# Determining International Parasport Success Factors for UK Para-Athletics

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**A thesis submitted in partial fulfilment of the requirements of Sheffield Hallam University for the degree of Doctor of Professional Studies**

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I hereby declare that:

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2. None of the material contained in the thesis has been used in any other submission for an academic award.

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# ABSTRACT

Parasport is attracting increased attention, with many nations adopting a systematic approach to the pursuit of international sporting success. The acceptance of an approach developed in a non-disabled context assumes that the determinants of success are concomitant for parasport and non-disabled sport alike. Policy development in this area is currently underdeveloped and a significant knowledge gap is evident. This knowledge gap provides the rationale for this study based on three principal factors: A lack of studies examining international parasport success factors; a lack of studies examining international sporting success factors in sport-specific contexts and; an absence of studies that address both dimensions. This study aims to address this gap in the literature by determining international parasport success factors for UK para-athletics. The study undertakes a critical realist approach, using a mixed methods research design. A four-phase sequential design was adopted which included both quantitative surveys completed by para-athletes and their coaches and qualitative semi-structured interviews, with athletes, coaches and UK Athletics staff. The results of this study suggest that the determinants of success identified for para-athletics include the factors identified in previous non-disabled studies but that there are additional variable factors for consideration. The relevant variable factors identified by this study are grouped as the nature of impairment (acquired or congenital); the level of support and care needs; and the level of equipment needs. This study provides a model illustrating the influences of these variables on the determinants of success, which may be of value for the development of para-athletics policies and the design of parasport support structures in the future. Consideration of the DIPAS model can enable improved structures and enhanced support of para-athletes, consequently improving success rates and ensuring appropriate spend of public money. It is recommended that the research approach is repeated in nations that perform comparably in para-athletics. Further research within athletics is advised to explore variance across event disciplines and ensure appropriate allocation of resources.

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# CHAPTER 1 INTRODUCTION

## 1.1 INTRODUCTION

As international sporting success is pursued by nations globally, researchers have attempted to create models and develop frameworks to denote the critical policy factors required to top medal tables, frequently in the literature this is referred to as 'The Global Sporting Arms Race' (De Bosscher, De Knop, Van Bottenburg, and Shibli, 2006). The empirical research on which elite sport development theory has been created has focussed largely on non-disabled, Olympic contexts. The acknowledgement of policy factors by academics, which enable success, has resulted in a homogenous approach to national elite sport policy and elite sport structures in an Olympic context. For many nations the approach to the production of parasport success has mirrored the established elite Olympic sport structures (Great Britain and Northern Ireland, France, Netherlands, Canada, Australia). There is an assumption that the determinants of success are concomitant for parasport and non-disabled sport. Nations adopting the tried and tested Olympic support structure to chase parasport success are doing so with the belief that the critical success factors are the same for parasport and non-disabled sport. The determinants of parasport success remain an area that lacks empirical evidence to support this assumption. This gap in empirical research provides the platform for this study.

## 1.2 DEFINING PARASPORT

Parasport, also identified as disability sport, is identified as sport practised by people with physical, visual and intellectual impairments (Vanlandewijck, 2006). 'Parasport is used as a synonym for Paralympic sport i.e. athletes and events which comprise the Paralympic Games'. However, not all disability sports are Paralympic sports. Sport for athletes with an impairment is given the term parasport (International Paralympic Committee 2013). According to the IPC, there are ten eligible physical, visual and intellectual impairment types (Appendix1). A para-athlete is titled a Paralympic athlete when they compete at a Paralympic Games (ibid). In this study, 'Para-Athletics' will be identified as track and field athletics practised by people with those impairments. 'Para-athletes' will be athletes participating in Para-Athletics, elite athletes with one of the three impairment types.

The Paralympic Games, the primary sporting event that represents the broader Paralympic Movement, has provided an opportunity to promote the abilities of people with disabilities while also catalysing disability rights through ensuring integration, equality of opportunity, and accessibility of the built environment (International Paralympic Committee, 2017). Simultaneously, media coverage of the Paralympic Games has led to an increased awareness of opportunities for sport participation for individuals with disabilities and, with it the modification of expectations concerning opportunities for exercise as a component of preventative health (Dowling, Brown, Legg and Beacom, 2018). The acceptability of elite parasport as an area for policy consideration and the establishment of support structures in the pursuit of parasport success has occurred as a result of the climate above.

# 1.3 BACKGROUND

## 1.3.1 COMPARATIVE STUDIES IN SPORT

Comparative studies in elite sport are a popular and unique area of investigation (Hantrais, 2008). In order to undertake comparative studies, in any field, an established methodological framework facilitates insightful comparison (De Bosscher et al. 2006). Dowling et al. (2018) acknowledge that despite this inclination toward comparison, only a few scholars in the area of sport policy and the related area of strategic management of high-performance sport have undertaken this type of work (e.g., De Bosscher, et al, 2006; De Bosscher, et al, 2015; Digel, 2002; Green and Houlihan, 2005; Houlihan and Green, 2008). Further to this, , there has been a tendency to oversimplify observations of high-performance (Olympic) sport systems (Dowling et al. 2018). Policy analysis has proved bountiful territory for conceptual innovation, model-building, and analytical and normative theorising (Houlihan, 2005); however, whilst sport attracts interest by many Governments as an increasingly important area of policy, parasport is relatively overlooked as a discrete area of policy interest.

Jowell (1998) urges social scientists considering or engaged in comparative research to be transparent about the limitations of their studies. The need for critical reflection, which considers limitations has arguably become even more necessary as researchers continue to expand their approaches both in terms of size (e.g., increasing number countries compared) and in scope, including the application to alternative contexts, as in this study, to parasport. To expand on the latter of these points, while much of the comparative sport management and policy literature has focused on sport systems relating to non-disabled sport, there is an emerging focus on the parasport domain (e.g. Dowling, Brown,

Legg, Beacom, 2018; Legg and Darcy, 2015; Legg, De Bosscher, Shibli, and van Bottenburg, 2015; Pankowiak, 2015). A review of the inherent challenges, opportunities, and implications of this type of comparative scholarship has recently been undertaken by Dowling et al. (2018).who explore the challenges, barriers and limitations of conducting comparative sport management and policy research by drawing upon examples from the application of comparative models (or modified versions of them) and considering how this might apply specifically in the parasport domain.

In elite sport studies, competitiveness is used to describe personal characteristics of athletes (Corrado, Basso and Schiavon et al., 2005), the dominant position of teams in national or international competition (Bar-Eli, Galily and Israeli, 2008) or the growing internationalisation of international competitions (De Bosscher, Du Bois and Heyndels, 2012; Digel, 2002; Du Bois and Heyndels, 2008). Competitiveness is related to the output of the process, a perspective that encompasses the throughput or production process of elite sporting success. The increase in medal-winning capabilities of countries in international competition is explained by an increasing number of nations taking a more strategic approach to the development of medal-winning elites (De Bosscher, 2007; Green and Oakley, 2001; Houlihan and Green, 2008; Oakley and Green, 2001), this observation is inclusive of parasport. Many authors refer to conventional approaches and critical characteristics of elite sports systems (e.g. Oakley and Green 2001, Green and Houlihan 2005, De Bosscher, et al. 2006, Digel, et al. 2006, Bergsgard, et al. 2007, Houlihan and Green 2008, Andersen and Ronglan 2012). Most of these studies provide a descriptive analysis of high-performance policies in multiple countries; only a few authors

explored elite sport policy systems for specific sports (e.g. Green and Houlihan 2005, Digel, et al. 2006, Böhlke 2007).

