to the main effects, a non significant Time x Gender interaction was found, $F(1, 43) = 0.56, p > 0.05$, indicating that the difference between pre and post course competency was similar for both males and females. A non significant Time x Coaching Experience interaction was also found, $F(1, 43) = 0.03, p > 0.05$, indicating that the change in competency from pre to post course was similar for participants with above average experience and below average experience. These interaction results demonstrate that the level one course had a similar impact on all participants regardless of gender or coaching experience. Therefore, even though coaches may have come into the course with different levels of experience, and in turn competency, the level one course was having a similar effect on all the participants.

4.4.2 Level two

The survey data showed that the level two course had a positive impact on the participants. A significant effect of time was found, $F(1, 39) = 12.43, p < 0.05$. On average, post course competency ($M=141.47, SD=16.40$) was significantly higher than pre-course competency ($M=119.98, SD=19.87$). This quantitative finding was supported by the qualitative data. In general the level two participants believed that the course had a positive impact on them. The participants identified that their confidence, competency and knowledge had improved as a result of undertaking the course. The level two coaches also identified specific areas that they thought they had improved on and two recurring responses emerged. The coaches believed that their technical and planning knowledge had improved. This is encouraging as these two aspects were identified by the coaches at the start of the course as areas they wanted to learn more about. A squash coach remarked at the end of the course “Probably improved the planning of lessons and the timings and sort of structure of them. I wouldn’t possibly have planned as much previously.” Two swimming coaches also described their improvement by stating:

There are certainly some areas of technique I have picked up. We did a lot of stroke analysis during the sessions and I felt more comfortable with stroke analysis as the week went on. I was able to look at swimmers and examine differences between swimmers. I have definitely made improvements in that. (Swimming level two coach)

Probably in terms of session planning. I now have more confidence and understanding in the different types of session plans and what they are for and the particular aspects they will enhance. I felt that was really good and it is just generally good to get ideas. (Swimming level two coach)

Similar to the rugby level one coaches, several swimming level two coaches identified that they would not know the true impact of the course until they were back in their environment. A reason for this response may be due to the structure of the swimming course. This course was run over a one week period and therefore there was no

opportunity during the course for the coaches to use the content they were learning in their own coaching environment.

For the level two participants, on average, their post course competency was only at a Likert rating of 3, indicating they had more work to do before feeling fully competent at their level of qualification. The qualitative data supports this finding as the participants identified that they needed more knowledge and experience before feeling 'extremely competent' as a level two coach. One of the squash level two coaches explained this by comparing it to learning to drive:

I think it is like when you learn to drive. You pass your driving test that is you starting to learn. You get the real experience and learning once you get out on the road on your own. I don't think for one moment that I pass a level two course that I have the ability to be a club coach. It gives you the bones and the foundations to start from and then you can go out and get the experience. (Squash level two coach)

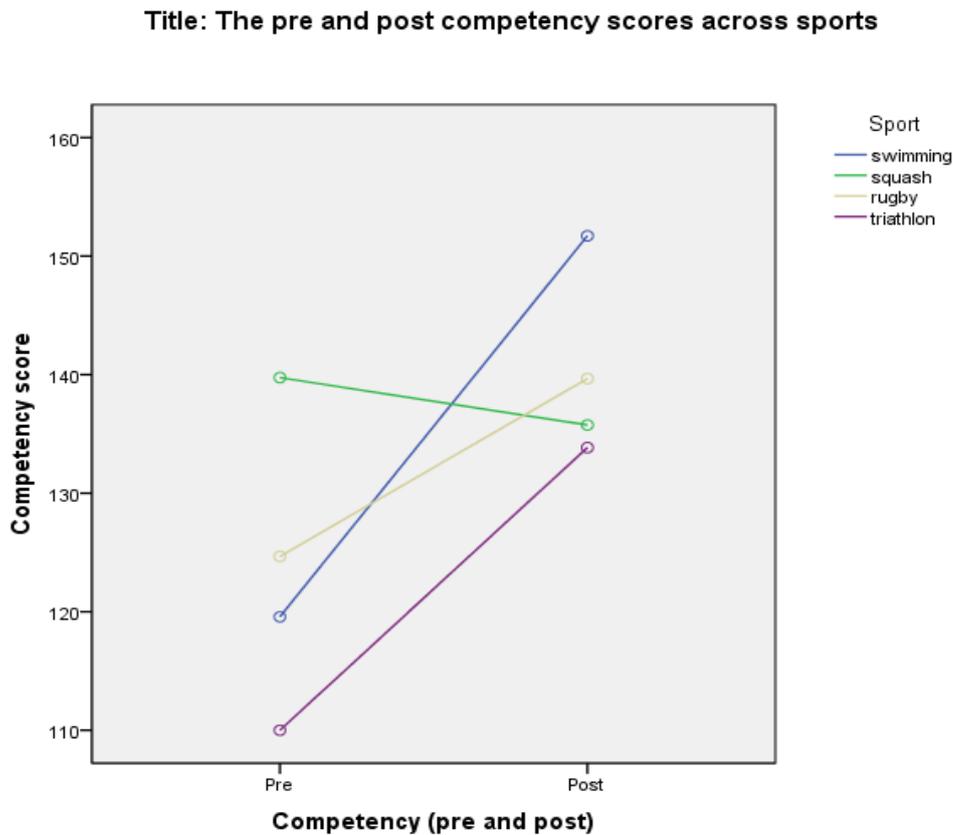
There were exceptions to this finding as two participants rated themselves as 'extremely competent' at the end of the course. The profile of these participants were fairly similar in that they were both male swim coaches aged between 20 to 29 who had participated in swimming at national or above level. The only difference between the two participants was that one had limited coaching experience (0-2 years) and the other had three to five years of experience.

The quantitative data analysis showed a non significant main effect for gender, $F(1, 39) = 0.34$, $p > 0.05$, demonstrating that males and females were similar in how they rated their competency. A non significant main effect was also found for coaching experience, $F(1, 39) = 0.46$, $p > 0.05$. Thus showing that coaches with different levels of experience were similar in how they rated their competency. A non significant effect was found for the Time x Gender interaction, $F(1, 39) = 0.04$, $p > 0.05$, indicating that the change in competency from pre to post course was similar for both males and females. A non significant effect was also found for the Time x Coaching Experience interaction, $F(1,39) = 0.14$, $p > 0.05$, showing that the change in competency from pre to post course was similar for participants with different

levels of coaching experience. These interaction results demonstrate that the level two course had a similar impact on all the participants regardless of gender or coaching experience. This impact was a positive change in competency from pre to post course.

Although the data showed that in general the course had a positive impact, it was clear from examining the qualitative responses that the participants' experiences of the level two course and its impact differed between sports. While the rugby and swimming coaches were generally positive about the level two course, several squash and triathlon participants were more critical of it. Due to these differing views, further analysis of the quantitative data was undertaken. A 2 (Time: Pre to Post course competency) x 4 (Sport: Rugby, Squash, Swimming & Triathlon) mixed model ANOVA was undertaken to examine the effect of sport. Similar to the previous ANOVA, and as expected, a significant main effect was found for time, $F(1, 39) = 29.92, p < 0.05$. Post course competency was significantly higher than pre course competency. The test also showed a non significant main effect of sport, $F(1, 39) = 2.40, p > 0.05$, demonstrating that the coaches in the four sports were similar in how they rated their competency. A significant effect was found for the Time x Sport interaction, $F(3,39) = 5.10, p < 0.05$. This result indicated that the change in competency from pre to post course was significantly different in at least one of the four sports. To explore this further, the pre and post course competency data for each sport was plotted (see figure 4 on next page).

Figure 4: The pre and post course competency scores across the four sports at level two



From examining the graph it was clear that the UKCC level two course had a positive impact on the rugby, swimming and triathlon participants. However, the impact was different for the squash coaches as there appeared to be a slight decrease in competency from pre to post course. To explore the pre and post course scores in more detail, paired t tests were carried out for each sport (see table 14). These tests showed that there was a significant difference between pre and post course competency for the rugby, swimming and triathlon coaches. For these coaches, post course competency was significantly higher than pre-course competency. For the squash coaches, the difference between pre and post course competency was not significant, indicating that there was no significant change between pre and post course competency scores.

Table 14: A comparison of the mean pre and post course competency scores across the four sports at level two

Sport	Pre course mean (Std. Dev)	Post course mean (Std. Dev)	Sig*
Rugby	124.67 (13.931)	139.67 (11.106)	0.009
Squash	139.75 (23.056)	135.75 (6.131)	0.707
Swimming	119.57 (23.25)	151.71 (20.488)	0.000
Triathlon	110.00 (15.00)	133.85 (14.927)	0.000

*Since four paired t tests were undertaken, the p value was divided by 4. Therefore p had to be equal or less than 0.01 to be significant.

The large standard deviation on the pre-course competency score for squash compared to the post score is worthy of note and indicates that the participants' scores were much more varied at pre-course compared to post course. After examining the data in more detail it was discovered that this was due to two coaches rating their competency very highly at the beginning of the course and by the end their competency scores were lower and more similar to the other participants on the course. In the pre-course discussions, these two coaches identified that they had over 11 years of experience and due to this they felt confident in their coaching. It came across during the discussion that these two coaches did not expect to get much out of the course except the "piece of paper" at the end. Neither of the coaches identified specific areas they wanted to work on instead they believed that the course would highlight their strengths and weaknesses. At the end of the course, the two coaches identified that the course had not challenged them and they believed it would have been more useful earlier in their coaching careers. This qualitative data helps explain the similar pre and post course scores for squash. Comments from the two squash coaches described above were as follows:

I think the strengths and weaknesses will be more apparent in level three if I am being honest. I think that will be more challenging so I will be able to identify my strengths and weaknesses. This has not pushed me out of my comfort zone but I think level three would. (Squash level two coach)

If I had done it 15 years ago it would have probably benefitted me more than it has done now if I am being really honest. I think it is very basic. It is the next step for us from assistant to club coach so you would think it would be a bigger step. You would think there would be a little bit more technical knowledge. (Squash level two coach)

It can also be seen from table 14 that the triathlon coaches had the lowest competency score at the end of the course and the qualitative data can help explain this. At the end of the course the triathlon coaches said that they were stressed about the volume of content and how much there was to learn during the course. This uneasiness about the volume of work may be a reason for their low competency. Comments from the triathlon level two coaches included:

I thought there was a lot more on the course than I thought and I think I just panicked. But it has made me stronger and I know what I have to do now. (Triathlon level two coach)

Yeah it has made a scratch on the surface because what I said before there are too many other topics in the course to actually realistically have a knowledge of all those aspects. (Triathlon level two coach)

I think the number of topics that is covered in the level two course is quite extensive. I didn't actually expect it to be that extensive. There were quite a lot of topics which you have to take on board. (Triathlon level two coach)

There was health and safety, there was physiology. There are things like aerobic and anaerobic, different systems. Then the actual different disciplines, the swim, bike and run sessions, writing your sessions, linking your sessions, evaluating sessions, reviewing sessions. You really don't have the opportunity to learn. (Triathlon level two coach)

4.4.3 Level three

The survey data showed that the level three course had a positive impact on the participants' perceptions of competency. There was a significant main effect of time, $F(1, 18) = 31.62$, $p < 0.05$, with post course competency ($M=160.38$, $SD=15.82$) significantly higher than pre-course competency ($M=135.90$, $SD=18.32$). This finding is further supported by the qualitative data. The level three participants believed that the course had made a positive impact on their competency and knowledge. The rugby coaches thought that their knowledge and competency had improved in a number of areas such as season planning, player profiling, video analysis, and managing a coaching team. They believed that they had become a more rounded coach as a result of the level three course. This is reflected in comments such as "I would say definitely more competent. I have become far more rounded I think. I have a lot more tools for my coaching toolkit" and "I think it has just allowed me to become a broader and more comfortable coach." One of the rugby coaches describes this idea of being a more rounded coach by saying that the course has given him "the additional clubs in the golf bag so that he can move into different areas". Two of the rugby coaches also identified that they now reflect more on their coaching practice. These coaches stated:

I think that self-reflection has been a massive development for me and I should formalise this every time I coach and link it to a continuing self development plan. I now reflect after sessions and think about how to improve them for next time. (Rugby level three coach)

I now find myself consciously asking deeper secondary and tertiary questions of what happened, why it happened and more importantly how can I prevent it being effective against my team. (Rugby level three coach)

The swimming coaches believed that their knowledge and competency had improved in the following areas: long term planning, land training, stroke technique, motivational techniques, and sport science. Comments included "The Land Training Unit was new to me but gave me a lot of information and ideas to try and implement back at the club" and "I now know and understand a lot more about what type of exercises to do and not to do to

improve swimming technique and performance.” The idea of becoming a more rounded coach was also identified by a swimming participant who stated “The course is making me think more about everything surrounding swimming.” This coach went onto explain this further by stating:

Now that all of the practical days are over and done with, I feel that the time spent in Stirling on the course has been invaluable to me. I feel a lot more knowledgeable and confident as a coach in all aspects of swimming.
(Swimming level three coach)

Similar to level one and two, on average the post course competency score was at a Likert rating of 3 indicating that the level three participants believed there was more to do before feeling fully competent. This was emphasised by a rugby coach who said:

I am a confident coach but the experience of level three has caused me to want to complete further more specialist reading and research especially in periodisation and programming of training.

There were two participants who were exceptions and rated themselves as extremely competent at the end of the course. Both of these participants were male rugby coaches who participated in rugby at county level.

The quantitative analysis also showed that there was no significant main effect of gender, $F(1, 18) = 2.20, p > 0.05$ or coaching experience, $F(1, 18) = 0.07, p > 0.05$. Therefore, males and females had, on average, similar competency scores and so did coaches with different levels of coaching experience. Non significant effects were found for the Time x Gender interaction, $F(1, 18) = 2.59, p > 0.05$, and the Time x Coaching Experience interaction, $F(1, 18) = 0.12, p > 0.05$. These results demonstrate that the level three course had a similar impact on all participants regardless of gender and coaching experience.

4.4.4 Discussion

At all three levels of qualification the data, in general, showed that the UKCC had a positive impact on the participants. The quantitative analysis showed that at each level the participants' post course competency was significantly higher than their pre-course

competency. These results are consistent with previous research which has used quantitative methods to examine the impact of coach education on the participants' self perceptions (e.g. Weiss et al, 1990; Malete & Feltz, 2000; Lee et al, 2002; Campbell & Sullivan, 2005). For instance, the coaching efficacy research (Malete & Feltz, 2000; Lee et al, 2002; Campbell & Sullivan, 2005) showed that coaches had higher levels of efficacy after participating in coach education programmes.

The qualitative data supported the quantitative findings of the study as there was a general belief from the coaches that participating in the UKCC had a positive impact on them. The participants identified that the UKCC had a positive influence on three main areas: competency, confidence and coaching knowledge. Dickson (2001) and Heuze (2005) have found similar results in their research. The rugby coaches in Dickson's (2001) study believed that the National Coaching Accreditation Scheme (NCAS) had led to improvements in their coaching, while the participants in Heuze's (2005) study agreed that their coach education had helped increase their knowledge, their confidence and their understanding of other sports. The positive findings of this study regarding the impact of the UKCC however contradict the results of Gilbert and Trudel (1999). Their study found that the National Coaching Certification Programme (NCCP) had a negligible impact upon the coach's knowledge, decision making and instructional behaviours. However, this study only sampled one coach and the main goal of the research was to test out an evaluation strategy that they had designed rather than examine whether the coach education programme had made an impact on coach behaviour. This could therefore explain the difference in findings.

Although there was a significant impact on competency from pre to post course, the coaches still only rated themselves as moderately competent at the end of the course indicating that there was more to do before feeling fully competent at their level of qualification. This finding indicates that the UKCC is only doing so much for the participants. However, how much change can we reasonably expect from these episodic coach education experiences? Coach education only accounts for a short period in a coach's lifelong learning journey and therefore it is limited in how much it can achieve. The participants identified that they needed more knowledge, in particular technical and sport science knowledge, and practical experience in order to feel fully competent at their level of qualification.

There were several participants who were exceptions to the previous finding and rated themselves as 'extremely competent' at the end of the course. All these participants had high levels of athletic experience. Does this mean that coaches who have participated in their sport at a high level are more competent in their ability to coach? Or do they just think they are more competent? Not all the participants with high levels of athletic experience rated themselves as extremely competent so it is difficult to make any claims. It is also difficult to make any solid conclusions because there has been limited previous research that has examined whether coaches with high levels of athletic experience are more competent in their coaching. This finding however brings up the debate about whether previous athletic experience is necessary in order to be a good coach. There is a perception that a coach needs to have played at a high level in order to coach at a high level. A high level of athletic experience is common with most coaches and obviously this experience offers a number of benefits such as having tacit knowledge of the sport, the ability to demonstrate techniques and a better understanding of athlete needs (e.g. Sage, 1989; Schempp et al, 1998; Potrac et al, 2002; Lemyre et al, 2007). Nevertheless, just because a coach has not participated in a sport at a high level does not mean they will not be a good coach at that level as coaching involves a different set of skills. Graham Henry is a perfect example. He never played rugby for the All Blacks however he has become one of the most successful coaches in New Zealand and worldwide. So although suggestions have been put forward about focussing more on people who have participated in their sport at a high level because the demographic data has shown that these are the types of people who progress to higher qualifications, it is still important to look for coaching talent outside this group of people as there is no consistent evidence to show that pre-coaching experience is related to future coaching competency (Trudel & Gilbert, 2004).

The quantitative analysis examined the effect of gender on perceptions of competency. The analysis indicated that male and female coaches' self perceptions were more similar than previous research has found (e.g. Lenney, 1977; Godin & Shepard, 1985; Lirgg, 1991, 1992; Lirgg et al, 1994). Previous research has tended to indicate that females report less self efficacy than their male counterparts however, the women in this study did not perceive themselves to be less competent and actually at level one they were significantly more competent than the males on the course. More recent research on coaching efficacy has

suggested that females are more confident in the socio-emotional functions of a coach whereas males are more confident in the task orientated aspects of the role (e.g. Maleté & Feltz, 2000; Lee et al, 2002; Campbell & Sullivan, 2005). However, it is difficult to compare the results of this study to the efficacy research due to the different surveys used. In this study, the competencies in the surveys were directly linked to the UKCC learning outcomes and therefore the coaches' assessment of their competency was directly related to what they were doing on the course. Whereas, the Coaching Efficacy Scale (CES) measures coaches' efficacy on four dimensions (motivation, game strategy, technique, and character building) however these dimensions may not be covered during a coach education course. For example, coaches may have low efficacy in motivation after a coach education course however this may be because the course did not contain motivation topics. Due to this, the CES may be a limited tool to measure the impact of coach education.

The quantitative analysis also found non significant effects at each level for the Time x Gender interaction, indicating that the UKCC was having a similar impact on both males and females. This finding is consistent with what was found by the only other study that has examined whether the impact of coach education differs between genders (Campbell & Sullivan, 2005). Campbell and Sullivan (2005) found that the National Coaching Certification Programme (NCCP) had a similar impact on both males and females.

In addition to gender, the quantitative analysis also explored the effect of coaching experience. Previous literature (e.g. Bandura, 1977, 1977a, 1997) has claimed that experience influences self efficacy and self perceptions. This was the case for level one as participants with more than average experience rated their competency significantly higher than participants with less than average experience. However, this was not the case at level two and three as the participants with different levels of experience rated their competency in a similar way. Non significant effects were found at each level for the Time x Coaching Experience interaction, demonstrating that the impact of the course on competency was similar for participants with different levels of experience. This finding contradicts what has been suggested in previous literature (e.g. Walsh, 2004; Timson-Katchis & North, 2008; Misener & Danylchuk, 2009). The participants in the research undertaken by Walsh (2004) and Misener and Danylchuk (2009) believed that coaching qualifications were more

beneficial to coaches with a minimal experience in coaching or education. On the other hand, Timson-Katchis and North (2008) suggested that experience was more important for individuals at the start of their coaching career and then qualifications were more useful once coaches had gained a level of knowledge and experience. These conflicting results indicate that further research is needed in the area.

4.5 Summary of main findings of research questions 1 to 4

This summary draws together the main findings from the previous three sections and relates them to the study's first four research questions. The main findings are shown below:

Is the UKCC relevant to participants' needs? (Relevance)

- The UKCC fulfilled the participants' expectations in that it provided the participants' with increased competency and confidence; the opportunity to learn from others; increased technical and planning knowledge; and more confidence in 'how' to coach.
- To make the UKCC more relevant to the participants' needs it should provide more technical and sport science knowledge, practical coaching experience, and opportunities to learn from others.

How important is the UKCC in the participants' overall learning and development as a coach? (Relevance)

- At level one, the UKCC appeared to play a big part in the participants' initial development as a coach. At level two and three the UKCC played a smaller role in the participants' development and these participants placed considerable importance on their informal learning, specifically learning from others and learning as an athlete.
- Despite the differing importance of the UKCC across the levels, in general the participants recognised that they needed formal qualifications in order to progress as a coach.

What are the participants' perceptions of the UKCC? (Fidelity)

- The importance of informal learning was emphasised by the participants, specifically learning from others and learning through practical experience. The participants believed that informal learning methods were effective ways to learn and would rather take part in more of these methods than undertake further qualifications in the near future.
- The UKCC was seen as a rushed learning environment as there was a large volume of content to get through in a short period of time.
- Barriers to participating in the UKCC were time, availability of courses and location of courses.

What impact has the UKCC had on the participants' perceptions of competency? (Effectiveness)

- The UKCC had a positive impact on the participants' perceptions of competency. At all three levels, post course competency was significantly higher than pre-course competency. This was supported by the qualitative data as the participants identified that the UKCC had a positive influence on their competency, confidence and coaching knowledge.
- The impact on competency was similar for all participants regardless of gender or level of coaching experience.
- Although the UKCC made a significant impact, participants still only rated themselves as moderately competent at the end of the course and indicated they needed more technical knowledge and practical experience.

A recurring theme in these findings is that informal learning is valued highly by the participants. Specifically, the participants emphasise the importance of learning from others and learning through practical experience. The participants believe that these informal methods are valuable to their development as a coach and indicate they want more of them. Given this importance placed on informal learning, why do sportscotland and other national agencies spend a considerable amount of money subsidising formal provision when it is clear that informal learning is valued more? One argument is that formal provision is

still needed because informal learning is less effective without the presence of formal learning. Numerous researchers believe that a wide range of learning sources/environments are important as they all contribute something unique in different stages and contexts (Cassidy & Rossi, 2006; Werthner & Trudel, 2006; Reade, 2009). Several ideas on how to incorporate different learning sources into coach education have been suggested by these researchers and these are discussed in the next chapter.

The need for more technical and sport science knowledge is another recurring theme in the findings. This is interesting because one of the aims of the UKCC was to focus on the 'how', 'what' and 'why' rather than just the 'what'. The UKCC intended to provide less sport-specific technical knowledge and more on how to deliver athlete-centred coaching. However, a recurring finding in the data was that the participants want more of the 'what' i.e. technical and sport specific knowledge. A reason for this could be that the participants have the perception (or misconception) that coaching simply involves the transfer of technical knowledge. Researchers who view coaching from an instructional perspective (e.g. Sherman et al, 1997; Fischman & Oxendine, 1998) would support this view and would argue that a central role of a coach is to provide technical knowledge in order to develop the skills of their athletes. These researchers would therefore maintain that coach education should make sure it is providing enough technical input. In contrast, several other researchers (e.g. Jones, 2000; Nelson et al, 2006) would argue that coaching is more than just providing sport specific and technical information, it is about how to develop an effective coaching environment and coach-athlete relationships, and thus education should focus on these aspects. If the reason for wanting more technical information is due to the participants having an instructional view of coaching then it may be useful to educate them on the wider coaching role and the range of skills needed. An alternative reason for the participants needing more technical information may be because the UKCC has swung too much in favour of the 'how' and the participants, especially in the technical sports of swimming and triathlon, feel they are not getting enough of the 'what'. Recommendations for addressing this issue are outlined in the following section.

4.6 Implications for the design of the UKCC

Based on the findings from the first four research questions this section considers and discusses the implications of these findings for the design of the UKCC. Implications are discussed in three areas:

- The structure of the UKCC.
- The delivery of the UKCC.
- The role of the UKCC (and coach education) in the overall development of a coach.

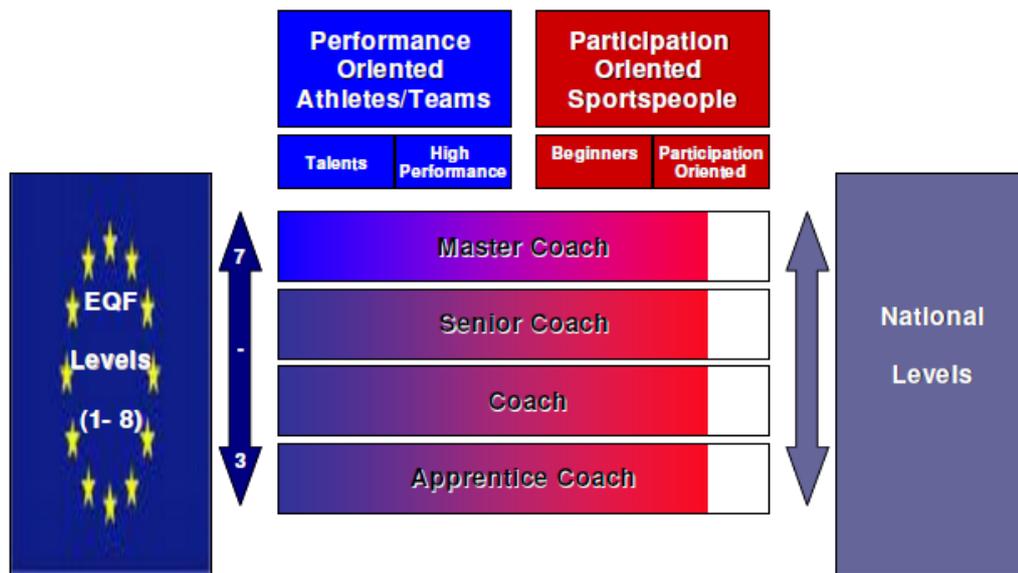
4.6.1 Structure of the UKCC

This research has shown that the structure of the UKCC appears to be working as it made a positive impact on the participants' perceptions of competency. However, a challenge that the UKCC faces is that there is a large drop off in the number of participants from level one to level two. A large number of coaches have undertaken the level one qualification and have been subsidised by **sportscotland** to do so. However, a majority of these coaches have not progressed to further qualifications and it is not known whether they are still coaching or not. **sportscotland** have invested the largest amount of funding at level one and in the future they should reconsider their allocation of funding across the levels. **sportscotland** should decrease the amount of subsidy at level one and focus more on level two and three. This reduction of funding at level one would obviously impact new coaches but other opportunities to access support could be promoted such as Individual Learning Accounts (ILAs) or local authority coach scholarship funding (**sportscotland**, 2010). In addition to reducing funding, financial support for the level one qualification should be linked to deployment. Any coach who wants funding for the level one qualification should be able to demonstrate that they are actively coaching within the community. **sportscotland** (2010) have suggested that in order for a level one coach to receive subsidy they must be coaching at least once per month or on average 12 times per year. Linking financial support to deployment should also be present at level two and three in order to ensure that **sportscotland's** investment is worthwhile.

Further to these funding recommendations, developers of the UKCC should make the programme more context specific. This idea of making coach education context specific was

suggested in Coaching Matters (1991) and again in the most recent coaching policy document 'The UK Coaching Framework' (Sports Coach UK, 2006). However this concept has yet to be implemented in the UKCC. This recommendation has also been suggested at a European level as the European Coaching Council (2007) proposed a new framework for coaching qualifications and this can be seen in figure 5 below.

Figure 5: Classification of coaching roles by the European Coaching Council



(European Coaching Council, 2007, p.16)

The framework identifies four levels which are apprentice coach, coach, senior coach and master coach. The framework also identifies two coaching contexts: participation oriented and performance oriented. Both these contexts have two further sub-components. For the participation context, the two components are beginners and participation orientated while the performance context is split up into talents and high performance. The aim of this framework is to make coaches' education relevant to their context and specific needs.

Canada has adopted a similar framework for their national coach education programme, the National Coaching Certification Programme (NCCP). The NCCP has three streams which are community sport, competition and instruction. Within each stream there are several contexts which are specific to the type of athlete a coach is working with. For example, the competition stream has three contexts: introduction, development and high performance.

Within any stream a coach can work through five levels and these are: in training, trained, certified, advanced and master. The structure of the NCCP can be seen in appendix 11.

In the UK context, some sports have made progress in this area. For example, hockey has developed a coach development model which splits coaches up in terms of role and environment (see figure 6 below). There are four roles and these are assistant coach, coach, senior coach and master coach. There are also five different environments: children, youth, adult, performance (including talent development) and high performance.

Figure 6: 5 x 4 hockey coach development model

	CHILDREN 5-11 YRS	YOUTH 12-18 YRS	ADULT PARTICIPATION	PERFORMANCE INCLUDING TALENT DEVELOPMENT	HIGH PERFORMANCE
COACHING ASSISTANT	Coaching Assistant at junior club, school or participation sessions	Coaching Assistant at junior club or school	Coaching Assistant in any adult club session	Coaching Assistant at player pathway / talent ID sessions	Coaching Assistant at International level or National League
COACH	Coach at junior club, school or participation sessions	Coach of junior club team, school team	Coach of club team	Coach at player pathway / talent ID sessions	Coach in National or Premier League club
SENIOR COACH	Head Coach at junior club or school with 50+ children	Head Coach at junior club or school with 50+ children	Head Coach at a large club	Head Coach at National Age Group	Head Coach of National U21 squad or National or Premier League club
MASTER COACH	Director of Coaching for junior programmes in club or school	Director of Coaching for junior programmes in club or school	Director of Coaching for a large club	Head Coach GB Youth or National Age Group squads	Head Coach GB or National Senior squads
	CHILDREN PARTICIPATING IN JUNIOR CLUB OR SCHOOL HOCKEY ACTIVITY	SCHOOL / CLUB ACTIVITY THAT IS NOT PERFORMANCE CLUB/PLAYER PATHWAY LINKED	OVER 100 INVOLVED IN CLUB SEASONAL HOCKEY FOR PARTICIPATION PURPOSES	ATHLETES PARTICIPATING IN PERFORMANCE PLAYER CLUB ENVIRONMENTS	ATHLETES COMPETING AT ELITE LEVEL
	englandhockey.co.uk	scottish-hockey.org.uk	welsh-hockey.co.uk		

Taken from www.englandhockey.co.uk

Although hockey has developed this coach development model, they have yet to implement it into their coach education and deliver separate courses for the different environments. Nevertheless, throughout their courses examples for coaching in different contexts are provided and depend on the deployment focus of the coaches on any given course. A

challenge with adopting a context specific course approach is concerned with the lack of coaches participating in coach education in Scotland. The limited numbers makes it difficult to separate coaches into different contexts. For example, in the squash level two course sampled in this study there were only five people on the course and therefore it would not be feasible to split these coaches up by the context in which they coach. A sport that has managed to implement this structure successfully in Scotland is football. Coach education courses in football are run by the Scottish Football Association (SFA) and are independent from the UKCC. The SFA have identified three contexts (children, youth and adult) and within each context there are five levels of qualifications. In addition to the three contexts, there are specialised courses for coaches to tap into such as a goalkeeping basic certificate (see table 15). One reason the SFA can run context specific coach education is because the number of coaches going through their courses is much higher.

Table 15: Coaching qualification structure in Scottish Football

<p style="text-align: center;">CHILDREN 5-11YEARS</p> <p>Level 5 Advanced children’s license Level 4 Basic Children’s award Level 3 Coaching in the game Level 2 Coaching young footballers Level 1 Early touches certificate</p>	<p style="text-align: center;">YOUTH 12-18 YEARS</p> <p>Level 5 advanced youth licence Level 4 Basic youth award Level 3 Coaching in the game Level 2 Coaching young footballers Level 1 Development activities</p>
<p style="text-align: center;">ADULT</p> <p>Level 5 Scottish FA UEFA pro licence Level 4 Scottish FA UEFA advanced licence Level 3 Scottish FA UEFA basic licence assessment Level 2 Scottish FA UEFA basic licence Level 1 Scottish FA club coach certificate</p>	<p style="text-align: center;">SPECIALIST COURSES</p> <p>Youth directors’ award Coaching footballers with disabilities Goalkeeping basic licence Goalkeeping intermediate certificate Goalkeeping basic certificate</p>

Although it may be more challenging in some sports, developers of the UKCC should attempt to make the programme more context specific so that the coach education is more relevant and specific to the coaches’ needs. This in turn will lead to the development of better quality coaches and quality coaches have been identified as essential in delivering success in sport at all levels (UK Sports Council, 1991, 1999; **sportscotland**, 2006).

4.6.2 Delivery of the UKCC

A recurring theme in the findings was that the participants placed considerable value on informal learning methods, specifically learning from others and learning from experience. Given this, developers of the UKCC should incorporate more informal learning experiences into the programme. This can be done through mentoring, providing more practical experiences, and utilising the communities of practice concept. Another recurring theme was that the participants wanted more technical knowledge to be provided. To improve this area additional modules should be developed. These recommendations for improving the delivery of the UKCC will be discussed in turn in the following sections.

Mentoring

Incorporating more informal learning into formal coach education programmes has been suggested by several researchers (e.g. Colley et al, 2003; Timson-Katchis & North, 2008; Armour, 2010; Cushion et al, 2010). However, a difficulty of doing this is that there is a lack of research on the specific, optimal mix of learning methods. A further difficulty is concerned with how to include informal situations into formal provision and how to accredit coaches for their informal learning (Lyle et al, 2009; Cushion et al, 2010). This is problematic in coach education because it does not conform to the model of professional education and training similar to that of other domains (Lyle et al, 2009). For example in medicine, students cannot practice until they qualify and therefore they go through extensive formal education which involves a variety of learning methods, however this is not the case for coach education. It has been suggested by Colley et al (2003) that a possible way of effectively combining formal and informal learning is through mentoring. According to these authors, mentoring is the most visible example of a practice where formal and informal learning meet. Therefore, the UKCC should incorporate a mentoring aspect in the programme.

There is support for the use of mentoring in a range of domains such as business, education, nursing and coaching. A number of researchers in the coaching context (e.g. Bloom et al, 1998; Salmela, 1995; Dickson, 2001; Lyle, 2002; Walsh, 2004) have suggested that formal mentoring should be included in coach education programmes in an attempt to improve

provision. However, there is a lack of evidence in coaching, as well as other domains, to support these claims for mentoring (Jones et al, 2009; Cushion et al, 2010). It is clear from the current literature that further research is required on whether and how mentoring should be included in coach education.

In regards to how the UKCC should incorporate mentoring into the programme, it is not feasible to give everyone attending a UKCC course a mentor due to the number of coaches going through these qualifications and the lack of experienced coaches who can act as mentors. However, instead of one-to-one support, a number of mentor figures should be identified that participants can talk to, get feedback from or watch in action. A similar recommendation was recently identified by Griffiths (2011). Griffiths (2011) suggested that the notion of mentoring should be expanded beyond the dyad and instead there should be a network of mentors that coaches can learn from and share knowledge with, similar to a Community of Practice (COP).