### 1.3.2 THE EVOLUTION OF PARASPORT

The Paralympic Games, the premier sporting event for elite athletes with a disability, has been “transformed from a sporting pastime to a spectacle which currently attracts substantial media attention” (Howe, 2008, p. 135). Although the Deaflympics is one of the earliest examples of elite disability international sports events and dates from 1924, most examples are much more recently with the first Paralympic Games held in 1960 and the first Special Olympics, for people with an intellectual disability, dating from 1968. One major drawback is that while media and population interests rise, parasport events are in their infancy when compared to elite non-disabled sport events. In 1976 the Paralympic Games received its first television coverage in the form of recorded highlights but even as recently as the 1996 Games, broadcasting was only possible because the Games organisers agreed to pay the broadcast companies (Cashman and Darcy 2008). However, clear progression is evident, the 2012 Paralympic Games broadcast to 113 countries, achieving a cumulative audience of 3.4 billion.

Television coverage of parasport beyond the Paralympic Games is minimal; the growth in the profile of multi-parasport events arguably less the result of demand from the media for products, and more the result of several key factors: Sustained activism by not for profit organisations, such as International Sport Organisation for the Disabled (IOSD) in the 1960s; the agency of Ludwig Guttmann, founder of the Stoke Mandeville Games, and the efforts of Sir Philip Craven, former President of the IPC (Campbell and Oliver 2013; 2009).

Additionally, the by-product of disability (and broader civil) rights campaigns mainly in Western countries, has played its part (Vaughn Switzer 2003). However, the growth in profile of the Paralympic Games has undoubtedly contributed to the increase in the number of world championship competitions for individual sports, although many are organised by the IPC rather than by the Olympic or Paralympic international federations. The IPC organised the first athletics world championships in 1994 in Berlin, 11 years after the first world athletics championships for non-disabled athletes. In 2017 the Athletics World Championships were held in London in the same format as the Olympic and Paralympic Games athletics competition, for the first time, with the non-disabled events being scheduled in the weeks preceding the para-events.

The Paralympic movement led by the IPC, which was established in 1989, sees the essence of Paralympism as being 'to enable Paralympic athletes to achieve sporting excellence and to inspire and excite the world' (IPC, 2017), an event where the participants' athletic achievements rather than their disability are the focus (IPC, 2017). Since 1992 it has become the sole coordinating body for Paralympic sport, recognised by the International Olympic Committee (Kavanagh, 2012). An agreement in 2001 clarified the organisation of the Paralympic Games, confirming that the location would always be the Olympic host city and would take place shortly after the Olympic Games, using the same facilities and venues, a shift toward the 'One City, One Bid' approach to the selection of the Olympic host cities (Gold and Gold, 2007).

The IPC's desire to promote the positives of para sport is rooted in the work of Guttmann (1976.p12–13) who believed that sport was

> 'invaluable in restoring the disabled persons' physical fitness, i.e.: his (sic) strength, coordination, speed and endurance…restoring that passion for playful activity and the desire to experience joy and pleasure in life…promoting that psychological equilibrium which enables the disabled to come to terms with his physical defect, to develop activity of mind, self-confidence, self-dignity, self-discipline, competitive spirit, and comradeship, mental attitudes…to facilitate and accelerate his social re-integration and integration'.

He sought to develop opportunities for disabled people to participate in more organised and competitive sports, not only at the recreational level but, at the elite level. He organised the Stoke Mandeville Games, a precursor to the one city, one bid approach, to coincide with the opening of the Olympic Games in London on 28th July 1948, the first organized sports competition for wheelchair athletes in England (Legg and Steadward, 2011). Considering the perceived success of the Games, the British Paraplegic Sports Society (BPSS), which later became the British Wheelchair Sports Foundation, was established to provide regular training and competitive opportunities for disabled people (especially wheelchair users and those with Spinal Cord Injuries) to participate in sport and physical activities (Legg and Steadward, 2011).

Legg (2009) identifies that the commencement of an international hospital competition occurred in 1952; these contests were named The Stoke-Mandeville Games. Guttmann developed these Games with his aspiration to host the Games outside of England and parallel them with the Olympic Games. Guttman's goal was realised in 1960, with the staging of an event in Rome in what is now recognised as the first Paralympic Games (Guttmann, 1976; Scruton, 1998). In recognition of his efforts and Guttmann's identification of sport as a form of rehabilitation, he was subsequently saluted by Pope Paul

XXIII, who declared Guttmann as, "...the de Coubertin [the founder of the modern Olympic Games] of the paralysed" (Kanters, 1996).

Since the unification of the Olympic and Paralympic Games, the parallels continued to be made. First with comparisons of the two 'Founding Fathers', later with the inception of the 'One City, One Bid' approach and today with the support and professionalisation of the athlete participants in many nations, including the United Kingdom. The IPC has made closer ties with the Olympic movement in an attempt to achieve commercialisation of high-performance spectacles for the disabled. Benefits include long-term financial support, access to the high-quality facilities in which to hold the Paralympics, and many other commercial bonuses (Howe, 2008). An agreement between the International Olympic Committee (IOC) and IPC was signed in 2001 to formalise those ties and in 2003, this agreement was amended to transfer 'broadcasting and marketing responsibilities of the 2008, 2010, and 2012 Paralympic games to the Organizing Committee of these Olympic and Paralympic games' (IPC, 2003. p.1). Limiting the size of future Paralympic Games in the eyes of the IOC makes it a more flexible product to market (Howe, 2008,p.138). However, while the agreement will ease financial concerns for the IPC, it may force a restructuring of sport for the disabled, as due to the IOC demand that the Paralympic Games are restricted to 4000 athletes.

The antecedents of parasport are found in the therapeutic use of sport for the rehabilitation of injured soldiers, the brainchild of Ludwig Guttman, a surgeon at Stoke Mandeville during World War 2. Today parasport events, namely The Paralympic Games, are attracting increasing public interest and parasport is increasingly consumed by the public as a facet of elite sport. The London 2012

Paralympic Games attracted 2.8 million spectators while a cumulative audience of 3.8 billion watched on television in over 100 countries. The increased popularity of parasport is mirrored by Government elite sport policy which is inclusive of international parasport and the adoption of established elite sport structures. In Great Britain, the adoption of the established elite sport structures has seen significant international parasport success. In some cases, as evidenced by the Great Britain and Northern Ireland Para-Athletics Team, the success of the para-team surpasses the medal tally and ranking of the non-disabled team. At the 2017 Athletics World Championships, Great Britain and Northern Ireland team finished 6th in the medal table, with six medals, behind the USA, Kenya, South Africa, France and China. The Great Britain and Northern Ireland para-team finished 3rd in the medal table, with 39 medals, behind China and the USA. This success would imply that the elite sport structure developed in the context of Olympic sport should form the model for nations to achieve international parasport success. This assumption, however, is in lieu of empirical research, research published in an elite parasport context concentrating on classification (Tweedy and Vanlandewijck, 2011, Beckman, Newcombe and Vanlandewijck, 2014), the supercrip notion (Silva and Howe,2012), media coverage (Rees, Robinson and Shields, 2018), psychological factors (Piatt, Kang, Wells, Nagata, Hoffman, and Taylor, 2018), coaching (Nicholls, James, Bryant and Wells 2018, Alexander, 2017), home advantage (Wilson and Ramchandani, 2017) and science and technological factors, essentially in wheelchair racing (Cooper, Cooper, and Susmarski, 2018; Connick, Beckman, Vanlandewijck, Malone, Blomqvist, and Tweedy, 2018).This study will provide empirical research in the context of international parasport success.

## 1.3.3 SPORT PARTICIPATION BY DISABLED PEOPLE

The British Paralympic Association (BPA) has identified the biggest obstacles to future success in Paralympic sport as being the strength of grassroots involvement and the number of people playing sport at community level. The Active People Survey (2008–2009) showed that 57.1% of the overall population does not participate in sport. Importantly, the survey shows that this rises considerably to 79.2% when considering disabled people, and perhaps even more alarmingly, only 6.5% of disabled people regularly participated in sport. The Active People Survey (2015) shows that 1.58 million people aged 16 years and over with a long-term limiting illness or disability (17.2%) played sport once a week. A participation rate of 17.2% was an increase of 242,200 compared with 2005 and 17,500 more than the interim result published in June 2015 (17.2%) but 19,800 fewer than the result in 2014 (17.6%). Sport England (2016) acknowledged that there is 'more to be done as a disabled person is still half as likely to play sport as a non-disabled person'. Disabled people who wish to coach face barriers such as a lack of accessible training resources, opportunities to practice or appropriate coach mentors. There are multiple reasons why disabled people face barriers to participating in sport, for example, equipment costs, accessibility, transportation, and perceptions on coaching expertise. The barriers encountered by coaches may extend further to volunteers and professionals undertaking other roles within sport (Sport England, 2016).

## 1.3.4 UK ATHLETICS

This study focuses on UK Athletics, which governs athletics in the UK (both para and non-disabled sections). The governance of athletics before 1991 was

‘extremely complex with some 23 separate organisations controlling and administering the sport’ (Talbot 1995, p. 12), the sport was characterised as fragmented, fraught with squabbling and often run by unqualified, yet enthusiastic volunteers (Grix, 2009). In 1991 the British Athletic Federation (BAF) was set up in order to try to consolidate the sport's administration. In 1995 two internally funded reports were produced which detailed the crises of athletics governance, revealing dissatisfaction with the BAF among the service users. Additionally, this was the first indication that the ideologies and traditions of amateurism and volunteerism (upon which athletics had been founded initially) were in tension, with calls for more professionalism in the sport and a more business-like running of athletics (Radford 1995). The Talbot report (1995) identified the tension between amateurism and professionalism, which is evident within para-athletics stating 'fundamental value conflicts between the traditional amateur values of many of those still donating their services to the sport, and those who see as inevitable the need to develop business values and entrepreneurial skills' (p. 10).

UK Athletics 1998, led by Dave Moorcroft, effectively bridged the gap before UK Athletics Ltd (UKA) – a private limited company run along business lines, which still governs today (although commercial in nature UKA has been rebranded as British Athletics) – was officially launched as the sport’s new governing body in January 1999. UKA’s mandate at the time was based on a ‘consultation process of the previous six months’ and was to ‘co-ordinate and support, rather than intervene, govern or control’, influenced by Moorcroft’s conciliatory stance (UKA 1999, p. 11). At this stage, a goal was identified to develop stronger links with grassroots clubs and athletes than its predecessor (UKA 1999).

The National Audit Office was explicit in its recommendations that UK Sport's government funding of elite athletes should be performance monitored: 'UK Sport should report to the Department of Culture Media and Sport (DCMS) performance against all the targets agreed in the funding agreement' (NAO 2005, p. 7). UK Sport in turn, as prescribed by the funding agreement with UK Athletics, sets performance targets. These Key Performance Indicators (KPIs) are to be met by English Athletics and the regions to 'trigger' funding based on the same model as UK Sport, Sport England and UKA (Foster 2004, p. 21), and in turn UK Sport, Sport England and DCMS. Therefore, the DCMS is, via UK Sport and Sport England, target-setting and hence 'governing,' all the way down to the regional grassroots of the sport. English Athletics, for example, sets some 130 KPIs to be met by its regional branches, targets that fulfil the aims set out by Sport England (Gains 2007, p. 25).

The organisation of para-athletics in the UK is facilitated by a combination of volunteers and employees. National Disability Sport Organisations (NDSOs) include the British Blind Sport (BBS), British Wheelchair Athletics Association (BWAA), Dwarf Sports Association (DSAuk), and Cerebral Palsy Sport (CP Sport). CP Sport promotes and seeks to increase opportunities for disabled people, in particular people with Cerebral Palsy, to participate in athletics. It provides sporting opportunities to individuals of all ages and at all levels from recreation through to Paralympic competition. DSAuk state they make regular sporting opportunity accessible and enjoyable to anyone and everyone of restricted growth in the United Kingdom. DSAuk promotes competitive sport for dwarf athletes and provides opportunities for dwarf athletes to train for and compete in the World Dwarf Games and the Paralympic Games. BWAA work with athletes interested in Seated Throws (Shot Put, Discus, Javelin, Club), and

pentathlon. Whilst a full exploration of the complex nature of para-athletics governance is beyond the realms of this study, that there is complexity is undisputed, with different organisations playing roles in a disability-specific context, for example, the Dwarf Sports Association's remit covering, regional, home nations, participation and performance sport..

## 1.4 RESEARCH RATIONALE

The focus of this study is to determine the factors leading to international parasport success in para-athletics. Currently, the elite sport structures that support parasport in the UK are designed to mirror those established in non-disabled sport. Determining the factors that enable parasport success will provide evidence to enable improved structures and enhanced support of para-athletes, consequently improving success rates and ensuring appropriate spend of public money. The lack of research inn in the following areas provides further rationale for this study,

1. international parasport success factors
2. international sporting success factors in sport-specific contexts
3. international parasport success factors focussed in sport-specific contexts

Despite the extensive scientific focus on elite development systems, there is an absence of research on elite sport development at sport-specific level (Sotariadou and Shillbury, 2009). While Truyens, De Bosscher, Heyndels and Westerbeek (2014), Truyens, De Bosscher, and Sotiriadou (2016) and Truyens, De Bosscher, Sotiriadou, Heyndels and Westerbeek (2016) investigated the organisational development in athletics and the allocation of resources to elite

development, providing sport-specific evidence, there is a distinct lack of studies which consider parasport specific contexts. In recent years, parasport has attracted increased consideration from social scientists. The focus of much of this attention has been on the legacy of the Paralympic Games (Misener, Darcy, Legg and Gilbert, 2013; Kerr and Howe, 2015; Legg, 2018). Concurrently, there is an emerging focus by social scientists on broader elite parasport policy (Patatas, De Bosscher and Legg, 2018; Hutzler, Higgs and Legg, 2016; Brown, Dowling, Legg and Beacom; Legg, Darcy, 2015). While increases in parasport research are evident, there is a notable lack of parasport specific studies. This study fills the gaps identified by empirically researching UK para-athletics providing evidence-based policy making.

## 1.5 AIMS AND OBJECTIVES

This research aims to determine international parasport success factors for UK para-athletics. This will be achieved via the following research objectives:

1. Critically review evidence relating to the development of parasport success.
2. Identify the determinants of international competitive success, through the lens of para-athletics.
3. Analyse the applicability of elite sport development models in relation to para-athletics in the UK.
4. Make recommendations for the development of elite sport structures which support UK para-athletics.

The findings will provide UK para-athletics stakeholders with an evidence base bespoke for para-athletics that has not previously been accessible, enabling the adoption of specific evidence-based practices. Objective one will be achieved by a review of literature which explores the development of sport policy and parasport in the UK. Objectives two and three will be achieved through

empirical research undertaken with para-athletics athletes, coaches, and UK Athletics staff.

This thesis is written to fulfil the requirements of a Professional Doctorate. Professional doctorates are required to expand and apply existing knowledge and research to existing problems in their professional field, meaning professional doctorate research is often referred to as applied research. By taking existing knowledge and applying this to the real-world context of para-athletics in the UK, the findings can inform decisions made by the UK Athletics Para Head Coach, Parallel Success Coordinators and Performance Directors and UK Sport. To that end, this research intends to impact and improve the support given to para-athletes. The body of evidence provided by this thesis aims to improve the international success of the Great Britain and Northern Ireland Para-Athletics Team.

## 1.6 STRUCTURE OF THESIS

Chapter two of the thesis reviews the existing literature that has examined some of the critical aspects of parasport. Chapter three presents an outline of the philosophical framework adopted in the study, and the research design is described in detail; it also describes how the data was collected and analysed. In Chapter four, the analysis of data generated by the interviews and self-completion questionnaires is presented to investigate the determinants of international para-athletics success. Chapter five presents a model based on the findings of the data analysis presented in Chapter four. The determinants identified by the data are considered in relation to the most appropriate existing model. Chapter six concludes the thesis by reflecting upon the significance of the data for understanding parasport and the reality of international parasport

success. The conclusion also reflects on the practical value that the research presented may have for parasport policy development and the facilitation of para-athletic success.