More practical experience

The participants in this study placed considerable value on learning through practical experience and therefore the UKCC should incorporate more practical sessions during the course which reflect real life coaching situations. Practical sessions were identified by the participants as an effective way to learn and therefore more of these would enhance their learning further. Originally when the UKCC was set up one of its aims was to address the issue that there was too much classroom activity and limited workplace learning. Developers of the UKCC may well have improved this area but it is evident from this research that participants still want more practical, 'in situ' learning. Research (e.g. Gilbert & Trudel, 2001; Cushion et al, 2003; Irwin et al, 2004; Mallet, 2004) has shown that simply gaining more direct experience is not enough and in order to learn coaches must reflect on their practice and gain feedback from others. Therefore, it is important for developers of the UKCC to ensure that the practical sessions involve reflection and feedback from the participants and the tutors. One way to achieve this is to utilise a Problem Based Learning (PBL) Approach in the UKCC. PBL is an approach to teaching which uses realistic and problematic scenarios, the kind the learner is likely to encounter in their current or future workplace. During PBL there is an emphasis on using reflection and feedback. PBL in a

coaching context involves coaches being provided with problem situations which are as near as possible to real life. The problems are presented in a number of forms such as written cases, role play and videos. The coaches have to find solutions to these problems by drawing on information from a variety of sources such as books, discussions and personal reflections. In addition to the prescribed problems, a number of unanswered interruptions that demand immediate attention are built into the programme. This combination of specified problems and on the spot surprises is meant to mirror actual coaching practice more closely. Jones (2000) believes that utilising a PBL approach allows the sociological component of coaching to be incorporated into coach education.

PBL has been used heavily in domains such as medicine and there has been research in this area to test its effectiveness (e.g. Smits et al, 2002; DeLorenzo & Abbot, 2004; Cohen-Schotanus et al, 2008). Cohen-Schotanus and colleagues (2008) compared two groups of medical students; one group used a PBL approach while the other group took part in conventional learning. The research found that the students' self rated competencies were higher with the PBL approach. However, the study showed no differences between the groups for knowledge or clinical competency. Similar findings were reported by Smits et al (2002) and DeLorenzo and Abbot (2004). Smits and colleagues (2002) also found that students using PBL had higher satisfaction. Although PBL has been shown by these studies to result in higher satisfaction and self rated competency, there has been no consistent evidence in the medicine domain that shows that PBL is superior to other educational strategies in increasing doctors' knowledge and learning (Smits et al, 2002).

Utilising PBL in coach education has been suggested by a number of researchers (e.g. Abraham & Collins, 1998; Gilbert, 1999; Jones, 2000; Gilbert & Trudel, 2005; Jones & Turner, 2006) however there is limited research evidence of its effectiveness. Jones and Turner (2006) are the only researchers who have examined the use of PBL in coach education. Their university based study aimed to explore whether a PBL approach would be a better way to educate student coaches. The approach was introduced to a final year class of 11 undergraduate students at a university in the UK. These students participated in the PBL unit for two hours a week over the course of a 12 week semester. Data was collected in the study through semi-structured group interviews with the students at the end of the

semester. Analysis of the data indicated that the students enjoyed the PBL approach as it provided an opportunity to use theoretical knowledge for the first time in a practical situation. The students also appreciated the unit's attempt to better replicate the problems and issues of real life coaching. In general, the students were positive about the PBL approach. When they were asked if the unit 'better prepares you for coaching in the real world' the students generally agreed it did, and when they were asked 'did the unit extend your understanding of coaching' the responses were positive. In conclusion, Jones and Turner claimed that the PBL approach can be effective in coach education as it has the potential to "help coaches towards the higher goals of transferable knowledge, critical reflection, and lifelong learning" (p.182).

Gilbert and Trudel (2001, 2006) have identified a couple of issues to take into consideration when using PBL in the coach education context. Firstly, a PBL approach requires time to define and deal with the problems that are set. However, coach education courses tend to be short, often over one or two weekends, with limited engagement and therefore there may not be sufficient time to embrace the PBL approach. This may be the case with the lower UKCC qualifications which tend to be shorter but PBL may be more appropriate at the higher levels of qualification which are of longer duration. A second issue is that well trained tutors are needed for PBL in order to get a balance between allowing students appropriate discussion time and intervening to make sure important learning issues are raised.

Despite these issues, the research on PBL has shown that it has the potential to increase competency and learning. The participants in this study identified they wanted more practical experience and this approach helps to make their formal learning more closely related to real life experience. However, it is clear from reviewing the previous research that more evidence is needed about the suitability of PBL in coach education and its effectiveness compared to other learning methods.

Communities of Practice (COP)

The participants in this study also placed considerable value on learning from others and therefore it would be beneficial to utilise the Community of Practice (COP) concept (Lave &

Wenger, 1991) in the UKCC. There has been support for incorporating more coach interaction into coach education from numerous researchers (e.g. Jones et al, 2004, Cassidy et al, 2006; Culver & Trudel, 2006; Armour, 2010). The COP concept has been suggested to be beneficial because the group interaction can help people negotiate meaning and develop knowledge (e.g. Armour, 2004, 2010; Cassidy et al, 2004; Deglau & Sullivan, 2006). Extensive research has been undertaken on the use of COPs in teacher education (e.g. Stein et al, 1999; Little, 2002; Armour & Duncombe, 2004; Deglau & Sullivan, 2006; O'Sullivan, 2007; Lieberman & Miller, 2008). This research has consistently pointed to the educational benefit of being part of COPs and shown them to be an effective way to enhance teachers' learning (Little, 2002; Deglau & Sullivan, 2006; O'Sullivan, 2007; Lieberman & Miller, 2008). There is however limited research on the use of COPs in the coaching context; only three studies have been undertaken in this area (e.g. Trudel & Gilbert, 2004; Cassidy et al, 2006; Culver & Trudel, 2006). These studies found that COPs can be valuable and beneficial to coaches. However, they identified two issues to consider when utilising the concept. Firstly, the competitive nature of sport means coaches may be reluctant to share information and ideas with others. Secondly, a facilitator is needed to cultivate successful COPs. The research on teacher education also identified this issue and suggested that the facilitator needed to have appropriate skills and expertise to establish and support COPs (e.g. Stein et al, 1999; Armour & Duncombe, 2004; Armour & Makopoulou, 2008).

In regards to incorporating the COP concept into the UKCC, developers should provide more opportunities for coaches to engage with each other on the course. However, just providing coaches with opportunities to interact is not enough, the interaction needs to be organised and guided so that participation for all coaches is meaningful. Therefore, facilitated group discussions should be scheduled several times during the course. Also, COPs should be utilised during the practical sessions. The participants should coach in front of each other and this should then be followed by guided feedback and discussion. This already happens on an informal and casual basis but a more structured opportunity to discuss coaching ideas and views would be beneficial.

Additional modules

A recurring theme in the findings was that the participants wanted more technical and sport science knowledge. A way to solve this issue is to have additional modules that participants can tap into if they feel they lack knowledge in a certain area. Additional modules on techniques and sport science should be developed and coaches can attend these if they feel they need more information. Alternatively coaches should be able to access the material online. In addition to technical modules, there should also be modules on 'delivering coaching sessions' for participants who feel they need more coaching experience. This recommendation of incorporating additional modules into the programme also helps solve the issue regarding the volume of work. Comments from the participants suggested that the UKCC was a rushed learning environment and therefore by having additional modules participants have more time to learn about a topic they are not sure about or that was not covered in enough detail on the course. British Gymnastics have implemented a similar idea to this for their level three qualification but they have made their technical modules mandatory. Before coaches can undertake the level three award they are required to complete a number of one day modules related to the gymnastics discipline they are involved in, in order to make sure they have all the necessary knowledge (British Gymnastics, personal communication, October 2011). The UKCC should consider implementing a similar process across all the levels.

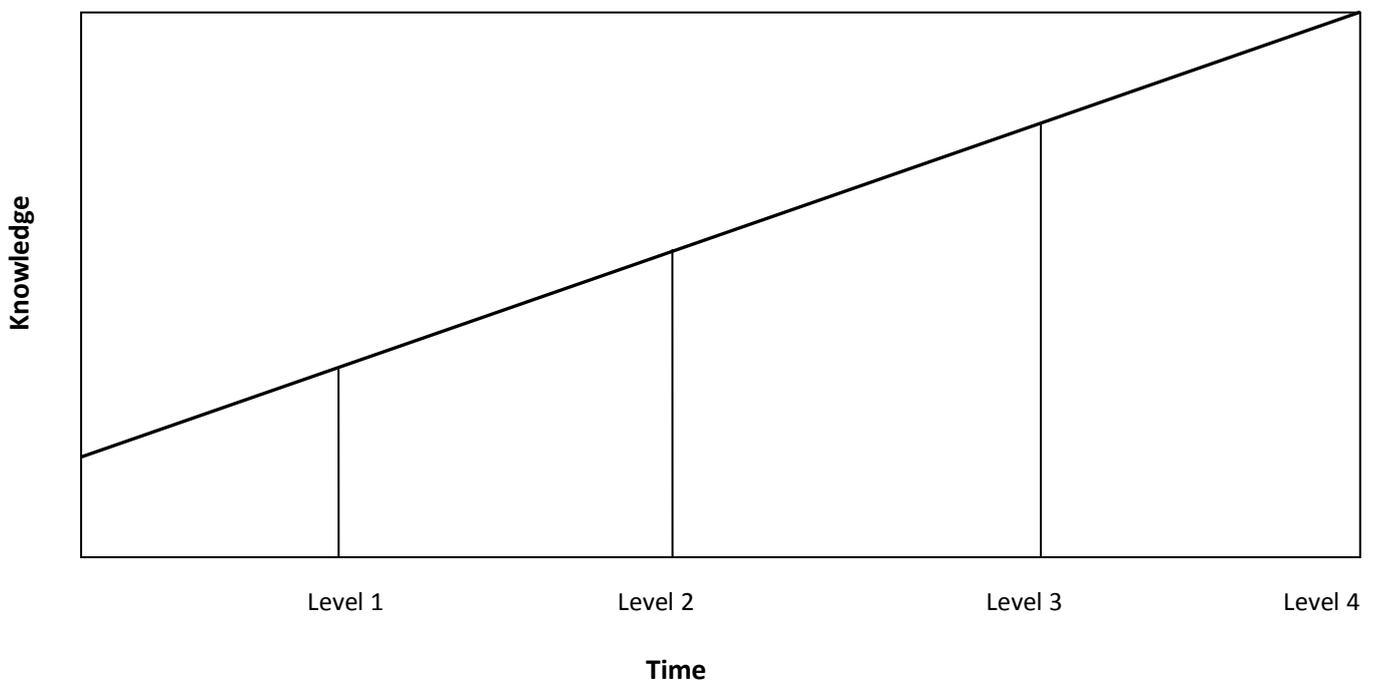
Summary

The majority of the recommendations presented in this section for improving the delivery of the UKCC are based around the concept of situating learning into social practice i.e. learning through real life experiences and interacting with others. This idea of situating learning into real life experiences has recently been suggested by several other researchers in the coaching field (e.g. Armour, 2010; Cushion, 2011; Jones et al, 2011). The suggestions outlined in this section support the views of Armour (2010) about what coach learning should be about. Armour (2010) believes that coaching learning should: engage coaches as active learners, be organised around practical content; be grounded in the context in which learning should be applied; and be collaborative.

4.6.3 Role of the UKCC in the development of a coach

It was outlined earlier in the thesis that developers of coach education programmes such as the UKCC base their current programmes around the acquisition metaphor of learning as in general they involve the transfer of knowledge from tutors to coaches (Trudel & Gilbert, 2004; Erickson et al, 2008; Cassidy, 2010). Those in charge of coach education view the process of developing coaches as filling them up with knowledge and believe that with each level of qualification the coaches will accumulate more knowledge until they become a master coach. This is depicted by the diagram below in figure 7.

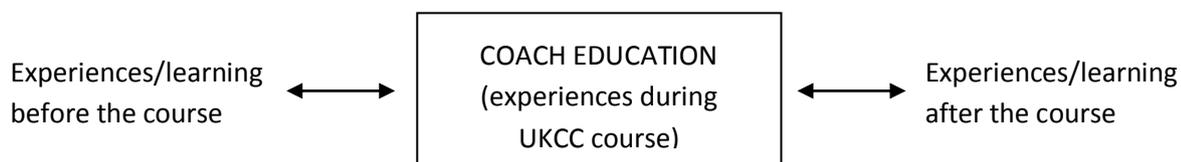
Figure 7: View of current coach education through the acquisition metaphor



Through this view of learning, there is an assumption that at level one coaches will acquire a certain amount of knowledge and the amount of knowledge will increase with each level until level four where a coach will have all the knowledge they need to be an expert coach. However, it has been shown by this study, along with other research in the area (e.g. Gould et al, 1990; Salmela, 1995; Abraham et al, 2006; Erickson et al, 2007), that coaches are not passive learners that can be filled with knowledge but instead they are actively involved in a range of learning experiences in order to develop as a coach. For example, in Abraham et

al's (2006) study on the development of expert coaches in the UK it was found that development occurred through a range of serendipitous methods as opposed to simply a structured program and therefore the researchers concluded that "coaches are magpies not filing cabinets to be filled" (p.560). In this present study it was also evident that the UKCC was just one of the many different ways the participants learnt and the most valued of these learning sources was informal learning, specifically learning from others and learning from experience. This finding is consistent with the coach learning research. Previous research has shown that formal learning tends not to be valued as much by coaches compared to their daily experiences in the field such as coaching experience and interacting with others (e.g. Gould et al, 1990; Irwin et al, 2004; Gilbert et al, 2006; Erickson et al, 2007; Lemyre et al, 2007). This is not surprising given the small amount of time a coach spends in a formalised coaching environment. Given these findings, those involved in developing the UKCC need to recognise the bigger picture of coach development in that coach education is just a small part and that there is a range of other learning experiences happening around it. This is emphasised by the diagram in figure 8.

Figure 8: Interaction of learning sources

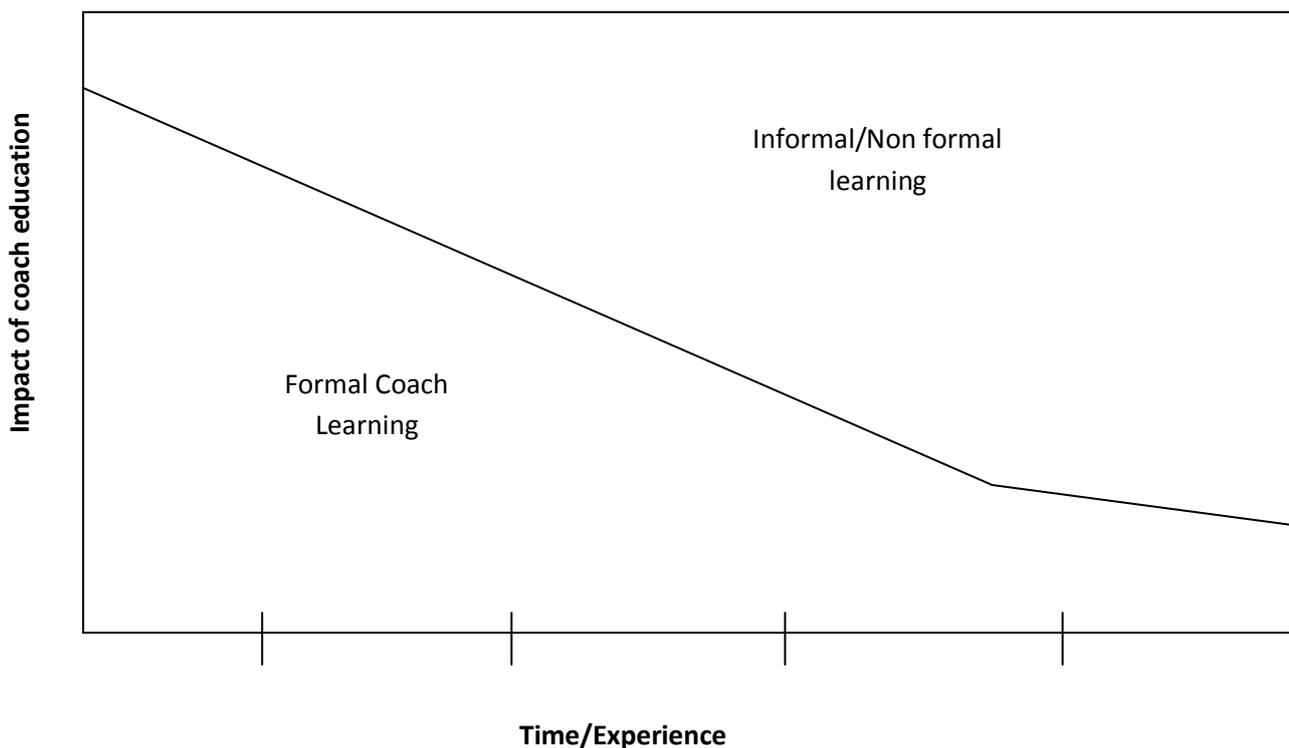


During a UKCC course, coaches are involved in a learning experience and this study has shown that they learn in several ways such as through practical sessions, through interacting with others, and through the tutor providing them with information. Outside the formal environment, both before and after the course coaches are involved in a range of learning experiences and given that coaches have idiosyncratic learning paths the role and value of these learning sources will differ from coach to coach (Werthner & Trudel, 2009). It is the interaction of these varied experiences before, during and after that will contribute to the development of a coach (Mallet, 2010). Therefore developers of coach education need to understand this interaction and attempt to integrate coach education with these other learning sources. Instead of coach education being short and episodic, it needs to extend

beyond simply what happens on the course and connect with the other sources of learning a coach is involved in. This is supported by Lyle (2002) who states that learning to coach is a complex process that does not follow a specific pattern and therefore coach education should not be strictly delivered through formal courses, instead education “depends on a mix of formal and informal provision” (p.275). How this can be achieved is discussed in the following paragraphs.

In contrast to figure 7, figure 9 below provides a view of coach development that incorporates the complex and varied learning involved. This view is supported by both the findings of this study and previous research in the field. The diagram shows the contribution and interaction of the different learning sources at different stages in a coach’s journey.