# CHAPTER 2 REVIEW OF LITERATURE

## 2.1 INTRODUCTION

This chapter reviews the existing literature and explains the approach taken to reviewing the literature. The review is presented in four sections. First literature concerning disability sport is considered, highlighting the progression of sport for people with disabilities from therapeutic use to elite sport and the evolution of parasport. The next section deliberates literature relating to classification in parasport. Following this, elite sport policy with consideration of the inclusion of parasport in elite sport policy is explored. Finally, sport policy factors leading to international sporting success are reviewed with inclusion of comparative studies in elite sport.

## 2.2 LITERATURE REVIEW APPROACH

Noblit (1988, p.11) argues that 'the utility of traditional literature reviews is limited because while they can give an overview of a field, they are often descriptive and are rarely able to make sense of what the collection of studies reviewed has to say'. Among others, Chalip, Chaplin, Johnson, and Stachura (1996), Henry, Amara, and Al-Tauqi (2005), Weed (2005a) and Houlihan (1997) note that there have been relatively few comparative studies in sport and studies are often restricted to a descriptive level. This is primarily due to the complexity of comparing nations on a like-for-like basis and a lack of international comparable research data. This research attempts to contribute to enabling future international comparative of approaches to parasport success.

Jaarsma, Dijkstra, Geertzen and Dekker (2014) also acknowledge that there are limited studies into parasport. The minimal studies in existence which consider

parasport were not based on a framework or theory, and this has led to a lack of coherence in their results.

Due to the shortage of research into parasport structures, a systematic review is not possible. Such a review is a form of what is increasingly becoming known as research synthesis (Wood 2005). Systematic review as a method of synthesis is widespread in the disciplines of psychology (Biddle, Fox and Boutcher 2003) medicine (Cook, Mulrow, Haynes, 1997), and policy (Pawson, 2002). A systematic review can also be used to assess the nature and extent of knowledge in an area (Weed, 2005b). A systematic approach to the literature searching and the analysis of elite sport development models will follow a systematic approach, but it is not strictly a systematic review.

## 2.2.1 SEARCH STRATEGY

This literature review has adopted a systematic narrative literature review approach, integrating research in other fields with the conceptual framework of disability, parasport, sport policy and elite sport structures (Baumeister and Leary, 1997; Green, Johnson, and Adams, 2006).

**Stage 1 - Identification of keywords**

Given the objectives of this study, and based on prior reading and knowledge of the subject area, the keywords selected for the initial search were: ‘Disability Sport’, 'Parasport', ‘Paralympic', 'Paralympic Athletes', 'Disability Athlete’, ‘Elites Sport Structures’, ‘SPLISS’, ‘Para SPLISS’ , 'Elite Sport Structures' ,‘Elite Sport

Policy', 'Elite Sport Structures AND Paralympic', 'Elite Sport Development', 'Elite Sport approaches'.

**Stage 2 - Search strings**

The second stage involved assembling the keywords into suitable search strings for the systematic narrative review. The use of the asterisk (*) as a truncation symbol allows each database to look for different endings, so 'para*' allows the database to search for both 'paralympic' and 'parasport'. The initial search string incorporated the keywords most relevant to the overall aim of the study:

Para* sport AND elite AND Sport Development

Searches were conducted between October 2015 and November 2017.

**Stage 3 - Databases**

The search terms were then entered into the following databases: Proquest, EBSCO, Emerald Policy Documents, ProQuest Central, Google Scholar, Scopus, Sport Discus, PsycINFO, and EBSCOHost databases which cover the full range of disciplines in the social sciences.

The search was initially limited to peer-reviewed journals. There was a low result generated and a high degree of variation in the search results generated due, at least in part, to the differences in the search options offered by each database. Given the focus of the literature review, the most suitable approach would be to use the search strings to identify papers with 'parasport'', 'sport AND success' and 'elite sport development' in the title and/or abstract of the papers. Citation searching was then used to identify additional sources. This

approach would help to filter out articles where either Paralympic or parasport are mentioned in a publication but are not the primary concern of the paper and are not relevant for this study.

In addition to the systematic search approach outlined, grey literature was used. The references in retrieved published articles were searched (Green, Johnson and Adams, 2006) as well as searching of known websites: The International Paralympic Committee; British Paralympic Association and English Institute of Sport.

## 2.3 DISABILITY SPORT

In order to understand the development of sport for disabled people, this review will first consider how society's view of disability has evolved. The two principal models of disability in the UK are the medical model and the social model (Barnes, 2013). The medical model of disability sees the disabled person's impairment or health condition as 'the problem', the focus is therefore on 'fixing' or 'curing' the individual (Howe and Jones, 2006). Adopting the medical model in sport leads to the creation of sport events that are specifically designed for disabled people. The social model of disability offers new and political understandings of disability, which is seen as 'interacting with social, cultural, historical, legal, and medical discourses, as well as further complicating factors such as race, ethnicity, gender, age, and class' (Connor and Ferri, 2005, p. 110).

The literature on disability sport has grown substantially in recent years with much of it being informed by broader theoretical debates around the changing narratives of disability. The medical and individualised narrative conceptualised

disability as an impairment owned by an individual (Thomas, 2008) and implied a need for professional intervention; resulting in the objectification of the individual. The challenge to this individualised medical model of disability grew steadily from the 1980s (Oliver, 1996, 2013 and Barnes 2013), it was argued that the focus should be on how the structure and organisation of society created barriers to the full participation of people with a disability. The increased acceptance of the social model of disability fuelled activism and academic interest in access to sports opportunities by people with disabilities. The stimulus to academic interest led to research across a wide range of aspects of the interconnection between disability and sport. This research includes, the perceptions and self-perceptions of the athletes with a disability (Howe 2008; Purdue and Howe 2012; Silva and Howe 2012; Smith 2013), social inclusion of people with disabilities in sport (Liu 2009; Siperstein, Glick, and Parker 2009; Sport and Recreation Alliance 2013; Thomas and Smith 2008), the history of the Paralympic Games (Gold and Gold 2007; Legg and Steadward 2011) and the inclusion of young people with disabilities in sport (Finch 2001; Fitzgerald 2009).

### 2.3.1 PARASPORT

The social model of disability sees the idea of disability as the product of oppression and structural exclusion that should be eliminated (Shakespeare, 2006), implying that sport should be inclusive of disabled people. This vision has significant implications for policy; instead of 'fixing' disabled bodies, it encourages policies informed by an ‘accommodation imperative’ (Crossley 1998, p. 658) that change the social and physical structures of society. Atiles (2013) declares that ‘Disability arises out of society’s ‘ableist’ assumptions and

practices about what is considered normal. Thus, it is a social environment that "disables" a person in a wheelchair if stairs are the only means to reach different building floors. The "wheelchair user is disadvantaged not by their inability to walk, but by the way in which buildings are designed and constructed" (Crossley 1999, p. 654). The social model of disability, when applied to sport, demonstrates the adaptation of sport to enable individuals with disabilities to participate. Within these predetermined constructions are assumptions about "normal" (in sport this invariably refers to sport for 'non-disabled' individuals) that structure cultural and material worlds that cater to the needs of non-disabled individuals (Watermeyer, 2013).

Parasport is part of disability sport, but not all disability sport is parasport (Legg et al., 2009). More specifically, parasport is administered using a classification system that determines an athlete's eligibility to compete, whom they compete against, and the equipment modifications allowed. The Paralympic Movement faces a challenge in that there are multiple disability types and levels of disability involvement; disability sport thus depends on classification, an evidence-based system of equitable and fair categories based on sport-specific needs. Additionally, as acknowledged by Legg (2009), there are some high-performance athletes with a disability who can compete in 'mainstream' or 'non-disabled' sport.

When attempting to provide a rationale to support the segregating of disability sport from non-disabled sport, disability sport is often described as the naturally 'appropriate place' for disabled athletes. This assumption of appropriateness, may, however, be a result of the social model of disability, rather than based on a sporting rationale. Thomas and Guett (2013) acknowledged that opponents of

Oscar Pistorius' case for competing in the Olympic Games argued that it would be more appropriate for him to compete in the Paralympic Games and that his presence at the Olympic Games would be as unreasonable as a nondisabled athlete competing in the Paralympic Games. Porter (2013) stated that opponents argued that allowing disabled athletes to compete would set a precedent that threatened to bring down the entire enterprise of sport by causing a flood of demands for unreasonable accommodations and inclusion. Cherney (2003) notes that while using an individual case provides context, this is not to be seen as an isolated incident. Markus Rehn, German amputee long jumper, jumped 8.40m in 2012, a distance more than that of the 2012 Olympic Gold medal winning leap. In the Rehm and Pistorius cases, the prostheses or devices required for accommodation were criticised for providing an unfair and "unnatural" advantage (Cherney, 2003; Zettler, 2009). In relation to Pistorius, some argued that allowing his Flex-Foot prosthetic blades would encourage other athletes to seek amputations to gain the advantages of using the devices (Longman, 2007). Even after the Court of Arbitration for Sport overturned the International Association of Athletics Federations's (IAAF) ruling that Pistorius' prostheses provided him with an unfair advantage, the IAAF recommended that he not compete on the South African 400m relay team 'for reasons of safety' based on fears that his blades might injure the non-disabled athletes if he fell (Robinson, 2008).

### 2.3.2 SPORT FOR PEOPLE WITH DISABILITIES

Many athletes with a disability participate or compete in disability sport, which is defined as sport or sporting events designed specifically for persons with a disability (DePauw and Gavron, 2005). Disability sport intends to provide an

even and fair playing field for athletes based on their ability, performance and also on an accepted international system of classification as detailed in Appendix 1 (International Paralympic Committee, 2007). Due to there being multiple types of impairment and disability types, disability sport is dependent on the existence of a tested, evidence-based system of equitable and fair categories of classification as based on sport-specific needs (Legg, 2009). Legg, Fay, Hums and Wolff (2009) used the definition of DePauw and Gavron (2005) to clarify that athletes with a disability tend to compete in activities designed specifically for them (for example seated club throw in athletics). According to Legg, Fay, Hums and Wolff (2009) this is done to ensure an even playing field based on an accepted functional classification system adjudicated by the IPC. Disability itself is often not explicitly defined, and as an example, for the Canadian Paralympic Committee (CPC), the term disability is not addressed in its lexicon of terms. Instead what tends to happen is each sport governing body defines eligibility either by stating that a person is precluded by competing in 'non-disabled' sport and uses, for instance, a wheelchair for daily living or is based on a medical definition that reflects an athlete's classification.

The literature on participation in disability sport reveals an intricate web of tensions with a critical focus being that sport for disabled people is for rehabilitation purposes, rather than participation in sport being a precursor to enabling parasport success. The role of sport as a form of rehabilitation creates a tension which Cherney, Lindemann, and Hardin (2015, p.8) claim is 'dialectical poles on either end of a continuum'. The traditional meaning of the term ''rehabilitation'' is the process of regaining strength and mobility from a physical injury resulting in a disability. It can also refer to recovering aspects of one's identity (Huang and Brittain, 2006), developing self-esteem (Martin, 1999,

2010), and managing ableist stigma (Guthrie and Castelnuovo, 2001; Taub, Blinde, and Greer, 1999). Disability sport promotes rehabilitation through social networks between those who share similar life experiences and through teaching how to function with relative autonomy (Lindemann and Cherney, 2008). According to Cherney et al. (2015), the goals of organised, competitive disability sport, when examined in the context of rehabilitation, emerge as poles in a series of dialectic relationships: (a) inclusion—competition and (b) safety—stigma. These dialectics do not cover all the research on disability sport but rather are based on our perspective of disability as a communicative phenomenon and of rehabilitation as one primary goal in disability sport.

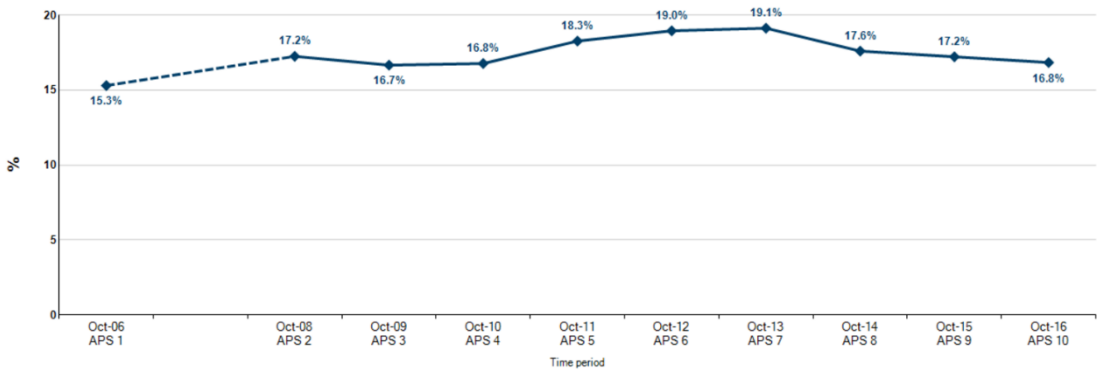
### 2.3.3 PARTICIPATION IN DISABILITY SPORT

Block et al. (2013) acknowledge that while a physically active lifestyle is essential for everyone in promoting overall well-being and prevention or delay of chronic disease, physical activity is even more critical for children and young adults with disabilities (Johnson, 2008; Smith et al., 2005). Schleien, Ray and Green (1997) acknowledge that physical activity, as part of an overall leisure programme, is believed to be related to success in living in the community. Unfortunately, the majority of individuals with disabilities are sedentary or participate in only limited levels of physical activity (Rimmer, and Marques, 2012 and Rimmer, Riley, Wang, Rauworth and Jurkowski, 2004). Limited physical activity is most significant in young adults with moderate or severe disabilities who face the challenge of transitioning from adolescence to adulthood, where school-based physical education and recreation programs are no longer provided (Rimmer, 2008).

Literature supports the general perception that regular participation in sport or physical activity is considered a fundamental element of a healthy lifestyle. The benefits of regular participation in sports or physical activity include reducing type 2 diabetes and improving cardiovascular function (Knowler, Barrett-Connor, Fowler, Hamman, Lachin, Walker and Nathan, 2002), physical functioning (de Vries, van Ravensberg, Hobbelen, Rikkert, Staal, and Nijhuis-Van Der Sanden 2012), social environment and psychological traits (Colcombe, Kramer, 2003). Several reviews have shown that regular participation in sport or physical activity has at least the same positive influence on the individuals with a physical disability as for the non-disabled people (Shephard, 1991; Patel, Greydanus, 2010 and Trost, Owen, Bauman, Sallis and Brown, 2002). Further to this, Blinde and McClung (1997) found that participating in individual sport impacted the sense of self of disabled people. The benefits identified were enhanced perceptions of their physical characteristics, the redefinition of their physical capabilities and increased confidence about participating in new physical activities. An increasing volume of literature confirms that people with a disability can benefit as much physically, mentally and socially from a physically active lifestyle as the general population does (Cooper et al., 1999; Durstine, Painter, Franklin, Morgan, Pitetti, and Roberts, 2000; Heath and Fentem, 1997; Van der Ploeg, Van der Beek, Van der Woude, and van Mechelen, 2004 and Shephard, 1991).

The Active People survey suggests that participation in sport by disabled people has decreased, despite an increase in international sporting success. In 2016 it was reported that only 16.8% of disabled people participate in sport once a week (Sport England).

FIGURE 2. 1 DISABLED PEOPLE PARTICIPATING IN SPORT AT LEAST ONCE A WEEK.