Figure 9: Coach development and the role of formal, non formal and informal learning



At the start of a coach’s career, formal coach education has a big impact on their initial learning and development. The contribution of education is substantial at this stage as it is

how a coach starts to learn to coach. With time and experience, the impact of formal coach education becomes less as coaches are involved in numerous other learning opportunities that they value more highly. This was the case in this study as the level one coaches had limited coaching experience and therefore the UKCC level one course played a major role in their initial development as a coach. On the other hand, the level two and three coaches had more experience and were involved in a range of learning sources and thus the UKCC appeared to play a smaller role in their development. These findings are consistent with other research on how coaches' learn (e.g. Gilbert et al, 2006; Lemyre et al, 2007; Rynne, 2008; Werthner & Trudel, 2009). These studies have found that coaches at the start of their careers take part in formal education but as they become more experienced they are involved in a greater variety of learning experiences with informal learning being seen as more valuable than formal coach education.

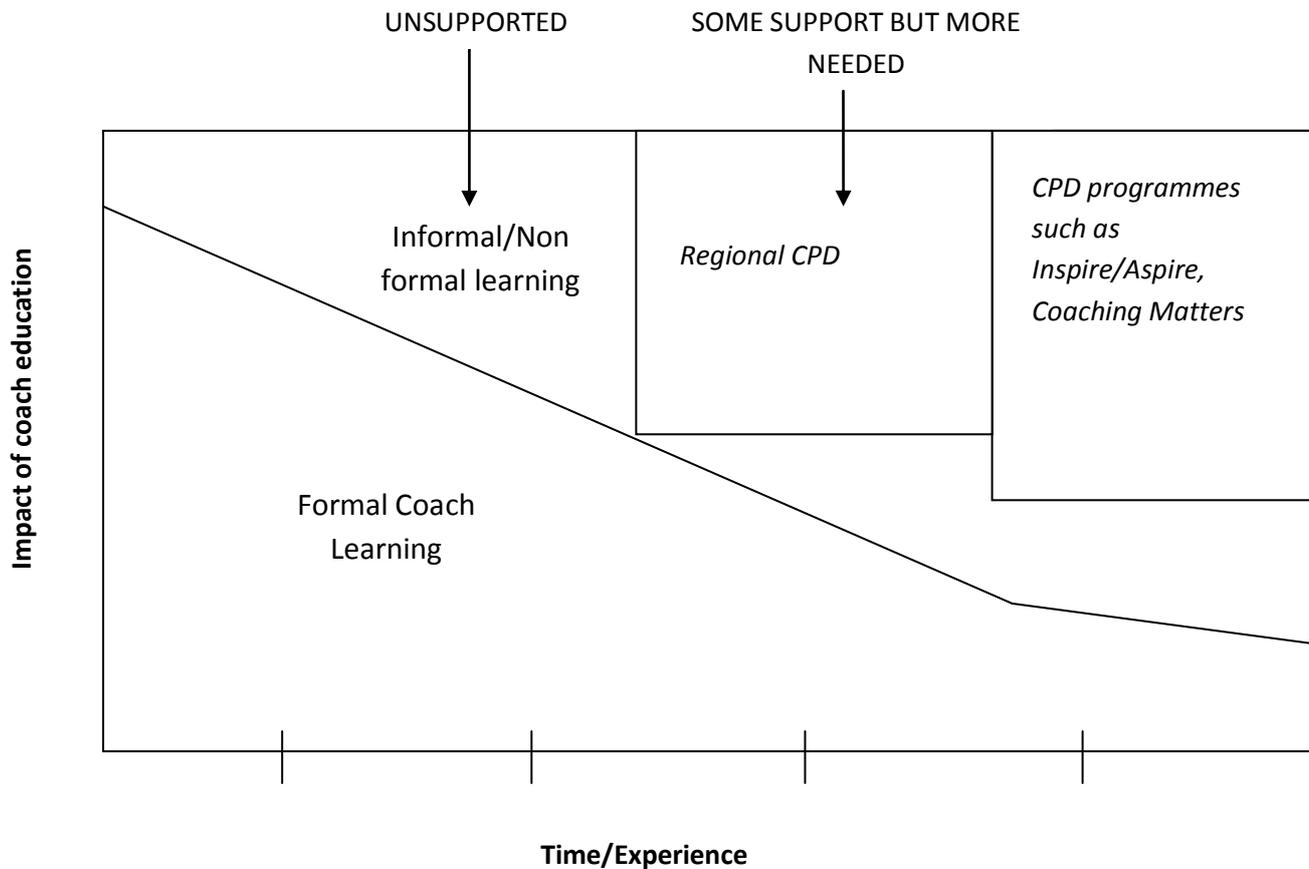
An interesting point to note here is that although level one courses play a significant role in a coach's initial learning, they are the shortest in length whereas level three courses make less of a contribution to the development of a coach but they are much longer in duration. Therefore a possible recommendation is to make level one courses longer in order to provide coaches with a sufficient base of knowledge to get started.

Given that a great deal of learning is undertaken outside the formal environment, coach education needs to provide support to this informal learning. For coaches to get the most out of their informal learning it needs to be guided and mediated. It has been shown that without some sort of facilitation informal learning can be limited by "the level of the coaches' ability to learn by themselves, their openness and eagerness to create new learning opportunities, and the fact coaches cannot look for information on a topic if they do not know if it exists" (Werthner & Trudel, 2006, p.199). This recommendation for supporting coaches' informal learning has also been recognised in previous government policy documents (e.g. UK Sports Council, 1991; DCMS, 2002). Progress in this area has been most expansive in the high performance coaching context in that a number of CPD programmes have been implemented to provide mediated learning experiences outside the qualification framework. For example, Sports Coach UK's recent 'Inspire/Aspire' coach development programme is aimed to develop high performance coaches (Sports Coach UK,

2012). These coaches are split into two categories; those who have athletes that have the potential to medal at Glasgow 2014 (Inspire programme) or those who have the potential to coach at future Olympic or Paralympic Games (Aspire programme). The content of these programmes is driven by the needs of the individuals and coaches are exposed to a range of learning opportunities to help them develop. A Scottish example is a CPD programme known as 'Coaching Matters' which is delivered by the University of Stirling in partnership with **sportscotland** to help support performance coaches. This programme consists of a series of interactive workshops on a variety of topics and provides an opportunity for coaches to discuss ideas, share knowledge and develop their skills.

Outside the elite performance context, there is the intention to provide support to coaches at level two and three through regional CPD programmes. One of the remits of the Regional Coaching Managers in Scotland is to provide coach development support to level two or higher coaches. In order for these coaches to get accepted on these development programmes they must be currently coaching in a club environment. However, these programmes are in their infancy and their impact and reach is currently low. At level one little support is provided to coaches' informal learning and it is at this level that there is a big drop off in the number of coaches continuing with coach education. Therefore, more support outside the qualification framework is needed at this stage to encourage coaches to continue their learning. This is emphasised in the diagram on the following page.

Figure 10: Coach development and the support for informal/nonformal learning



Although some support is provided outside the formal qualification system, the majority of it is directed towards higher level coaches and more is needed at lower levels to help mediate and guide coaches' informal learning. One of the participants in this study noted that learning to coach was like learning to drive because a vast amount of experience and knowledge is gained once "you have passed and you are out on the road on their own". By providing more support to coaches' informal learning and integrating coach education into the bigger picture of coach development, coaches will learn more from these daily experiences when they are "out on the road".

4.7 Summary of research question 5

One of the policy recommendations was to implement a national coach education framework and this has been achieved through the implementation of the UKCC. The first part of this research evaluated the UKCC programme by examining its relevance, fidelity and

effectiveness. Based on these findings, the second part of the research was to provide implications and recommendations for the UKCC. Implications were provided in three areas: the structure of the UKCC, the delivery of the UKCC, and the role of the UKCC within overall coach development. These implications are summarised in the following paragraph.

Firstly, in regards to structure, the UKCC should be context specific in order to provide coach education that is specific to the environment the coaches are working in. Secondly, the delivery of the UKCC should be an integration of formal and informal learning. More informal learning opportunities are needed to be incorporated into the programme so that coach learning is reality based. Lastly, it is important to recognise the role that formal coach education plays in the overall development of a coach. The UKCC is only one part of a coach's overall development journey and there are a range of other ways a coach learns and develops. These other learning opportunities need to be recognised and supported. This has been identified in a number of policy documents (e.g. UK Sports Council, 1999; DCMS, 2002) as an area to focus on but progress is needed so that coaches have more opportunities and support to participate in learning experiences outside the formal framework. Also, government policies need a greater awareness and understanding of the complex nature of coach development and the multiple ways a coach learns. It is important to note that the recommendations that have been summarised here and discussed throughout the previous sections are not only relevant to the UKCC but can be applied to coach education programmes in general.

5. CONCLUSION

This study has evaluated the UKCC in Scotland and discussed implications for the design of the programme, and coach education in general. This final chapter starts with discussing the limitations associated with the study. Following this, directions for further research are outlined. The chapter then ends with some concluding thoughts.

5.1 Limitations of the research

There are a number of limitations of the research and these will be outlined in this section. Firstly, the data collected in this study is derived solely from the participants and their perceptions of the course and its impact may not reflect what is actually going on. Coaches may have a low awareness of their behaviour and therefore they may report that they are improving in competency but in practice this may not be the case. Participants' self reports are also subjective and influenced by various factors such as personality, age, coaching experience, level of coaching knowledge, and confidence levels. Although this is a limitation of the research, it is important to recognise that using self reporting measures allowed a large number of participants across different sports to be sampled. If more objective methods, such as observation, had been used then only a small number of coaches would have been sampled.

Secondly, it is difficult for the researcher to know if the coach education alone caused a change in competency because the coaches will have been exposed to a range of other influences outside their coach education. For the majority of the sampled courses, there was time between the face to face parts of the course during which the participants would have been back in their coaching environment delivering sessions and interacting with other coaches. Therefore, this experience in their own environment may have influenced their competency. These other influences are described by Coalter (2002) as 'parallel influences'. Chatterji (2007) identifies this as a major issue in social intervention impact studies because they cannot easily hold constant or control the effects of other variables. Changes in competency may also be attributed to the journal writing as this has been shown to promote learning, self awareness and confidence (e.g. Ghaye & Lillyman, 2000; Cox, 2005; Knowles et al, 2005). For the participants who did reflect in writing during the course, any

changes in their competency may partially be attributed to their journal writing rather than solely to the content of the coach education.

Thirdly, coach education courses generally have a large amount of content to cover in a limited period of time and due to this there was a lack of time during the sampled courses to collect data. As a result of the busy course schedules the data collection was fitted in during short breaks and was therefore rushed. Even when more time was provided by the course organiser, the researcher got the impression that the data collection was holding up the course or making a full schedule even busier and this resulted in again rushing the data collection. The busy course schedules also had an impact on response rates. For example, a post course focus group could not be undertaken with the swimming level three coaches due to a lack of available time on the final day of the course. The researcher attempted to arrange a time to complete this outside the course timetable but only two participants responded to the request. As a result, a focus group could not be carried out and instead the questions were sent out electronically to the two participants who had responded. The response rates for the reflective journals were very poor and this was perhaps due to the volume of other work the participants had to do during the course. The coaches gave the impression that they did not have time to complete the journals on top of all the other paperwork associated with the UKCC course. The amount of course work increases with level and this may be a reason why the response rate of the reflective journals decreased with level.

A fourth issue is that it is difficult to generalise the results of this study across other UKCC sports and courses. The study only sampled four sports and the results cannot be considered representative of all the UKCC sports. A reason for this is because there is variability within the UKCC in that the quality of programmes, course leaders and candidates differs across sports. It is also difficult to generalise the results because every course has a different group of people attending and no two groups will respond in the same way to the course (Moon, 2006; Werthner & Trudel, 2006; Trudel et al, 2010). It cannot be assumed that just because one group of coaches on a level two course have a positive experience that this will be the case for another group of coaches on a different level two course. The impact and experience of the course will vary with different people, and will depend on a

number of individual specific factors such as experience, current level of knowledge, willingness to learn, and adherence to the course work. This is emphasised by Moon (2006) and Trudel et al (2010):

A motivated learner who trusts the teaching and knows that the learning can be of benefit to her, may allow a complete change of her cognitive structure in response to the teacher. However, another learner who is an unwilling learner or may have little trust in the teacher, may either not pay attention or may use other areas of her cognitive structure to construct arguments that reject the learning.

(Moon, 2006, p.20)

In any group of coaches attending a training programme there will be coaches who feel obliged to participate and therefore the impact for these coaches may be negligible. There will also be coaches who have already acquired the knowledge and developed the competencies through other learning situations and these coaches will also not show any significant changes post program. Finally, there will be coaches who are eager to learn and the content presented corresponds to their needs. For these coaches the training programme might have an impact.

(Trudel et al, 2010, p.147)

Even though it may not be possible to generalise the findings, the study has provided an insight into the quality of the four sampled sports' coach education programmes. In addition to this, although generalisation is difficult, the transferability of results may be possible. The concept of transferability is based around the idea if someone wants to use the results then they should review the conditions, the environment and procedures of the research, and then decide whether the findings can transfer into another environment. Krueger (1989) believes that the transfer of findings is likely to be appropriate for people in settings similar to the sample.

A final limitation is that this research is not a comprehensive test of Lyle's (2010a) monitoring and evaluation toolkit as it only examined three out of the five stages of the model. Due to the scale of the study, the longer term impact of the programme, which Lyle terms 'transfer' and 'impact', was not evaluated. Further research on the UKCC should address these stages and this is discussed in the following section.

5.2 Future research

There are numerous avenues for future research including the extension of aspects from the current study. When considering future research a good starting point is Lyle's (2010a) monitoring and evaluation toolkit. Due to the lack of guidance on monitoring and evaluation procedures, Lyle (2010a), on behalf of Sports Coach UK, developed a set of tools that could be used, as required and appropriate, to monitor and evaluate UKCC programmes and courses. The toolkit outlines five stages of evaluation and possible methods to use in each stage. The five evaluation stages and the menu of tools can be seen in appendix 1. The tools have been designed for use by those individuals who have responsibility for the design, delivery and quality assurance of UKCC programmes and courses. It is hoped that these individuals and/or sports will select tools relevant to their needs and circumstances. This toolkit will prove extremely useful for individuals who want to evaluate coach education programmes in the future. Therefore, a number of the suggestions for future research in this section draw on the tools recommended by Lyle (2010a).

This study examined the relevance, fidelity and effectiveness of the UKCC however it may be worthwhile for future research to focus more on the impact (effectiveness) of the UKCC on the participants. The main aim of the UKCC is to improve the competency of coaches and detailed research is needed to explore whether this is happening. This study has provided some insight into the impact of coach education on the competency of the participants but this is an area that has generally been neglected in the coaching research. A future study could follow the same quantitative and qualitative methods used in this research to examine impact but also include ratings from the tutors of the participants' competency.

This could be done using the same survey and would help triangulate the self reported scores from the coaches. This process would also be beneficial to the tutors as it would allow them to see, in their opinion, what areas coaches were strong and weak in, and what areas the coaches were improving in. Knowing this would help tutors tailor the content of the course to the coaches' needs. In addition to tutor ratings, the competency of the coaches before and after their coach education course could be scored by their athletes. Along with using competency surveys, it is important for future research to observe the coaches in action before and after their coach education to examine if their competency levels have changed. As mentioned in the previous section, gathering coaches' perceptions is not ideal because there is no guarantee that what they are saying about their competency corresponds to their actual coaching behaviour. Therefore, observing the coaches in situ before and after the course will help with this. Although observation will provide a more accurate picture of the coaches' competency, it is a more time consuming method and therefore less coaches can be sampled.

The present research study could also be expanded by including a retention test to examine whether changes in competency are still evident a period of time after the course has finished. Surveys and focus groups could be undertaken three to six months after the completion of the course to examine longer term impact. The only issue with this is it may be difficult to get the coaches to respond and participate in the research once they have left the course environment. In regards to longer term impact, it may also be useful to examine the final two stages of Lyle's (2010a) evaluation model which are transfer and impact. The transfer stage involves examining whether the coaches are using what they have learnt during their coach education in their coaching practice. The impact stage looks at whether coach education is resulting in long term sporting outcomes such as athletic performance or social indicators. Evaluating transfer and impact requires a more longitudinal approach in that data would have to be collected at various points over a year or more. Due to this, a case study following a small number of coaches would be the most appropriate approach.

Another way to expand the present research is to incorporate a more objective method into the study, such as observation, in order to triangulate the self reported data. As discussed

above, coaches could be observed in practice before and after the course in order to determine whether the course made an impact on their competency. As well as this, an observation tool could be used to monitor and evaluate the course delivery. Then this data could be compared to what the participants are saying about the programme.

Lastly, one of the aims of the UKCC was to incorporate more PBL and experiential learning into the programme and therefore future research could assess whether these delivery methods are actually being used. In relation to this, further research could also look at the effectiveness of incorporating different learning approaches into coach education. It was recommended in this study that methods such as COPs and mentoring may improve current coach education provision. These methods have also been recommended by several other researchers in the field (e.g. Walsh, 2004; Jones & Turner, 2006; Lyle, 2007). However, there is a lack of research to test the effectiveness and suitability of these methods in coach education. More research in this area would help inform developers of coach education about the best way to deliver formal education programmes.

5.3 Concluding thoughts

Although there are limitations to the current research, it is important to recognise that this study is the first of its kind on the UKCC and provides valuable insight into the programme. The UKCC has not been evaluated before and therefore the findings can inform both developers of the UKCC and the sports involved about how the programme is working and how the programme can be improved. In addition to this, there has been a lack of previous research on how to carry out evaluations and therefore this study provides some guidance on possible methods that can be used and how they can be implemented.

To date, the literature has tended to be critical of formal education and its impact on the coaches involved. This study has provided some good news in that the sampled participants believed that their coach education was relevant to their needs and had a positive impact on them. Nevertheless, it is clear from the findings that there is still work to be done to make the UKCC more effective. This study has proposed a number of possible

recommendations for the UKCC in regards to its structure, delivery, and role within overall coach development. Future delivery of the UKCC should be an integration of formal and informal learning opportunities. The design of the programme should be reality based, in that it situates learning into real life experiences, and be context specific. Further to this, the UKCC should not be viewed in isolation, instead it is important to recognise the role formal coach education plays in a coach's overall development and therefore there is a need to identify and support the other ways a coach learns.

6. REFERENCES

- Abraham, A., & Collins, D. (1998). Examining and extending research in coach development. *QUEST*, 50, p59-79.
- Abraham, A., & Collins, D. (2006). The coaching schematic: Validation through expert coach consensus. *Journal of Sport Science*, 24, p549-564.
- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84, p261-271.
- Ames, C. (1992a). Achievement goals, motivational climate and motivational processes, in Roberts, G. (Eds) *Motivation in Sport and Exercise*, p161-176. Champaign, IL: Human Kinetics.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, 80, p260-267.
- Amorose, A., & Anderson-Butcher, D. (2007). Autonomy-supportive coaching and self determined motivation in high school and college athletes: A test of self determination theory. *Psychology of Sport and Exercise*, 8, p654-760.
- Anderson, J., Reder, L., & Simon, H. (1996). Situated learning and education. *Educational Researcher*, 25(4), p5-11.
- Anderson, A., Miles, A., Mahoney, C., & Robinson, P. (2002). Evaluating the effectiveness of applied sport psychology practice: Making the case for a case study approach. *The Sport Psychologist*, 16, p432-453.
- Anderson, A., Knowles, Z., & Gilbourne, D. (2004). Reflective practice for applied sport psychologists: A review of concepts, models, practical implications and thoughts on dissemination. *The Sports Psychologist*, 18, p188-201.
- Andrew, M., & Wallis, M. (1999). Mentoring in nursing: A literature review. *Journal of Advanced Nursing*, 29(1), p210-207.
- Andrew, S., & Halcomb, E. (2009). *Mixed Methods Research for Nursing and the Health Services*. Blackwell Publishing Ltd.
- Argyris, C. (1998). Teaching smart people how to learn. *Harvard Business Review on Knowledge Management*, p81-108. Boston, MA: Harvard Business School.
- Armour, K. (2004). Coaching pedagogy in Jones, R., Armour, K., & Potrac, P. (Eds) *Sport Coaching Cultures: From Practice to Theory*. London: Routledge.

Armour, K. (2010). The learning coach, the learning approach: Professional development for sports coach professionals in Lyle, J., & Cushion, C. (Eds) *Sports Coaching: Professionalisation and Practice*. London: Routledge.

Armour, K., & Duncombe, R. (2004). Teachers' continuing professional development in primary physical education: Lessons from present and past to inform the future. *Physical Education and Sport Pedagogy*, 9(1), p3-22.

Armour, K., & Yelling, M. (2007). Effective professional development for physical education teachers: The role of informal collaborative learning. *Journal of Teaching in Physical Education*, 26, p177-200.

Armour, K., & Makopoulou, K. (2008). *Independent Evaluation of the National PE-CPD Programme – Final Report*. Loughborough: Loughborough University.

Ashbury, J., Fletcher, B., & Birtwhistle, R. (1993). Personal journal writing in a communication course for first year medical students. *Medical Education*, 27, p196-204

Australian Coaching Council (1994). *Evaluation of the National Coach Accreditation Scheme*. Australian Coaching Council.

Bandura, A. (1977). *Social Learning Theory*. New York: General Learning Press.

Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behaviour change. *Psychological Review*, 84, p191-215.

Bandura, A. (1997). *Self-efficacy: The Exercise of Control*. New York: WH Freeman and Company.

Barnett, N., Smoll, F., Smith, R. (1992). Effects of enhancing coach-athlete relationships on youth sport attrition. *The Sport Psychologist*, 6, p111-127.

Bell, M. (1997). The development of expertise. *Journal of Physical Education*, 2, p34-38.

Biddle, J., & Mutrie, N. (2001). *Psychology of Physical Activity*. London: Routledge.

Billet, S. (2000). Guided learning at work. *Journal of Workplace Learning*, 12(7), p272-285.

Black, A., & Deci, E. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self determination theory perspective. *Science Education*, 84, p740-756.

Bloom, G., Durand-Bush, N., Schinke, R., & Salmela, J. (1998). The importance of mentoring in the development of coaches and athletes. *International Journal of Sport Psychology*, 29, p267-281.

Borger, R., & Seaborne, A. (1966). *The Psychology of Learning*. Harmondsworth: Penguin

- Borrie, A., & Knowles, Z. (1998). Reflective coaching. *Football Association Coaching Association Journal*, Spring, p3-7.
- Borrie, A., Knowles, Z., Mayes, R., Stevens, J., & Young, R. (1999). *Evaluation of the High Performance Coaching Programme through June 1999*. Leeds National Coaching Foundation.
- Bould, D., Keough, R., & Walker, D. (1985). *Reflection: Turning Experience into Learning*. London: Kogan Page.
- Brewer, J., & Hunter, A. (1989). *Multimethod Research: A Synthesis of Styles*. Newbury Park, CA: Sage.
- Brockbank, A., & Magill, I. (2007). *Facilitating Reflective Learning in Higher Education*. London: Open University Press.
- Bryman, A. (2001). *Social Research Methods (First Edition)*. Oxford: University Press.
- Bryman, A. (2008). *Social Research Methods (Third Edition)*. Oxford: University Press.
- Bulmer, M. (1986). The value of qualitative methods in Bulmer, M., et al (Eds) *Social Science and Social Policy*. London: Allen and Unwin.
- Burns, S., & Bulman, C. (2000). *Reflective Practice in Nursing*. Oxford: Blackwell Science.
- Campbell, T., & Sullivan, P. (2005). The effect of a standardised coaching education program on the efficacy of novice coaches. *Avante*, 11(1), p38-45.
- Carey, M. (1994). The group effect in focus groups: Planning, implementing and interpreting. Focus Group Research in Morse, J. (Eds) *Critical Issues in Qualitative Research*, p225-241. London: Sage.
- Carpenter, P., & Morgan, K. (1999). Motivational climate, personal goal perspectives, and cognitive and affective responses in physical education classes. *European Journal of Physical Education*, 4, p31-44.
- Carter, A., & Bloom, G. (2008). Coaching knowledge and success: Going beyond athletic experiences. *Journal of Sport Behaviour*, 32(4), p419-437.
- Cassidy, T. (2010). Understanding athlete learning and coaching practice utilising practice theories and theories of practice in Lyle, J., & Cushion, C. (Eds) *Sports Coaching: Professionalisation and Practice*. London: Routledge.
- Cassidy, T., Potrac, P., & McKenzie, A. (2006). Evaluating and reflecting upon a coach education initiative: The CoDe of rugby. *The Sport Psychologist*, 20, p145-161.

Cassidy, T., & Rossi, T. (2006). Situated Learning: Re-examining the notion of apprenticeship in coach education. *International Journal of Sport Science and Coaching*, 1(3), p235-246.

Cassidy, T., Jones, R., & Potrac, P. (2004). *Understanding Sports Coaching: The Social, Cultural and Pedagogical Foundations of Coaching Practice*. Abingdon: Routledge.

Cassidy, T., Jones, R., & Potrac, P. (2009). *Understanding Sports Coaching: The Social, Cultural and Pedagogical Foundations of Coaching Practice (2nd Ed)*. London: Routledge.

Chatterji, M. (2007). Grades of evidence: Variability in quality of findings in effectiveness studies of complex field interventions. *American Journal of Evaluation*, 28(3), p239-255.

Chelladurai, P. (1978). *A Contingency Model in Leadership in Athletics*. Unpublished doctoral dissertation. University of Waterloo.

Chelladurai, P. (1980). Leadership in sports organisation. *Canadian Journal of Applied Sport Sciences*, 5, p226-231.

Chi, L. (1993). Achievement goal theory, in Morris, T., & Summers, J. (Eds), *Sport Psychology: Theory, Applications and Issues*, p152-174. Australia: Wiley.

Clarke, A. (2005). *Evaluation Research: An Introduction to Principles, Methods and Practice*. London: Sage.

Coaching Association of Canada (2005). *Summary of the NCCP evaluation project: A blueprint for change*.

www.coach.ca/eng/certification/documents/REP_Summary_NCCPEvalBlueprint_dec05.pdf

Retrieved November 2009.

Coalter, F. (2002). Sport and Community Development: A Manual. *Research Report No.86*. Edinburgh: **sportscotland**.

Coatsworth, J., Conroy, D.(2006). Enhancing the self-esteem of youth swimmers through coach training: Gender and age effects. *Psychology of Sport and Exercise*, 7(2), p173-192.

Cohen-Schotanus, J., Muijtjens, A., Schonrock-Adema, J., Geertsma, J., & Van der Vleuten, C. (2008). Effects of conventional and problem based learning on clinical and general competencies and career development. *Medical Education*, 42(3), p256-265.

Colley, H., Hodkinson, P., & Malcolm, J. (2003). *Informality and Formality in Learning: A Report for the Learning Skills Research Centre*. London: Learning and Skills Research Centre.

Colley, H., James, D., Tedder, M., & Diment, K. (2003a). Learning as becoming in vocational education and training: Class, gender and the role of vocational habitus. *Journal of Vocational Education and Training*, 55(4), p471-496.

- Conroy, D., & Coatsworth, J. (2004). The effects of coach training on fear of failure in youth swimmers: A latent growth curve analysis from a randomised, controlled trial. *Journal of Applied Development Psychology*, 25, p193-214.
- Cook, T., & Reichardt, C. (1979). *Qualitative and Quantitative Methods in Evaluation Research*. Beverly Hills, CA: Sage.
- Coombs, P., & Ahmed, M. (1974). *Attacking Rural Poverty: How Non-Formal Education Can Help*. Baltimore, John Hopkins University Press.
- Côte, J. (2002). Coach and peer influence on children's development through sport in Silva, J., & Stevens, D. (Eds) *Psychological Foundations of Sport*. Boston: Merrill.
- Côte, J., Salmela, J., & Baria, A., & Russel, S. (1993). Organising and interpreting unstructured qualitative data. *The Sport Psychologist*, 7, p127-137.
- Côte, J., Salmela, J., & Russel, S. (1995). The knowledge of high performance gymnastic coaches: Methodological framework. *The Sport Psychologist*, 9, p65-75.
- Côte, J., Salmela, J., Trudel, P., Baria, A., & Russel, S. (1995a). The coaching model: A grounded assessment of expert gymnastic coaches' knowledge. *Journal of Sport and Exercise Psychology*, 17(1), p1 -17.
- Côte, J., Baker, J., & Abernethy, B. (2003). From play to practice: A development framework for the acquisition of expertise in team sport in Starkes, J., & Ericsson, K. (Eds) *Expert Performance in Sports: Advances in research on sport expertise*, p89-114. Champaign, IL: Human Kinetics.
- Cox, E. (2005). Adult learners learning from experience: Using a reflective practice model to support work based learning. *Reflective Practice*, 6, p459-472.
- Creswell, J. (2003). *Research design: Qualitative, Quantitative and Mixed Method Approaches*. London: Sage.
- Creswell, J., Plano-Clark, V., Gutmann, M., & Hanson, W. (2003). Advanced mixed methods research designs, in Tashakkori, A., & Teddlie, C. (Eds) *Handbook of mixed methods in social and behavioural research*, p209-240. Thousand Oaks, CA: Sage.
- Creswell, J., & Plano-Clark, V. (2007). *Designing and conducting mixed method research*. London: Sage.
- Crockett, M. (2002). Inquiry as professional development: Creating dilemmas through teachers' work. *Teaching and Teacher Education*, 18, p609-624.

Cronin, M. & Connolly, C. (2007). Exploring the use of experiential learning workshops and reflective practice within professional practice development for postgraduate health promotion students. *Health Education Journal*, 66(3), p286-303.

Cross, P. (1981). *Adult as learners*. San Francisco: Jossey-Bass.

Culver, D., & Trudel, P. (2006). Cultivating coaches' communities of practice: Developing the potential for learning through interactions, in Jones, R. (Eds) *The Sport Coach as Educator: Reconceptualising Sport Coaching*, p97-112. London: Routledge.

Cushion, C. (2001). Coaching research and coach education: Do the sum of the parts equal the whole? *SportaPolis*, September, 2001.

<http://www.sportsmedia.org/Sportapolisnewsletter4.htm> Retrieved January 2010

Cushion, C. (2007). Modelling the complexities of the coaching process. *International Journal of Sport Science and Coaching*, 2(4), p395-401.

Cushion, C. (2010a). The coaching process in elite youth soccer: The players' experiences in Drust, B., Reilly, T., & Williams, M. (Eds) *International Research in Science and Soccer: The Proceedings of the First World Conference on Science and Soccer*, p207-213. Abingdon: Routledge.

Cushion, C. (2010b). Understanding the coaching process in elite youth soccer in in Drust, B., Reilly, T., & Williams, M. (Eds) *International Research in Science and Soccer: The Proceedings of the First World Conference on Science and Soccer*, p213-220. Abingdon: Routledge.

Cushion, C. (2011). Coach and athlete learning: A social approach in Jones, R., Potrac, P., Cushion, C., & Ronglan, L. (Eds) *The Sociology of Sports Coaching*. London: Routledge.

Cushion, C., Armour, K., & Jones, R. (2003). Coach education and continuing professional development: Experience and learning to coach. *QUEST*, 55, p215-230.

Cushion, C., Nelson, L., Armour, K., Lyle, J., Jones, R., Sandford, R., & O'Callaghan, C. (2010). *Coach Learning and Development: A Review of Literature*. Sports Coach UK.

Dart, B., Boulton-Lewis, G., Brownlee, J., & McCrindle, A. (1998). Change in knowledge of learning and teaching through journal writing. *Research Papers in Education*, 13(3), p291-318.

Deglau, D., & Sullivan, M (2006). The effects of a long-term professional development programme on the beliefs and practices of experiences teachers. *Journal of Teaching in Physical Education*, 25, p379-396.

DeLorenzo, R., & Abbott, C. (2004). Effectiveness of an adult learning, self directed model compared with traditional lecture based teaching methods in out of hospital training.

Academic Emergency Medicine: Official Journal of the Society for Academic Emergency Medicine, 11(1), p33-37.

Department for Culture, Media and Sport (DCMS). (2002). The Coaching Task Force – Final Report, July 2002.

Demers, G., Woodburn, A.J., & Savard, C. (2006). The development of an undergraduate competency based coach education programme. *The Sport Psychologist*, 20, p162-173.

Denzin, N. (1978). *The Research Act: A Theoretical Introduction to Sociological Methods (2nd Ed)*. New York: McGraw-Hill.

Denzin, N. (1989). *The Research Act: A Theoretical Introduction to Sociological Methods (3rd Ed)*. NJ: Prentice-Hall.

Denzin, N., & Lincoln, Y. (2005). The discipline and practice of qualitative research in Denzin, N., & Lincoln, Y. (Eds) *Handbook of Qualitative Research*, p1-32. Thousand Oaks, CA: Sage.

Dewey, J. (1933). *How we Think*. Chicago: Henry Regney.

Dickson, S. (2001). *A preliminary investigation into the effectiveness of the National Coach Accreditation Scheme*. Australian Sports Commission.

<http://fulltext.ausport.gov.au/fulltext/2001/ascpub/AccreditationReport2.pdf> Retrieved February 2010.

Dimino, E. (1988). Clinical journals: a non-threatening strategy to foster ethical and intellectual development in nursing students. *Virginia Nurse*, 56(1), p12-14.

Dorsey, L., & Baker, C. (2004). Mentoring undergraduate nursing students: Assessing the state of the science. *Nurse Educator*, 29(6), p260-265.

Douge, B., & Hastie, P. (1993). Coach Effectiveness. *Sport Science Review*, 2, p62-74.

Duda, J., & Hall, H. (2001). Achievement goal theory in sport: Recent extensions and future directions, in Singer, R., Hausenblas, H., & Janelle, C. (Eds), *Handbook of Sport Psychology*, p417-443. New York: Wiley.

Dymock, D. (1999). Blind date: A case study of mentoring as workplace learning. *Journal of Workplace Learning*, 11(8), p312-317.

England Hockey. The Coach Strategy.

www.englishockey.co.uk/page.asp?section=925§ionTitle=5x4+Coach+Model.

Retrieved May 2012.

- Enrich, L., Hansford, B., & Tennet, L. (2004). Formal mentoring programmes in education and other professions: A review of literature. *Educational Administration Quarterly*, 40(4), p518-540.
- Erickson, K., Côte, J., & Fraser-Thomas, J. (2007). Sport experiences, milestones and educational activities associated with high performance coaches' development. *The Sport Psychologist*, 21, p302-316.
- Erickson, K., Bruner, M., MacDonald, D., & Côte, J. (2008). Gaining insight into actual and preferred sources of coaching knowledge. *International Journal of Sports Science and Coaching*, 3(4), p527-538.
- European Coaching Council. (2007). *Review of the EU 5-level structure for the recognition of coaching qualifications*. European Network of Sports Science, Education and Employment: Koln.
- Feltz, D., & Chase, M. (1998). The measurement of self efficacy and confidence in sport. In Duda, J. (Eds) *Advancements in Sport and Exercise Psychology Measurement*, p63-78. Morgantown, WV: Fitness Information Technologies.
- Fischman, M., & Oxendine, J. (1998). Motor skill learning for effective coaching and performance. In Williams, J. (Eds) *Applied Sport Psychology*, p13-27. New York: MacMillan.
- Fleurance, P., & Cotteaux, V. (1999). Construction de l'expertise chez les entraîneurs sportifs d'athletes de haut-niveau francais. *Avante*, 5(2), p54-68.
- Francis, D. (1995). Reflective journal: a window to pre-service teachers' practical knowledge. *Teaching and Teacher Education*, 11(3), p229-241.
- Fraser-Thomas, J., Côte, J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. *Physical Education and Sport Pedagogy*, 10(1), p19-40.
- Gagne, R. (1985). *The Conditions of Learning*. New York: Holt, Rinehart & Winston.
- Gagne, M., Ryan, M., & Bargmann, K. (2003). Autonomy support and need satisfaction in the motivation and well being of gymnast. *Journal of Applied Sport Psychology*, 15, p372-289
- Ghaye, T., Danai, K., Cuthbert, L., & Bennis, D. (1996). *Introduction to Learning Through Critical Reflective Practice*. UK: Pentaxion.
- Ghaye, T., & Lillyman, S. (1997). *Learning Journals and Critical Incidents: Reflective Practice for Healthcare Professionals*. Quay Books.
- Ghaye, T., & Lillyman, S. (2000). *Reflection: Principles and Practice for Healthcare Professionals*. Salisbury: Quay Books.