(activepeople.sportengland.org)

## 2.3.4 BARRIERS TO DISABILITY SPORT PARTICIPATION

Mulligan, Hastedt and McCarroll (2012) state that in order to increase the physical activity levels of young people with disabilities so that they may experience the benefits of a physically active lifestyle, it is necessary to remove the barriers to participation that they encounter and also to increase levels of support. Young people with disabilities face a variety of barriers that impact, and sometimes exclude them from, participation in physical activity and maintaining a physically active lifestyle. These barriers include: a lack of understanding about the benefits of physical activity (Mulligan et al., 2012); a lack of awareness of the available physical activity options and community programmes (Hawkins and Look, 2006); environmental constraints such as accessibility, transportation, and architectural design (Mulligan, Hale, Whitehead, and Baxter, 2012 Rimmer, Lai, and Young, 2016); fear of liability by the programme leader and lack of knowledge and training of instructors (Moran and Block, 2010); lack of appropriate programmes (Martin, 2004; Spencer-Cavaliere and Watkinson, 2010); and programmes' emphasis on competitive

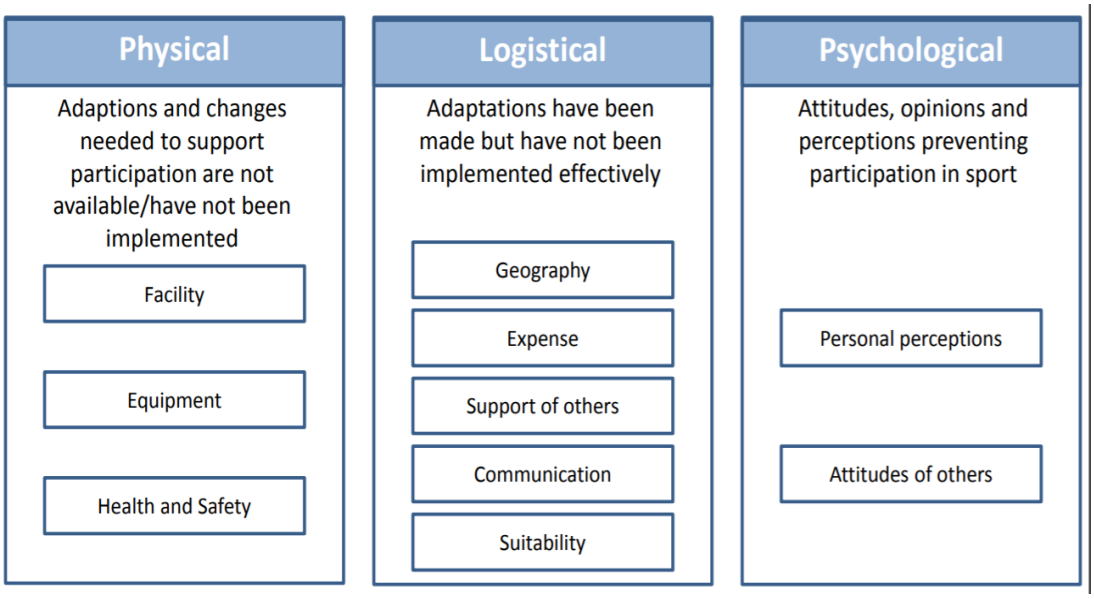
sports (Jones, 2003). According to De Jong, Vanreusel, and Van Driel (2010), empirical evidence about a two-way relationship in sports for people with a disability is lacking. Most research is based on non-disabled sports, which does not verify that the findings apply to sports for persons with a disability (Van Bottenburg, 2002; Gold, 2007). Unlike non-disabled sports, Steadward and Wheeler (1996) found that more disability sports opportunities exist for adults than for children. Furthermore, persons with a disability participate in a wide range of sports, and the reasons they are actively involved in different sports are varied (Van Bottenburg, 2003; Hoekstra, Roberts, van Lindert, Martin Ginis, Van der Woude and McColl, 2018).

Block (2007) highlighted some of the significant barriers associated with limited access to community sport programmes by older youth and young adults with disabilities. Individuals with disabilities often lack the physical and/or cognitive skills needed to participate in regular community sports programmes (Mulligan et al., 2012; Schleien et al., 1997). For example, using crutches or a wheelchair may make it difficult to play in a competitive football or hockey programme. It is on rare occasions community sports programmes may permit modifications to accommodate a participant with a disability (Bernabe and Block, 1994). Age-appropriate recreation activities tend to be passive, especially those intended for older children and young adults with severe disabilities (e.g. computer games, watching TV, listening to music, or creating art); such passive activities do not promote physical activity. Participation in community recreation and sport programmes typically requires money, transportation, and (expensive) specialised equipment (Mulligan et al., 2012). Also, individuals with disabilities may not have the necessary support groups (e.g., peers, parents, co-workers) who are interested in participating in active community recreation and sports

programmes (Krueger, DiRocco, and Felix, 2000). Further to this, Mulligan et al., (2012) found that special education teachers are not familiar with or do not have the training needed to teach active recreation and sports programmes.

Rankin's (2012) English Federation of Disability Sport Report identifies the barriers for participation in disability sport. The Report found that adaptations have not been made meaning facilities are inaccessible or 'accessible' facilities are only partially suitable, with accessibility often focusing on wheelchair access but not considering other impairments and commensurate adaptations. Rankin (2012) also acknowledges that adaptations or changes are sometimes not made or provided due to 'health and safety concerns', stating this is seen as an excuse to try and not make changes. Geographical restrictions were also consistent as centrally located provision is difficult/expensive to attend; there is a preference for local clubs, however, due to lack of demand, they are often challenging and expensive to attend (Rankin, 2012).

**FIGURE 2. 2 THE ENGLISH FEDERATION OF DISABILITY SPORT BARRIERS TO DISABILITY SPORT PARTICIPATION**




Rankin, 2012, efds.co.uk

Several studies have noted a lack of knowledgeable coaches in disability sport as a barrier for development (DePauw and Gavron 1991; DePauw, K.P. and Gavron, 1991, 2005; Liow and Hopkins 1996; Robbins, Houston and Dummer, 2010). Jarvis (2006) has identified that learning cannot occur without taking into consideration one's social context. Serving a marginalised population, the context of disability sport has a number of unique characteristics compared to that of non-disabled sport, including a lack of resources, a small population of coaches, fewer external materials (i.e. clinics, coach education and online tools) and athletes who face significant daily challenges as a result of their physical disabilities (DePauw and Gavron 1991; 2005). McMaster, Culver and Werthner (2012) found an additional challenge that coaches were working in multiple competitive contexts (Sawicki 2008). Governing structures (e.g. National Governing Bodies and Disability Sport Associations) play a significant role in enhancing coaches' learning opportunities at all levels of disability sport (McMaster, Culver and Werthner, 2012) and reducing the barriers to coach development

### 2.3.5 INSPIRATION EFFECT – PARA-ATHLETES AS ROLE MODELS

The term role model is considered to vary from an individual who is 'perceived as exemplary, or worthy of imitation' (Yancey, 1998, p. 254) to an individual who inspires individuals or groups of people, through personal contact and relationship (Ingall, 1997). Such people as teachers, spouses, parents, peers and sporting heroes may be considered as role models. It is widely believed that increased mainstream participation will have a positive effect on elite sport success and vice versa. This model is labelled as the 'double pyramid theory' (Van Bottenburg, 2002). In this model, a two-way relationship is assumed

between mainstream and elite sports; on the one hand a supply function from mainstream sports to elite sports, and on the other hand an inspirational function from elite sports to mainstream sports (Van Bottenburg, 2002; Van Bottenburg, 2003). Also, empirical studies by Ramchandani and Coleman, (2012) and Boardley (2013) support the inspirational function for elite sport. Mutter and Pawlowski (2014) found that in Germany the spill-over effects of professional sports success on demand for amateur sport participation exists. However, in line with research by Weed (2009), successes mostly influence already active participants. Elite success and accompanying role models do not always lead to an increase in participation rates in mainstream sports; the effect seemed to differ between sports (Van Bottenburg, 2002; Van Bottenburg, 2003; De Knop et al. 2006). De Jong, Vanreusel, and van Driel (2010) found that a two-way relationship is partly present in disability sports.