- Gilbert, W. (1999). *Connected Cycles of Reflection: The Experiential Learning Process used by Youth Team Sports Coaches to Develop Coaching Strategies*. Unpublished PhD.
- Gilbert, W. (2006). Introduction to the special issue: Coach education. *The Sport Psychologist*, 20, p123-126.
- Gilbert, W. (2007). Modelling the complexity of the coaching process: A commentary. *International Journal of Sport Science and Coaching*, 2(4), p417-418.
- Gilbert, W., & Trudel, P. (1999). An evaluation strategy for coach education programmes. *Journal of Sport Behaviour*, 22, p234-250.
- Gilbert, W., & Trudel, P. (2001). Learning to coach through experience: reflection in model youth sport coaches. *Journal of Teaching in Physical Education*, 21, p16-34.
- Gilbert, W., & Trudel, P. (2005). Learning to coach through experience: Conditions that influence reflection. *Physical Educator*, 62(1), p32-43.
- Gilbert, W., Côte, J., & Mallet, C. (2006). Development paths and activities of successful sport coaches. *International Journal of Sports Science and Coaching*, 1(1), p69-76.
- Glaser, B., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine.
- Godin, G., & Shepard, R. (1985). Gender differences in perceived physical self efficacy among older adults. *Perceptual and Motor Skills*, 60, p599-602.
- Goodlad, J. (1990). *Teachers for our Nation's Schools*. San Francisco: Jossey-Bass.
- Gould, D., Giannini, J., Krane, V., and Hodge, G. (1990). Educational needs of elite US national team, Pan American and Olympic coaches. *Journal of Teaching in Physical Education*, 9, p332-344.
- Graber, K. (1995). The influence of teacher education programs on the beliefs of student teachers: General pedagogical knowledge, pedagogical content knowledge and teacher education course work. *Journal of Teaching in Physical Education*, 14, p157-178.
- Gratton, C., & Jones, I. (1994). *Research Methods for Sport Studies*. London: Routledge.
- Greene, J., & Caracelli, V. (1997). *Advances in Mixed Method Evaluation: The challenge and benefits integrating diverse paradigms*. San Francisco: Jossey-Bass.
- Greeno, J. (1997). On claims that answer the wrong question. *Educational Researcher*, 26(1), p5-17.

Griffths, M. (2011). *Finding Space for Learning*. Presentation at UK Coaching Summit. <http://www.sportscoachuk.org/resource/2011-uk-coaching-summit-finding-space-learning> Retrieved September 2011.

Guba, E. (1985). The context of emergent paradigm research in Lincoln, Y. (Eds) *Organisation Theory and Inquiry: The Paradigm Revolution*. Beverly Hills: Sage.

Guba, E., & Lincoln, Y. (1988). Do inquiry paradigms imply inquiry methodologies? In Fetterman, D. (Eds) *Qualitative Approaches to Evaluation in Education: The Silent Scientific Revolution*. New York: Praeger.

Guba, E., & Lincoln, Y. (1994). Competing paradigms in qualitative research in Denzin, N., & Lincoln, Y. (Eds) *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.

Hagger, M., Chatzisarantis, N., Culverhouse, T., & Biddle, S. (2003). The process by which perceived autonomy support in physical education promotes leisure-time physical activity intentions and behaviour: A transcontextual model. *Journal of Educational Psychology*, 95, p784-795.

Hammond, J., & Perry, J. (2005). A multi-dimensional assessment of soccer coaching course effectiveness. *Ergonomics*, 48, p1698-1710.

Hettich, P. (1976). The journal, an autobiographical approach to learning. *Teaching of Psychology*, 3(2), p60-61.

Heuze, J. (2005). *An Evaluation of the Women into High Performance Coaching Programme*. Report prepared for Sports Coach UK. <http://www.sportscoachuk.org/index.php?PageID=5&sc=23&uid=378> Retrieved March 2010.

Huberman, A., & Miles, M. (1995). Data management and analysis methods, in Denzin, N & Lincoln, Y. (Eds) *Handbook of Research on Teacher Education*. Thousand Oaks, CA: Sage.

Human Resources Development Canada. (2001). *A Report on Adult Education and Training in Canada: Learning a Living* (catalogue no.81-586-XIE).

Irwin, G., Hanton, S., & Kerwin, D. (2004). Reflective practice and the origins of elite coaching knowledge. *Reflective practice*, 5(3), p425-442.

James, C., & Clarke, B. (1994). Reflective practice in nursing: Issues and implications for nurse education. *Nurse Education Today*, 14, p82-90.

Jarvis, P. (1995). *Adult Education and Lifelong Learning: Theory and Practice (2nd Ed)*. London: Routledge.

- Jarvis, P. (2004). *Adult Education and Lifelong Learning: Theory and Practice (3rd Ed)*. London: Routledge.
- Johns, C. (2000). *Becoming a Reflective Practitioner: A Reflective and Holistic Approach to Clinical Nursing, Practice Development and Clinical Supervision*. London: Blackwell Science.
- Jones, R. (2000). Towards a sociology of coaching, in Jones, R., & Armour, K. (Eds), *The Sociology of Sport: Theory and Practice*. London: Wesley Longman.
- Jones, R., Armour, K., & Potrac, P. (2002). Understanding the coaching process: A framework for social analysis. *QUEST*, 54(1), p34-48
- Jones, R., Armour, K., & Potrac, P. (2003). Constructing expert knowledge: A case study of a top professional soccer coach. *Sport, Education and Society*, 8(2), p213-229.
- Jones, R., Armour, K., & Potrac, P. (2004). *Sports Coaching Cultures*. London: Routledge
- Jones, R., Glintmeyer, N., & McKenzie, A. (2005). Slim bodies, eating disorders and the coach-athlete relationship: A tale of identity creation and disruption. *International Review for the Sociology of Sport*, 40(3), p377-391.
- Jones, R., & Turner, P. (2006). Teaching coaches to coach holistically: Can problem based learning help? *Physical Education and Sport Pedagogy*, 11(2), p181-202.
- Jones, R., Harris, R., & Miles, A. (2009). Mentoring in sports coaching: A review of literature. *Physical Education and Sport Pedagogy*, 14(3), p267-284.
- Jones, R., Potrac, P., Cushion, C., & Ronglan, L. (2011). *The Sociology of Sports Coaching*. London: Routledge.
- Kember, D., Jones, A., Loke, A., McKay, J., Sinclair, K., Tse, H., Webb, C., Wong, F., Wong, M., & Yeung, E. (1999). Determining the level of reflective thinking from students: Written journals using a coded scheme based on the work of Mezirow. *International Journal of Lifelong Education*, 18(1), p18-30.
- Kidman, L. (2005). *Athlete-centred Coaching: Developing Inspired and Inspiring People*. New Zealand: Innovative Print Communications.
- Kim, H. (1999). Critical reflective inquiry for knowledge development in nursing practice. *Journal of Advanced Nursing*, 29(5), p1205-1212.
- Knowles, Z., Gilbourne, D., & Nevill, A. (2001). Developing the reflective sports coach: A study exploring the process of reflective practice within a higher education coaching programme. *Reflective Practice*, 2(2), p185-207.

- Knowles, Z., Borrie, A., & Telfer, H. (2005). Towards the reflective sports coach: Issues of context, education and application. *Ergonomics*, 48, p1711-1720.
- Knowles, Z., Tyler, G., Gilbourne, D., & Eubank, M. (2006). Reflecting on reflection: Exploring the practice of sports coaching graduates. *Reflective Practice*, 7(2), p163-179.
- Kolb, D. (1984). *Experiential Learning as the Science of Learning and Development*. Englewood Cliffs NJ: Prentice Hall.
- Krueger, R. (1989). *Focus Groups: A Practical guide for applied research*. Newbury Park, CA: Sage.
- Krueger, R. (1998). *Focus Group Kit 6: Analysing and Reporting Focus Group Results*. London: Sage.
- Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Leach, T., & Moon, B. (1999). *Learners and Pedagogy*. London: Paul Chapman.
- LeCompte, M., & Preissle, J. (1993). *Ethnography and Qualitative Design in Educational Research*. San Diego, CA, Academic Press.
- Lee, K., Maleté, & Feltz, D. (2002). The strength of coaching efficacy between certified and non-certified Singapore coaches. *International Journal of Applied Sport Sciences*, 14(1), p55-67.
- Lemyre, F., Trudel, P., & Durand-Bush, N. (2007). How youth coaches learn to coach. *The Sport Psychologist*, 21, p191-209.
- Lenney, E. (1977). Women's self confidence in achievement settings. *Psychological Bulletin*, 84, p1-13.
- Lieberman, A., & Miller, L. (2008). *Teachers in Professional Communities*. London: Teachers College.
- Lincoln, Y. (1992). Sympathetic connections between qualitative methods and health research. *Qualitative Health Research*, 2(4), p375-391.
- Lincoln, Y., & Guba, E. (1985). *Naturalistic Inquiry*. London: Sage.
- Lirgg, C. (1991). Gender differences in self confidence in physical activity: A meta-analysis of recent studies. *Journal of Sport and Exercise Psychology*, 13, p294-310.
- Lirgg, C. (1992). Girls and women, sport and self confidence. *QUEST*, 44, p158-178.

- Lirgg, C., Dibrezzo, R., & Smith, A. (1994). Influence of gender of coach on perceptions of basketball and coaching efficacy and aspirations of high school female basketball players. *Women in Sport and Physical Activity Journal*, 3, p1-14.
- Little, J. (2002). Locating learning in teachers' communities of practice: Opening up problems of analysis in records of everyday work. *Teacher and Teacher Education*, 18(8), p917-946.
- Lucas, B. (2001). *Power Up Your Mind*. London: Nicholas Brealey.
- Lyle, J. (1999). The coaching process: An overview, in Cross, N., & Lyle, J. (Eds) *The Coaching Process: Principles and Practice*. Oxford: Butterworth-Heinemann.
- Lyle, J. (2002). *Sports Coaching Concepts: A framework for coaches' behaviour*. London: Routledge.
- Lyle, J. (2007). A review of the research evidence for the impact of coach education. *International Journal of Coaching Science*, 1(1), p19-36.
- Lyle, J. (2007a). Modelling the complexity of the coaching process: A commentary. *International Journal of Sport Science and Coaching*, 2(4), p407-409.
- Lyle, J. (2007b). *UKCC Impact Study Phase One Report: Definitional, Conceptual and Methodological Review*. Sportscoach UK.
www.sportscoachuk.org/research/Research+Publications/UKCC+Impact+Study+Phase+One+Report.htm Retrieved January 2009.
- Lyle, J. (2010). *UKCC Monitoring and Evaluation Toolkit Project: Recommendations into Project Design*. John Lyle Consulting.
- Lyle, J. (2010a). *UKCC Monitoring and Evaluation Toolkit: Project Report*. John Lyle Consulting.
- Lyle, J., & Lynn, A. (2005). *A Workforce Development Plan for Scottish Swimming*. John Lyle Consulting
- Lyle, J., Mallet, C., Trudel, P., & Rynne, S. (2009). Formal vs informal coach education: A response to commentaries. *International Journal of Sport Science and Coaching*, 4(3), p359-364.
- Lyle, J., & Cushion, C. (2010). *Sports Coaching: Professionalisation and Practice*. Edinburgh: Churchill Livingstone.
- Lynch, M., & Mallet, C. (2006). Becoming a successful high performance track and field coach. *Modern Athlete and Coach*, 22(2), p15-20.

- Mageau, G., & Vallerand, R. (2003). The coach-athlete relationship: a motivational model. *Journal of Sport Science*, 21, p883-904.
- Malete, L., & Feltz, D. (2000). The effect of a coaching education programme on coaching efficacy. *The Sport Psychologist*, 14, p410-417.
- Mallet, C. (2004). Reflective practice in teaching and coaching: Using reflective journals to enhance performance in Wright, J., Burrows, L., & MacDonald, D. (2004) *Critical Inquiry and Problem Solving in Physical Education*. London: Routledge.
- Mallet, C. (2005). Self-determination theory: A case study of evidence based coaching. *The Sport Psychologist*, 19, p417-429.
- Mallet, C. (2007). Modelling the complexity of the coaching process: A commentary. *International Journal of Sport Science and Coaching*, 2(4), p419-421.
- Mallet, C. (2010). Becoming a high performance coach in Lyle, J., & Cushion, C. (2010) *Sports Coaching: Professionalisation and Practice*. Edinburgh: Churchill Livingstone.
- Mallet, C., Rossi, T., & Tinning, R. (2007). *Coaching Knowledge, Learning and Mentoring in the AFL*. Report to the Australian Football League Research Board, Melbourne.
- Mallet, C., Trudel, P., Lyle, J., & Rynne, S. (2009). Formal vs informal coach education. *International Journal of Sport Science and Coaching*, 4(3), p325-334.
- Mamede, S. & Schmidt, H. (2005). Correlates of Reflective Practice in Medicine. *Advances in Health Sciences Education*, 10, 4, p327-337
- Marback, T., Short, S., & Short, M. (2005). Coaching confidence: An exploratory investigation of sources and gender differences. *Journal of Sport Behaviour*, 28, p18-34.
- Maxwell, J. (1996). *Qualitative research design: An Interactive Approach*. Thousand Oaks, CA: Sage.
- Mayes, R. (2001). Reflecting on the future needs of UK's top coaches. *Faster, Higher, Stronger*, 10, p16-17.
- McAlpine, L., & Weston, C. (2002). Reflection: Issues related to improving professors' teaching and students' learning, in Hativa, N., & Goodyear, P. (Eds), *Teacher thinking, Beliefs and Knowledge in Higher Education*, p59-78. Netherlands: Kluwer.
- McArdle, S., & Duda, J. (2002). Implications of the motivational climate in youth sports, in Smoll, F., & Smith, R. (Eds), *Children and Youth in Sport: A Biopsychosocial Perspective*, p409-434. Dubuquw, IA: Kendall/Hunt.

- McCaughtry, N., Cothran, D., Hodges-Kulinna, P., Martin, J., & Faust, R. (2005). Teachers mentoring teachers: A view over time. *Journal of Teaching in Physical Education*, 24, p326-343.
- McCullick, B. (2000). Assessing a PETE program through the eyes of cooperating teachers. *Journal of Teaching in Physical Education*, 19, p501-521.
- McCullick, B., Schempp, P., & Clark, B. (2000). An analysis of an effective golf teacher education program: The LPGA national education program, in Thain, E. (Eds), *Science and golf IV: Proceeding of the World Scientific Congress of Golf*, p218-230. London: Routledge.
- McCullick, B., Belcher, D., & Schempp, P. (2005). What works in coaching and sport instructor certification programs? The participants view. *Physical Education and Sport Pedagogy*, 10(2), p121-137.
- Merriam, S., & Caffarella, R. (1999). *Learning in Adulthood*. San Francisco: Jossey-Bass.
- Mezirow, J. (1981). A critical theory of adult learning and education. *Adult Education*, 32(1).
- Miles, M., & Huberman, M. (1994). *Qualitative data analysis: an expanded sourcebook*. London: Sage.
- Misener, K., & Danylchuk, K. (2009). Coaches' perceptions of Canada's National Coaching Certification Program: Awareness and value. *International Journal of Sports Sciences and Coaching*, 4(2), p233-243.
- Moon, J. (2004). *A Handbook of Reflection and Experiential Learning: Theory and Practice*. London: Kogan Page.
- Moon, J. (2006). *Learning Journals: A Handbook for Reflective Practice and Professional Development*. London: Routledge.
- MORI (2004). *Sports Coaching in the UK: Final Report*. UK: Sports Coach UK.
- Moritz, S., Feltz, D., Fahrback, K., Mack, D. (2000). The relation of self efficacy measures to sport performance: A meta-analytic review. *Research Quarterly for Exercise and Sport*, 71, p280-294.
- Morgan, D. (1993). *Successful Focus Groups*. London: Sage.
- Morse, J. (1991). Approaches to qualitative and quantitative methodological triangulation. *Nursing Research*, 40, p120-123.
- Nash, C. (2008). *The Role of Coach Education in the Development of Expertise in Coaching*. Unpublished PhD. University of Edinburgh

- Nelson, L., & Cushion, C. (2006). Reflection in coach education: The case of the national governing body coaching certificate. *The Sport Psychologist*, 20, p174-183.
- Nelson, L., Cushion, C., & Potrac, P. (2006). Formal, non-formal and informal coach learning: A holistic conceptualisation. *International Journal of Sports Science and Coaching*, 1(3), p247-258.
- North, J. (2007). *Increasing Participation in Sport: The Role of the Coach*. Sports Coach UK.
- North, J. (2009). *The Coaching Workforce 2009-2016*. Sports Coach UK.
- Onwuegbuzie, A., & Johnson, R. (2006). The validity issue in mixed research. *Research in the Schools*, 13(1), p48-63
- Osterman, K., & Kottkamp, R. (1993). *Reflective Practice for Educators*. Newbury, CA: Corwin Press.
- O'Sullivan, M. (2007). *Creating and Sustaining Communities of Practice Among Physical Education Professionals*. Paper presented at the AIESEP-Libro Specialist Seminar on PE-CPD, Loughborough, England.
- Partington, J., & Orlick, T. (1991). An analysis of Olympic sport psychology consultants' best ever consulting experiences. *The Sport Psychologist*, 5, p183-193.
- Patton, M. (1987). *How to Use Qualitative Methods in Evaluation*. Newbury Park, CA, Sage.
- Patton, M. (1990). *Qualitative Evaluation and Research Methods (2nd Ed)*. Newbury Park, CA: Sage.
- Patton, M. (2002). *Qualitative Evaluation and Research Methods (3rd Ed)*. Thousand Oaks, CA: Sage.
- Pavlov, I. (1927). *Conditional Reflexes*. New York: Oxford University Press.
- Penney, D. (2006). Coaching as teaching: New acknowledgements in practice in Jones, R. (Eds) *The Sports Coach as Educator: Re-conceptualising Sports Coaching*. London: Routledge.
- Petipas, A. (2007). Modelling the complexity of the coaching process: A commentary. *International Journal of Sport Science*, 2(4), p425.
- Piaget, J. (1950). *Introduction a l'epistemologie genetique*. Paris: Presses Universitaires de France.
- Piaget, J. (1970). *The Science of Education and the Psychology of the Child*. New York: Grossman.

Potrac, P., Jones, R., & Armour, K. (2002). It's all about getting respect: The coaching behaviours of an expert English soccer coach. *Sport, Education and Society*, 7(2), p183-202.

Powell R.A. and Single H.M. (1996). Focus groups. *International Journal of Quality in Health Care*, 8(5), p499-504.

Reade, I. (2009). Formal vs informal coach education: A commentary. *International Journal of Sport Science and Coaching*, 4(3), p343-341.

Reid, B. (1993). But we are doing it already! Exploring a response to the concept of reflective practice in order to improve its facilitation. *Nurse Education Today*, 13, p305-309.

Reinboth, M., Duda, J., & Ntoumanis, N. (2004). Dimensions of coaching behaviour, need satisfaction and the psychological and physical welfare of young athletes. *Motivation and Emotion*, 28, p297-313.

Rovegno, I. (1992). Learning to reflect on teaching: A case study of one pre-service physical education teacher. *The Elementary School Journal*, 92(4), p491-510.

Rubin, H., & Rubin, I. (1995). *Qualitative Interviewing: The Art of Hearing Data*. Thousand Oaks, CA: Sage.

Rynne, S. (2008). *Opportunities and Engagement: Coach Learning at the Queensland Academy of Sport*. The University of Queensland.

Sage, G. (1989). Becoming a high school coach: From playing sport to coaching. *Research Quarterly for Exercise and Sport*, 60(1), p81-92.

Salmela, J. (1995). Learning from the development of expert coaches. *Coaching and Sport Science Journal*, 2(2), p3-13.

Saury, J., & Durand, M. (1998). Practical knowledge in expert coaches: On site study of coaching in sailing. *Research Quarterly for Exercise and Sport*, 69(3), p254-266.

Schempp, P., Templeton, C., & Clark, B. (1998). The knowledge acquisition of expert golf instructors, in Farrally, M., Cochran, A. (Eds) *Science and Golf III: Proceedings of the World Scientific Congress of Golf*. Leeds, UK, Human Kinetics.

Schempp, P., Templeton, C., & Clark, B. (2007). The knowledge acquisition of expert golf instructors. *Science and Golf III: Proceedings of the World Scientific Congress of Golf*, p295-301. Leeds, UK: Human Kinetics.

Schön, D. (1987). *Educating the Reflective Practitioner*. San Francisco: Josey Bass.

Seale, C. (2005). *Researching Society and Culture*. London: Sage.

Sechrest, L. (1992). Roots back to our first generations. *Evaluation Practice*, 13(1), p1-8.

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27, p4-13.

Sherman, C., Crassini, B., Maschette, W., & Sands, R. (1997). Instructional sport psychology: A re-conceptualisation of sports coaching as sport instruction. *International Journal of Sport Psychology*, 28, p103-125.

Silverman, D. (2010). *Doing Qualitative Research*. London: Sage.

Simons, J., & Andersen, M. (1995). The development of consulting practice in applied sport psychology: Some personal perspectives. *The Sport Psychologist*, 9, p449-468.

Skinner, B. (1974). *About Behaviourism*. New York: Random House.

Smith, J. (1983). Quantitative versus qualitative research: An attempt to clarify the issue. *Educational Researcher*, 12, p6-13.

Smith, R., Smoll, F., & Curtis, B. (1979). Coach effectiveness training: a cognitive-behavioural approach to enhancing relationship skills in youth sport coaches. *Journal of Sport Psychology*, 1, p59-75.

Smith, R., Zane, N., Smoll, F., & Coppel, D. (1983). Behavioural assessment in youth sports: Coaching behaviours and children's attitudes. *Medicine and Science in Sports and Exercise*, 15, p208-214.

Smith, J., & Heshusius, L. (1986). Closing down the conversation: The end of the quantitative – qualitative debate among educational enquirers. *Educational Researcher*, 15, p4-12.

Smith, R., & Smoll, F. (1990). Self esteem and children's reactions to youth sport coaching: A field study of self-enhancement processes. *Developmental Psychology*, 26, p978-993.

Smith, R., Smoll, F., & Cumming, S. (2007). Effects of motivational climate intervention for coaches on young athletes' sport performance anxiety. *Journal of Sport and Exercise Psychology*, 29, p39-59.

Smits, P., Verbeek, J., & De Buissonje, C. (2002). Problem based learning in continuing medical education: A review of controlled evaluation studies. *British Medical Journal*, 324, p153-156.

Smoll, F., Smith, R., Barnett, N., Everett, J. (1993). Enhancement of children's self esteem through social support training for youth sport coaches. *Journal of Applied Psychology*, 78, p602-610.

Smoll, F., & Smith, R. (2002). Coaching behaviour research and intervention in youth sports, in Smoll, F., & Smith, R. (Eds), *Children and Youth in Sport: A Biopsychosocial Perspective*, p211-231. Dubuque, IA: Kendall/Hunt.

Smoll, F., Smith, R., & Cumming, P. (2007). Effects of motivational climate intervention for coaches on changes in young athletes' achievement goal orientations. *Journal of Clinical Sport Psychology*, 1, p23-46.

Sports Coach UK. *What is the UKCC?* <http://www.sportscoachuk.org/resource/what-ukcc> Retrieved 18th October 2011.

Sports Coach UK (2004). *UKCC: Qualification Guidance*. Sports Coach UK.

Sports Coach UK. (2008). *The UK Coaching Framework: A 3-7-11 Year Action Plan*. Sports Coach UK.

Sports Coach UK (2011). *Sports Coaching in the UK III: A Statistical Analysis of Coaches and Coaching in the UK*. Sports Coach UK.

Sports Coach UK. (2012). *Inspire and Aspire Prospectus 2012*. www.sportscoachuk.org/resource/inspire-and-aspire-prospectus-2012. Retrieved May 2012.

sportscotland (2006). *Coaching Scotland Research Report*, No. 103. <http://www.sportscotland.org.uk/ChannelNavigation/Resources/TopicNavigation/Publications/Coaching+Scotland.htm> Retrieved January 2009.

sportscotland (2010). *UKCC Proposal for 2011-2015*. **sportscotland**.

Standage, M., Duda, J., & Ntoumanis, N. (2006). Students' motivational processes and their relationship to teacher ratings in school physical education: A self-determination theory approach. *Research Quarterly for Exercise and Sport*, 77, p100-110.

Stein, M., Smith, M., & Silver, E. (1999). The development of professional developers: Learning to assist teachers in new settings in new ways. *Harvard Educational Review*, 69(3), p237-269.

Sussman, D. (2002). Barriers to job related training. *Perspectives on Labour and Income*, 3(3), Statistics Canada Catalogue no.75-001-XIE.

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining Qualitative and Quantitative Approaches*. Sage Publications.

Tashakkori, A., & Teddlie, C. (2003). *Handbook of Mixed Methods in Social and Behavioural Research*. Thousand Oaks, CA, Sage.

- Taylor, C., & White, S. (2000). *Practicing Reflexivity in Health and Welfare*. Buckingham: Philadelphia.
- Teddle, C., & Tashakkori, A. (2006). A general typology of research designs featuring mixed methods. *Research in Schools*, 13(1), p12-28
- Teddle, C., & Tashakkori, A. (2009). *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioural Sciences*. London: Sage.
- Thorndike, E. (1928). *Adult Learning*. London: MacMillan.
- Tight, M. (2002). *Key Concepts in Adult Education and Training*. London: Routledge.
- Timson-Katchis, M., & North, J. (2008). *UK Coach Tracking Study: Year One Headline Report*. Sports Coach UK.
- Timson-Katchis, M., & North, J. (2010). *UK Coach Tracking Study: Year Two Headline Report*. Sports Coach UK.
- Tomlinson, P. (1999). Continuous reflection and implicit learning: towards a balance in teacher preparation. *Oxford Review of Education*, 25(4), p533-44.
- Townend, R., & North, J. (2007). *Sports Coaching in the UK II: Main Report*. Sports Coach UK.
- Trudel, P. & Gilbert, W. (1995). Research on coaches' behaviours: Looking beyond the refereed journals. *Avante*, 1(2), p94-106.
- Trudel, P., & Gilbert, W. (2004). Communities of Practice as an approach to foster ice hockey coach development in Pearsall, D., & Ashare, A. (Eds) *Safety in Ice Hockey: Fourth Volume*. ASTM International, West Conshohoken, Pennsylvania.
- Trudel, P., & Gilbert, W. (2006). Coaching and coach education in Kirk, D., Macdonald, D., & O'Sullivan, M. (Eds), *The Handbook of Physical Education*, p516-539. London: Sage.
- Trudel, P., Gilbert, W., & Werthner, P. (2010). Coach education effectiveness in Lyle, J. & Cushion, C. (Eds) *Sports Coaching: Professionalisation and Practice*. Elsevier Health Sciences.
- Turner, D., & Nelson, L. (2009). *Graduate Perceptions of a UK University Based Coach Education Programme and Impacts on Development and Employability*. https://uhra.herts.ac.uk/dspace/bitstream/2299/4219/1/Graduate_Perceptions_April_2009_Draft.pdf Retrieved October 2010
- Tusting, K., & Barton, D. (2006). *Models of Adult Learning: A Literature Review*. Leicester, UK, NIACE.

- Underhill, C. (2006). The effectiveness of mentoring programmes in corporate settings: A meta-analytical review of literature. *Journal of Vocational Behaviour*, 68, p292-307.
- UK Sport. (2000). The UK Vision for Coaching. UK Sport
- UK Sports Council. (1991). Coaching Matters: A Review of Coaching and Coach Education in the United Kingdom. UK Sports Council.
- UK Sports Council. (1999). The Development of Coaching in the United Kingdom: A Consultative Document. UK Sports Council.
- Van Manen, M. (1977). Linking ways of knowing to ways of being practical. *Curriculum Inquiry*, 6 (3), Spring Edition.
- Vargas-Tonsing, T. (2007). Coaches' preferences for continuing coach education. *International Journal of Sports Science and Coaching*, 2(1), p25-35.
- Vazou, S., Ntoumanis, N., Duda, J. (2006). Predicting young athletes' motivational indices as a function of their perceptions of the coach and peer created climate. *Psychology of Sport and Exercise*, 7, p215-233.
- Veal, A. (1997). *Research Methods for Leisure and Tourism: A Practical Guide*. London: Pitman Publishing
- Vygotsky, L. (1978). *Mind in Society: The Development of Higher Psychological Processes*. London: Harvard Press.
- Walling, M., Duda, J., & Chi, L. (1993). The perceived motivational climate in sport questionnaire: Construct and predictive validity. *Journal of Sport and Exercise Psychology*, 15, p172-183.
- Walsh, J. (2004). *Development and Application of Expertise in Elite Level Coaches*. Unpublished Dissertation. Victoria University, Melbourne.
- Weiss, M., Barber, H., Sisley, B., & Ebbeck, V. (1990). Developing competence and confidence in novice women coaches: A study of attitudes, motives and perceptions of ability. *Journal of Physical Education, Recreation and Dance*, 61, 60-64.
- Weiss, M., Barber, H., Sisley, B., & Ebbeck, V. (1991). Developing competence and confidence in novice female coaches: Perceptions of ability and affective experiences following a season long coaching internship. *Journal of Sport and Exercise Psychology*, 13, p336-363.
- Wenger, E. (1998). *Communities of Practice: Learning, Meaning and Identity*. Cambridge: Cambridge University Press.

- Wenger, E., McDermott, R., & Snyder, W. (2002). *Cultivating Communities of Practice: A Guide to Managing Knowledge*. Boston: Harvard University Press.
- Werthner, P., & Trudel, P. (2006). A new theoretical perspective for understanding how coaches learn to coach. *The Sport Psychologist*, 20, p198-212.
- Werthner, P., & Trudel, P. (2009). Investigating the idiosyncratic learning paths of elite Canadian coaches. *International Journal of Sports Science and Coaching*, 4(3), p433-449.
- Williams, B. (2001). Developing critical reflection for professional practice through problem based learning. *Journal of Advanced Nursing*, 34, p27-34.
- Woodman, L. (1993). Coaching: A science, an art, an emerging profession. *Sport Science Review*, 2 (2), p1-13.
- Wright, T., Trudel, P., & Culver, D. (2007). Learning how to coach: The different learning situations reported by youth ice hockey coaches. *Physical Education and Sport Pedagogy*, 12, 2, p127-144.
- Yin, R. (2006). Mixed methods research: Are the methods genuinely integrated or merely parallel? *Research in the Schools*, 13 (1), 41-47.
- Yinger, R. (1985). Journal writing as a learning tool. *The Volta Review*, 87(5), p21-33.
- Zeichner, K., & Liston, D. (1987). Teaching student teachers to reflect. *Harvard Educational Review*, 57(1), p23-4

7. APPENDICES

Appendix 1: Lyle's (2010a) proposed model for evaluating coach education programmes

Relevance		
M&E 1	M&E Strategic Approach	This is similar to the existing UKCC document (113); records the M&E procedures in place for the sport
M&E 2	Design Checklist	A self-check template of the programme design (can be applied to each UKCC levels), against adult learning, course design, and coach education principles
M&E 3	Programme Descriptor	Statement of how each part of the coach education programme is intended to be delivered
M&E 4	Analysis of Programme Barriers	This tool is an opportunity to identify the evaluation agenda by identifying issues at each stage of design and delivery
Fidelity		
M&E 5	Programme Data	Data collected on course throughput; (a) individual coaches, (b) course statistics – attended, completed, sat assessment etc.
M&E 6	Coach Candidate Feedback	Template for coach's response to and feedback on the programme
M&E 7	Tutor Feedback	Template for tutor(s) report; identification of quality assurance issues and departures from delivery intentions
M&E 8	Observation Schedule	Observation tool to assist in the monitoring and evaluation of course delivery; delivery compared with Programme Descriptor
M&E 9	Evaluation of Pre-course Data	Analysis of data provided by coaches prior to course entry; data may be collected in a variety of ways, and vary in scale at each level; very valuable of details of coaching practice
Effectiveness		
M&E 10	Coach Competence Monitoring Report	Self-report coaching competence checklist; can be administered prior to the course or at the commencement of the course and then 3 or 6 months after completion
M&E 11	Outcomes Statement	Practical statement of outcomes for evaluation of practice purposes
M&E 12	Analysis of Assessments	Detailed analysis of assessment results; interpretation of results
M&E 13	Case Study/Observation	Convenience sample, looking at coach behaviours in situ and including observation and interviews
Transfer		
<p>The balance of the M&E procedures is on the Relevance, Fidelity and Effectiveness stages. There is clearly considerable interest in whether the benefits of coach education are evident in the general practice of coaches in the sport. However, our advice is that this question is best resolved by a research investigation rather than the use of M&E tools. Nevertheless, M&E 11 may be a useful basis for observation of practice, and M&E 9 and M&E 13 would be relevant tools.</p>		
Impact		
<p>We also recommend that the evaluation of impact should be subject to case-specific research designs rather than monitoring tools. This reflects the contribution of 'parallel influences' (other than coach education) on long term sporting outcomes – standards of performance, participant recruitment and adherence, quality of sporting experience, in addition to social indicators, such as health and wellbeing.</p>		
Report		
M&E 14	Report Template	Provides a template for reporting on monitoring and evaluation

(Lyle, 2010a, p.20)

Appendix 2: Demographic data by sport and level

Table 16: Rugby level one demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	19	95
	Female	1	5
AGE	19 & under	1	5
	20-29	7	35
	30-39	2	10
	40-49	10	50
COACHING POSITION	None	4	20
	Club coach (youth)	12	60
	Club coach (senior)	3	15
	PE teacher	1	5
COACHING EXPERIENCE	0-2	13	65
	3-5	5	25
	6-10	2	10
LEVEL OF PARTICIPATION	Recreational	8	40
	Club	5	25
	County	3	15
	National +	4	20

Table 17: Squash level one demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	5	71
	Female	2	29
AGE	19 & under	5	71
	40-49	1	14
	50 +	1	14
COACHING POSITION	None	7	100
COACHING EXPERIENCE	0-2	7	100
LEVEL OF PARTICIPATION	Club	5	71
	National	2	29

Table 18: Swimming level one demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	2	18
	Female	9	82
AGE	19 & under	4	36
	40-49	6	54
	50 +	1	9
COACHING POSITION	Poolside helper	10	91
	Club coach (youth)	1	9
COACHING EXPERIENCE	0-2	11	100
LEVEL OF PARTICIPATION	Recreational	5	45
	Club	4	36
	County	1	9
	National +	1	9

Table 19: Triathlon level one demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	13	81
	Female	3	19
AGE	19 & under	1	6
	20-29	3	19
	30-39	3	19
	40-49	8	50
	50 +	1	6
COACHING POSITION	None	13	81
	Club coach (youth)	3	19
COACHING EXPERIENCE	0-2	14	87
	3-5	1	6
	6-10	1	6
LEVEL OF PARTICIPATION	Recreational	3	19
	Club	9	57
	County	1	6
	National +	3	19