The realisation of sporting potential can have benefits as role models encourage increased participation in sport and physical activity, the benefits extending beyond the individual athlete to their community (Coe, 1985; Grix and Carmichael, 2012). Thomas (2008) acknowledges that Paralympians play an important part in society, prompting questions considering the impact of role models, and the role Paralympians may play in increasing sport and physical activity levels amongst disabled people. Elite athletes also play a part in society, as role models, in addition to their roles as political levers and beacons of international status (Biskup and Pfister, 1999). The effectiveness of models to influence followers (to carry out a particular type of behaviour) may also be dependent on the characteristics of these models (Bandura, 1997). If a role model is similar, rather than dissimilar, to a learner and demonstrates a highly skilled activity, there is more chance for the learner to be motivated. Therefore,

individuals with disabilities need role models with similar disabilities. The depiction of sport stars affords a central focus across both sport's spectacle and narrative, and celebrity sport stars images are communicated through a vast array of media outlets (Connell, 1992; Rowe, 1995; Whannel, 1992, 1998 and Lines 2001) thus providing opportunities for people to witness role models in action.

The lack of identification of athlete's as role models for females has been a feature of the literature in this area. Biskup and Pfister (1999) found, when assessing type of role model, that athletes were rated last by females in terms of providing role models, while Ewens and Lashuk (1989), found that male athletes were identified significantly more often than sportswomen as role models. Harris (1994) argues that true heroes have moral and social responsibilities, with Holt (1999, p. 12) suggesting sporting heroes '…resemble each other, and they differ from each other. They have common qualities like courage and will power, but they also have specific national and social characteristics'.

In Digel's (2002) exploration of resources for world-class performances in sport, a media supported positive sports culture was identified as being an essential resource. The Paralympic Games has over the last two decades been transformed from a sporting pastime to a spectacle which currently attracts substantial media attention (Howe, 2008). There has been increasing coverage of parasport in recent years, DePauw's (1997) assertion that in focusing on sport and ability, the media minimises the visibility of an athlete's disability. Hence, some of the performances of athletes with disabilities may have been perceived as a variation of athletic performance by athletes without disabilities

(DePauw, 2000). This denial of an individual's identity as a person with a disability may do little to address their subordinate position in a variety of societies (Barnes, 1992; Hahn, 1984).

Silva and Howe (2012) argued that discourses around elite sport have always been inflated with admiring tones that create sporting heroes, as a strategy to keep the emotional ethos of competition high and feed the sport business industry (Cashmore, 2010). This strategy explains, in part, the recurrence of the 'supercrip' narrative in Paralympic's coverage. Whereas in mainstream sport, the heroes are a few 'rare' talented athletes, in disability sport the super label is often used indiscriminately (Howe, 2008b; Peers, 2009).'The Olympics is where heroes are made, the Paralympics is where heroes come' (Steadward and Peterson, 1997, p. 8) is a clear example of this trope.

### 2.3.6 PARASPORT TALENT DEVELOPMENT

Previous scientific research has concluded that it takes eight to twelve years of training for a talented non-disabled athlete to reach elite levels (Bloom 1985; Ericsson, Krampe, Tesch-Röme. 1993; Ericsson and Charness 1994). Long-Term Athlete Development describes how to systematically develop sporting excellence and increase active participation in local, regional, and national sport organisations (Balyi, 2019). Balyi's model was expanded into the Canadian Sport for Life model, which then added an active-start phase for children up to 6 years of age, designed to expose young children to various physical play activities and to develop a habit of being physically active. To extend the model to para-athlete development, the Canadian Sport for Life movement added two additional stages, namely, awareness and first involvement (Hutzler, Higgs and Legg, 2016). Lack of public knowledge about the opportunities for Paralympic

sport and for “setting the stage” to enable an individual’s involvement in physical activity through families’, peers’ and important others’ support, requires raising awareness (Balyi, Way, & Higgs, 2016). First involvement describes the special care that instructors or coaches should provide to help make the first encounter of a child or adult with a disability in a sport-specific experience a positive one, as failing to do so is common. Appropriate adaptations should be made to ensure the initial interaction with sport is a positive one, for example, reducing the weight of throwing implements. A wheelchair basketball example is given by Uchida, Yamaguchi, Hayashi, Inasaka Fukuda and Owashi (1994) as a wheelchair user with limited arm strength who tries to score a basket and whose shot does not reach the rim makes for a disappointing outcome, which might result in the athlete dropping out even before he or she has started regular participation in sports. Instead, the coach should encourage this participant to initially play “touchdown” (an introductory game following American football rules, where a goal is scored when a player enters into the opponent’s zone while possessing the ball) or to use a low basket, such as in the case of twin basketball (Uchida et al., 1994).

De Boscher et al. (2006, 2015) identify a talent identification and development system as one of their nine pillars which determine sporting success. Talent management is acknowledged as a pertinent factor in influencing international sporting success (Oakley and Green, 2001; De Bosscher et al.; 2015; Digel, 2002; Green and Houlihan, 2005) and as part of this, it is essential to monitor athletes progress effectively. Oakley and Green (2001) also point to talent identification and targeting of resources as integral for success internationally with Digel (2006) noting the significance of talent development through education systems and the armed forces explicitly.

Talent identification models are associated with a low predictive value, and their validity and usefulness have been widely questioned (Durand-Bush and Salmela, 2001; Regnier, Salmela, Russell, 1993; Vaeyens, Lenoir, Williams and Philippaerts, 2008). Literature exploring the area of disabled youth talent identification and how that talent is developed to an elite competitive level is limited (Houlihan and Chapman, 2017). The lack of research in the area of disability youth sport is juxtaposed with the extensive literature on talent identification in non-disabled youth sport. A focus of the recent research into elite sport systems is the identification of evidence of a growing convergence across countries and sports, particularly Olympic sports. Convergence is most notable in relation to talent identification; investment in coaching and sports science; funding to enable athletes to train full time; and the design of competition frameworks to support Olympic ambitions (Bergsgard et al. 2007; De Bosscher, De Knop, and Van Bottenburg 2009a, 2009b; Houlihan and Green 2008).

The identification of convergence has tended to focus on the development of similar practices, for funding, training and domestic competition structures, for example. While the emergence of common practices is essential, there is a broader range of dimensions of convergence which may be assessed, and which are relevant to an understanding of the recent history of elite youth disability sport, Houlihan (2012) identifies seven dimensions of convergence. Convergence emphasises policy learning and transfer between sports and countries prompted in part, as is often the case, by a high degree of uncertainty about how to produce medal success and by a high degree of risk aversion due to the threat of withdrawal of public funding or sponsorship (Rose 2005).

Houlihan's (2012) dimensions of convergence applied to parasport questions the motives for increased government and NGB interest in youth parasport. Further to this, he queries how youth parasport talent identification reaches the policy agenda of government and NGBs and whether increased government and NGB interest in elite youth disability sport is due to concern for social inclusion/equality, national prestige or opportunity for profit e.g. for example, for the broadcasting industry. Houlihan and Chapman (2017) compare commitment by the government and NGBs to youth parasport across a range of parasports and question whether the elite youth parasport talent identification system is successfully producing competition success at the highest levels, a question which remains unanswered.