Table 20: Rugby level two demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	14	100
AGE	20-29	4	29
	30-39	6	43
	40-49	4	29
COACHING POSITION	Club coach (senior)	6	43
	Club coach (youth)	5	36
	School coach	2	14
	No answer	1	7
COACHING EXPERIENCE	0-2	2	14
	3-5	6	43
	6-10	3	21
	11-15	3	21
LEVEL OF PARTICIPATION	Recreational	1	7
	Club	5	36
	County	6	43
	National +	2	14

Table 21: Squash level two demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	5	100
AGE	19 & under	2	40
	30-39	1	20
	40-49	2	40
COACHING POSITION	Club coach (senior)	2	40
	Club coach (youth)	3	60
COACHING EXPERIENCE	0-2	3	60
	11-15	1	20
	16+	1	20
LEVEL OF PARTICIPATION	Club	1	20
	County	2	40
	National +	2	40

Table 22: Swimming level two demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	11	61
	Female	7	39
AGE	19 & under	3	17
	20-29	7	39
	30-39	2	11
	40-49	5	28
	50 +	1	6
COACHING POSITION	Club coach (youth)	13	72
	Coach co-ordinator	1	6
	Disability coach	1	6
	Learn to swim coach	1	6
	Personal Trainer	1	6
	None	1	6
COACHING EXPERIENCE	0-2	8	44
	3-5	8	44
	6-10	2	11
LEVEL OF PARTICIPATION	Recreational	7	39
	Club	3	17
	County	3	17
	National +	5	28

Table 23: Triathlon level two demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	7	50
	Female	7	50
AGE	20-29	1	7
	30-39	6	43
	40-49	5	36
	50 +	2	14
COACHING POSITION	Club coach (senior)	12	86
	Club coach (youth)	1	7
	None	1	7
COACHING EXPERIENCE	0-2	12	86
	3-5	2	14
LEVEL OF PARTICIPATION	Recreational	2	14
	Club	8	57
	County	2	14
	National +	2	14

Table 24: Rugby level three demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	15	100
AGE	20-29	3	20
	30-39	6	40
	40-49	5	33
	No answer	1	7
COACHING POSITION	Club coach (senior)	9	60
	District age group coach	2	13
	National age grade coach	2	13
	Head of Sport College	1	7
	Army Scotland coach	1	7
COACHING EXPERIENCE	0-2	1	7
	3-5	2	13
	6-10	5	33
	11-15	3	20
	16+	4	27
LEVEL OF PARTICIPATION	Club	1	7
	County	8	53
	National +	6	40

Table 25: Swimming level three demographic data

		FREQUENCY	PERCENT (%)
GENDER	Male	5	31
	Female	11	69
AGE	19 & under	1	6
	20-29	4	25
	30-39	2	12
	40-49	8	50
	50+	1	6
COACHING POSITION	Club coach (senior)	1	6
	Club coach (youth)	15	94
COACHING EXPERIENCE	0-2	2	12
	3-5	7	44
	6-10	3	19
	11-15	3	19
	No answer	1	6
LEVEL OF PARTICIPATION	Recreational	6	37
	County	2	12
	National +	8	50

Appendix 3: Subject information sheet

1. Study Title:

An evaluation of the United Kingdom Coaching Certification (UKCC) in Scotland: Examining the relevance, fidelity and effectiveness of the programme with four governing bodies of sport.

2. Invitation Paragraph

You are being invited to participate in a research study on the topic stated above. Before you make any final decision on taking part it is important that you are made fully aware of the type of research being carried out. Please take your time in reading all the following information carefully before you make any decisions. If you have any problems, concerns or questions, do not hesitate to contact me (see Q.14)

3. What is the purpose of the study?

The main purpose of this study is to evaluate the the UKCC. More specifically, the study will examine the programme in relation to its relevance, fidelity and effectiveness.

4. Why have you been chosen?

The study involves collecting data from the participants who are attending UKCC courses in Scotland.

5. Do I have to take part?

It is entirely up to you whether or not you decide to participate in this study. Your involvement is completely voluntary. If you do decide to take part you will be asked to sign a consent form. If for any reason during the study you wish to withdraw you are free to do so.

6. What will I have to do?

You will be asked to complete a questionnaire at the start and end of your UKCC course. The questionnaire requires you to rate your competency from 1 to 5 on a number of learning outcomes and should take approximately 10 minutes to complete. You can complete the survey by hand or complete a hard copy and email it back. Along with this, you will be required to fill out a reflective diary during the course and the assessment process. The aim of this is to reflect on the course and the impact it has made. Lastly, a small sample of coaches on the course will be asked to participate in a focus group before the course to discuss motivations, expectations and current coaching competency. The same sample of coaches will participate in a focus group at the end of the course to give

their views on the course and whether it influenced their coaching competency. The group discussions will be carried out at the practical course and will last between 20 and 30 minutes.

7. Are there any side effects of taking part?

No side effects are anticipated.

8. Will my taking part in this study be kept confidential?

Yes. In order to protect confidentiality and anonymity, all information collected during the research will be kept in a secure place with access only to those with permission from the researcher. Along with this, a code will be used instead of your name in all written work.

9. What will happen to data I provide?

The data from the research will be analysed and presented in some form in my thesis. However, none of your personal details will be published.

10. Who is organising and funding the research?

I am funded and supported by the School of Sport at the University of Stirling.

11. Who has reviewed the study?

University of Stirling's Postgraduate Research Committee.

12. Is anyone supervising my dissertation?

Yes, my supervisor is Alan Lynn, who is a senior teaching fellow in the School of Sport. His contact details are: alan.lynn@stir.ac.uk / 01786-466467 and you are free to contact him if you wish to do so.

13. What do I do next?

Once you have decided whether or not to take part in the study, please let me know your decision (contact details below).

14. Contact details

Alison Bell: alison.bell@stir.ac.uk / 07736321096

Thank you for taking time to read about the study.

Appendix 4: Informed consent form

Title of Study: An evaluation of the United Kingdom Coaching Certification (UKCC) in Scotland: Examining the relevance, fidelity and effectiveness with four governing bodies of sport.

Name of subject:

Name of principal investigator:

I have read the subject information sheet provided on the above study and have had the opportunity to discuss the details with the principal investigator and ask questions. The principal investigator has explained the nature and purpose of the research to be undertaken and I fully understand what is proposed to be done.

I understand that the research project is designed to promote knowledge and understanding, which has been approved by the University of Stirling's Postgraduate Research Committee. I have agreed to take part in the study outlined to me but I understand that I am completely free to withdraw from the study or any part of the study at any time I wish.

I hereby fully and freely consent to participate in the study which has been fully explained to me.

Signature of subject:.....

Date:.....

I confirm that I have explained to the subject named above the nature and purpose of the study to be undertaken.

Signature of principal investigator:.....

Date:.....

Appendix 5: Dates and timing of data collection

Rugby

	Course dates	Pre-course data collection	Post course data collection	Time period of course
Level one	Fri 11 th - Sun 13 th June 2010	Fri 11 th June	Sun 13 th June	One weekend
Level two	Sat 12 th & Sun 13 th Sept 2009 Sat 10 th & Sun 11 th Oct 2009	Sat 12 th Sept	Sun 11 th Oct	Two weekends a month apart.
Level three	Sat 19 th & Sun 20 th June 2010 Sat 7 th & Sun 8 th August 2010 Sunday 8 th May 2011	Sun 20 th June 2010	Sun 8 th May 2011	Three weekends spread over a ten month period.

Squash

	Course dates	Pre-course data collection	Post course data collection	Time period of course
Level one	Sat 24 th & Sun 25 th Oct 2009 Sat 4 th & Sun 5 th Dec 2009	Sun 25 th Oct	Sun 5 th Dec	Two weekends five weeks apart
Level two	Sat 20 th & Sun 21 st Feb 2010 Sat 15 th & Sun 16 th May 2010	Sat 20 th Feb	Sun 16 th May	Two weekends three months apart
Level three	No courses were delivered between Sept 2009 and June 2011			

Swimming

	Course dates	Pre-course data collection	Post course data collection	Time period of course
Level one	Fri 11 th – Sun 13 th Sept 2009 Fri 25 th & Sat 26 th Sept 2009	Fri 11 th Sept	Sat 26 th Sept	Two weekends a week apart
Level two	Sun 18 th – Sun 25 th July 2010	Sun 18 th July	Sun 25 th July	One week course
Level three	Mon 19 th April – Sun 25 th 2010 Sat 22 nd & Sun 23 rd May 2010 Sat 29 th & Sun 30 th May 2010 Sat 18 th & Sun 19 th Sept 2010 Coursework in by 26 th Nov	Tues 20 th April 2010	After the 26 th of Nov 2011	One week course and three weekends over a nine month period.

Triathlon

	Course dates	Pre-course data collection	Post course data collection	Time period of course
Level one	Sat 5 th & Sun 6 th Dec 2009 Sat 9 th Jan 2010	Sat 5 th Dec	Sat 9 th Jan	One weekend then a month out of course time before an assessment day.
Level two	Sat 16 th & Sun 17 th Jan 2010 Sat 6 th & Sun 7 th Feb 2010	Sat 16 th Jan	Sun 7 th Feb	Two weekends three weeks apart
Level three	No courses were delivered between Sept 2009 and June 2011			

Appendix 6: Reflective journal

Instructions:

Please reflect on your learning experience during the practical course and the out of course home study tasks. This can be done whenever you feel is necessary or appropriate. There are a number of questions to help guide your reflection. You do not need to answer all the questions; they are just there as prompts to help guide reflection.

Please be as honest and truthful as possible. Confidentiality and anonymity will be protected as all the information collected will be kept in a secure place with access only to those with permission from the researcher. Along with this, participants will remain anonymous as numbers will be used instead of names in all written work.

Please send your completed journals to alison.bell@stir.ac.uk or hand them in to myself or the course organiser.

Background information:

Name:

Sport:

Level of course:

Date of course:

Email address:

DATE:

REFLECT ON YOUR LEARNING EXPERIENCE DURING THE PRACTICAL COURSE AND OUT OF COURSE TIME

Guiding questions:

- Have any key incidents occurred in your learning experience? Have any key incidents had an impact on your learning experience or competency level?
- Did you learn anything new or acquire any new skills?
- Has your competency/skill level changed? How has it changed? Why has it changed?
- Has anything had a major impact on your competency level?
- What effect has the course had on your competency level/learning?
- What ways/methods of learning did you find effective?
- Any barriers or factors restraining your learning experience?
- Do you require any further learning?

Appendix 7: Pre-course focus group questions

Coaching experience/background:

- Why/How did you get into coaching?
- What coaching experience do you have? Who have you coached?
Age/Gender/Level/How long for?
- What level do/did you participate at in the sport? Length of participation?
- What have you done prior to this course? This can include formal and informal learning (observing, learning off other coaches, athlete experiences).
- Do you have any coaching qualifications in other sports?

Expectations/Motivations:

- Why are you on the course?
- What do you want to get out of the course?
- What coaching competencies/skills do you hope to acquire/learn/improve?

Current competency:

- What do you feel most competent at in terms of your coaching? What do you feel least competent at and want to improve on?
- How confident do you feel in your coaching ability?
- Have there been any barriers to your learning or development as a coach so far?
- Has anything enabled or aided your learning or development so far?
- Has anything had a major influence on your learning or development so far?

Appendix 8: Post course focus group questions

Competency:

- How do you feel about your competency level now? Has it changed? Why do you think it has changed?
- Any changes in specific skills? (e.g. technical, tactical, confidence, interpersonal) Why and how has this happened?
- Perceptions regarding your ability to coach now? Perceptions regarding your current knowledge/confidence/skill level now?
- Has anything had a major impact on your competency level or development?
- Any barriers or factors restraining your learning or development of competencies?
- What would you like to still improve? Any further learning?

The course:

- General opinions on the course, structure, design and content? I.e. was it progressive, coherent, linked? Did the course design, structure and content enable you to develop/become more competent?
- Good aspects? Poor aspects?
- Did you get what you wanted from the course?
- What ways/methods of learning did you find effective?
- Recommendations? Improvements?
- How effective was this formal education in your development as a coach so far?
- What do you feel has helped you develop most as a skilled coach?

Future:

- What are you planning on doing next? Plans for moving forward?
- Are you planning on doing the next level? (Level 3 coaches – if there is no level 4 course, where do you hope to go from here?)
- Why do you want to do the next level? What are your motivations?

Appendix 9: Survey for levels one, two and three

Instructions:

The attached survey aims to examine your competency in a number of learning outcomes. Please rate your current competency from 1 (not at all competent) to 5 (extremely competent) as honestly as possible. The survey should take roughly 10 minutes to complete. All the data collected will remain confidential and anonymous. The data will be kept in a secure place with access only to those with permission from the researcher and no personal details will be published in any written work. Please return completed survey to alison.bell@stir.ac.uk or hand it back directly to myself or the course instructor.

Personal details:

Name:

Gender: Male Female

Age:

Email address:

Background details:

Current coaching position?

How long have you been coaching this sport?

What level do/did you participate at in this sport?

Recreational Club County/Regional

National International

During your time participating in this sport, have you received any coaching? Yes No

If yes, for how many years?

Do you have coaching certifications in any other sport(s)? Yes No

If yes, which sport(s) and level(s)?

Appendix 10: Qualitative analysis: themes and example quotes

Relevance

Quote*	Lower order theme	Higher order theme
I would like to get confidence (S1)	Gain knowledge and confidence	Opportunities for learning within coach education
I feel more confident to coach groups of kids and feel I am to teach them now so they learn. (Sq1)		
Yeah I would say that there are definitely things I feel a bit better at but others I feel I still need more knowledge on. (T2)		
Just to meet people from different backgrounds and find out how everyone does things. (R1)	Learn from others	
Observing each other I thought was really helpful. (Sq1)		
Some kind of coaches' forum that would be quarterly a year or something like that and you could bounce this sort of stuff off each other. Discussing the latest techniques, getting input from top coaches such as Andy Robinson. (R3)	Increase technical and planning knowledge	
Coming from a non swimming background because I can't feel it I have to be able to describe it or demonstrate it. So for me it is about being able to look at different technical elements of the events and being able to say I can see why that is wrong and I understand how to correct it. That's what I want to work on. (S2)		
Having done how many of the session plans I think it drums it into you in terms of the sequencing and the planning and preparation and I think for me that is quite a good part of the course. (T1)		
Yeah need more about technique rather than other stuff. (S2)		
I don't really know how to start anything like how you plan what you are going to do and things like that. (Sq1)	Learn the 'how to' coach	
Learning how to teach the drills. (S1)		
I feel a lot more confident around poolside as I feel like I know a lot more about coaching in general. I feel like I have learnt how to deliver a session effectively. (S2)		
The course gives you enough to go and start accumulating that experience (T1)	Gain practical experience	
It gives you the bones and the foundations to start from and then you can go out and get the experience. (SQ2)		
We need to go get the experience (T2)		

*Letter stands for the sport and the number represents the level e.g. S2 is a swimming level two coach

Quote	Lower order theme	Higher order theme
I have done level one teaching (S2)	Previous formal learning	Contribution that coach education has in overall development
I have gone to a lot of the coaching updates that the SRU run which have been pretty good on specific things whether it be scrum half play or sevens or defensive play. (R3)		
I would always like to have the best qualification that you can have in the country because it gives you credibility (R3)		
I think I must say that bad coaches have influenced me a lot in the way I want to do it better because there are loads of bad coaches out there too. (T2)	Previous informal learning	
I have spent a lot of time watching a professional side train, luckily they are in the same complex as I work. (R3)		
Some of the practices I do with the kids were some of the ones I got taught as a swimmer by my coach back in the day. That obviously influences you and shapes how you want to be as a coach. (S3)		

Fidelity

Quote	Lower order theme	Higher order theme
You definitely learn more from other people on the course. (Sq1)	Strengths of the programme	Participants' views on coach education
I think the best bits are just when you are coaching on poolside, it is just the best way to learn. (S1)		
In class I found the tutor's teaching style very effective. He was very relaxed and wanted an interactive session to increase learning between everyone. (S3)		
There were quite a lot of topics which you have to take on board (T2)	Weaknesses of the programme	
The materials should maybe be revised. They are just not coherent. (T2)		
The worst part of the course so far is having the time and motivation to complete the volume of paperwork. (S3)		
There is only one course a year in Scotland. Last year was fully booked by the time I got myself organised. Sometimes finding a suitable course close to home was not very easy at all. (T1)	Barriers	
I wanted to do it a year ago but I had to wait until now (Sq2)		
I think you always have the same barrier that everyone has here which is time constraint. (R3)		
I am hoping that once it is over I can start getting more experience and maybe I would then go on to level two. (S1)	Future Plans	
I can't see a reason why I would want to do it, I am not really interested in trying to develop the next superstar, I am interested in club coaching. (Sq2)		
I would need to get rid of my day job. (T2)		

Effectiveness

Direct quote from data	Lower order theme	Higher order theme
I think my competency has increased (Sw1)	Competency	Impact
If I had done it fifhteen years ago it would have probably benefitted me more that it has done now if I am being really honest. (Sq2)		
It has raised my competency level to a higher degree, as I feel totally in control as a coach and I have confidence in my own ability that I can be a good coach. (T2)		
I would say definitely more competent (R3)		
Need more technical knowledge (T1)	Specific skills or areas of knowledge	
I have been concentrating on the forward stuff because I don't know it as well and I think I have improved on that. (R2)		
I would say planning as well and the idea of keeping everything linked together. (Sq2)		
I have also learned about dynamic warm ups and recovery skills to help the swimmers in the pool. (S3)	Confidence	
I feel a lot more confident around poolside as I feel like I know a lot more about coaching in general. (S1)		
I feel more confident to coach groups of kids and feel I am to teach them now so they learn. (Sq1)		
Even after the first day I feel much more confident (Sq2)		
I wouldn't say I felt more confident (Sq2)		

Appendix 11: The NCCP structure