## 2.4 CLASSIFICATION

The existing studies which consider elite parasport have recognised the classification system as a central difference between non-disabled and parasport (Vanlandewijck and Chappel 1996, Jones and Howe 2005, Howe 2008b, Tweedy and Vanlandewijck 2011). The established classification system attempts to provide equity and fairness in competition. Classification is used to group para-athletes not only by sex or weight, as commonly done in non-disabled sport, but also in categorising by degrees of functional ability. The classification system is a complicated process, which might confuse the general public, thus impacting media coverage, as well as affecting an efficient organisation of competitions (Thomas and Smith 2008, Howe 2008b). The complexity is created, in part, because each classification differs substantially, not only by sport but impairment group as well. Since its inception, the classification system has been a matter of debate in all discussions regarding

future directions of parasport development at the elite level (Patatas, De Bosscher and Legg, 2018)

In an attempt to facilitate fair competition, classification systems were developed within the Paralympic movement and are synonymous with the historical development of sport for the disabled (Howe, 2008). The IPC has inherited this approach from International Organizations for Sport for the Disabled (IOSDs) (Howe, 2008; DePauw and Gavron, 1995; Steadward, 1996; Vanlandewijck and Chappel, 1996). At the Paralympic Games and other disabled sporting events such as IPC sport specific world championships, a classification system is used to divide participants not only by sex but also by degrees of 'ability' (Howe, 2008, p.138). Since the establishment of the IPC, there has been constant pressure placed upon the IOSDs to find alternatives to the disability-specific classification systems in order to facilitate the streamlining of Paralympic programmes. According to Steadward (1996, p.36), the first president of the IPC, 'The potential benefit of decreasing classes . . . is that it may simplify the integration into the rest of the sports world'. Therefore, a key mechanism in the process of commercialisation of Paralympic sport is the modification of the system for classifying athletes with a disability (Howe and Jones, 2006; Jones and Howe, 2005). This transformation toward an efficient commercial enterprise is at odds with the equity agenda the classification system was designed to fulfil (Sherrill, 1999).

Classification in parasport is also something which athletes and coaches may try to circumvent.. According to Cherney and Linderman (2015, p.11) 'When a sport's elite status (e.g., the Paralympic team events of wheelchair rugby or basketball) necessitates a high desire to win, less experienced, skilled, and

mobile players (which sometimes translates as more severely disabled players) may find themselves 'riding the bench'. The rules of disability sport attempt to account for this by stipulating that players of varying levels of disability must participate. For example, wheelchair rugby requires players of different classification levels to be on the court at the same time, ensuring inclusion (Mandel and Shapiro, 2005). However, the most mobile wheelchair rugby players may engage in 'sandbagging', faking more immobility and a more severe disability during the classification process, to receive a classification more favourable to their team (Howe 2008b; Lindemann and Cherney, 2008). Sandbagging undercuts the inclusiveness the system was designed to ensure when a more mobile player receiving a lower classification takes the place of a less mobile athlete.

UK Athletics launched an inquiry into the classification of Paralympic track and field athletes following claims that some have been allowed to compete against those who are significantly more impaired, resulting in a boost to their medal chances (Taylor and Faggo, 2016). It also emerged that British Paralympian. Bethany Woodward, who won silver in the T37 200m in London 2012, had withdrawn from Team GB so that she could speak out on the issue (Walsh and Ungoed-Thomas, 2016).

Recent research on the physiology of parasport supports the accuracy of classification systems in basketball and rugby; these studies engage disability from the medical model and view disability as a physical impairment rather than a communicative phenomenon (De Lira, Vancini, Minozzo, Sousa, Dubas, Andrade and Da Silva, 2010; Morgulec-Adamowicz, Kosmol, Molik, Yilla, and Laskin, 2011.). However, controversy still surrounds classification systems in

terms of inclusiveness (Howe, 2008; Sherrill, 1999). It has been claimed that including more severely disabled persons in the same category as less severely disabled persons dilutes competition (Lindemann and Cherney, 2008; Sherrill, 1999). Communication studies can shed greater light on the discourse of rehabilitation in disability sport by examining how participants communicatively negotiate classification systems, like performing more or less mobility in front of classifiers (Howe, 2008; Lindemann, 2010) or discussing changes to the classification system based on personal experience via online forums (Lindemann and Cherney, 2014).

# 2.5 ELITE SPORT POLICY

Grix and Carmichael (2012) identify that one of the main arguments to justify increased Government interest, and consequent funding in elite sport is based on the understanding that sporting successes develops a national identity and makes people proud to belong to their country. With sporting failure this has a reverse effect; people blame each other and feel less committed to the national cause. Success at international sport is a prominent factor in determining prestige (Yao, 2010), a country's image being influenced by individual or team success, thus directly and indirectly, helping to sell products and services and earn foreign currency (Grix, 2013).

## 2.5.1 EVOLUTION OF ELITE SPORT POLICY

Sport development is notably awkward to define when compared to other policy areas. It is located as a sub-area, within sport policy and sport policy holistically can get lost amongst more powerful policy interests such as health, education and welfare (Houlihan and White, 2002). When considering research into international approaches to elite sport development, exploration of the former

German Democratic Republic (GDR) and Eastern Bloc countries, as the first nations to adopt a systematic approach to the production of international sporting success, is fertile ground. From 1952 to 1988 the Eastern Bloc was in the forefront of developing sporting excellence, demonstrated, in the number of medals won at the Olympic Games (Green, 2003). During its 45-year existence, the GDR established and instrumented a highly sophisticated system, with a pragmatic approach applied to produce top-level athletes in its quest for international sporting acclaim (Merkel, 1995, 1999). Some studies towards the end of this era have compared different country's elite sport development systems (Du Randt, 1993; Gratton, 1990) and the pre-requisites for international success (Broom, 1991; Clumpner, 1994). However, all these studies are located in the context of the Eastern Bloc concentrating on achievements at the Olympic Games. Notwithstanding the influence of performance-enhancing drugs, the GDR's international status was based on elite sporting success, created by a systematic national approach to elite sport development (Green and Oakley, 2001).

### 2.5.2 SIMILARITY AND VARIANCE IN ELITE SPORT SYSTEMS

Elite sport systems are concerned with the systematic and strategic development of elite athlete performance (Houlihan and Green, 2008). Oakley and Green (2001) identify five aspects common to all countries' sports institute networks. They stated that national institutes of sport needed administrative headquarters; close links with secondary and higher education; sports specific training centres; a sports specific training facility frequently linked to alpine sports provision (all case nations except the UK) and close links with sports medicine/science facilities. While Oakley and Green (2001) identify an

increased homogenous approach to elite sport development and uniformity of investment in the success factors identified, not all nations experience equal success as an outcome. Elite sport system is the term used to describe the infrastructure and practices used by a sport to identify, develop and prepare athletes for international sporting success (Bohlke and Robinson, 2009). This approach to sport is conceived as a system which begins with the identification of raw talent that is transformed by some factors into athletes who can achieve success on the elite sport stage. In the past decade, these sport systems have become the focus of much investigation (De Bosscher, De Knop, Heyndels, 2008; Green, 2007a; Green and Oakley, 2001), these investigation have not considered Paralympic sport explicitly.

It is apparent from the literature (De Bosscher, De Knop, Van Bottenburg, Shibli, 2006, De Bosscher, 2008; Houlihan and Green, 2008; Oakley and Green, 2001) that contemporary elite sport systems have many similarities, as many nations have sought to copy what has been perceived to contribute to the success of the German Democratic Republic (GDR) and Australian Institute of Sport (AIS) systems. It is observed that there is a 'trend towards a homogeneous model of elite sport systems' (Oakley and Green, 2001, p. 91) across different sports and different nations. Despite this convergence, some countries perform consistently better in some sports than other countries do, such as Dutch Speed Skating and British Cycling.

Bohlke and Robinson (2009) acknowledge that elite sport systems are made up of similar infrastructure and practices, therefore it appears that the actual design of these systems can no longer explain differences in success. Management

and delivery of an elite sport system are now more critical factors for success than the mere existence of such a system.

Western states began to take an increasing interest in the development of sporting excellence in the 1990s and, as Houlihan (1997 p.6) acknowledges ‘Australia, and to a lesser extent Canada, have both adopted policies of elite squad development which are very close to the Soviet model in some key respects’. The formation of the Australian Institute of Sport (AIS), modelled on the Eastern Bloc, was pivotal in the shift to a systematic approach to elite sport development in Western nations. Moreover, in 2000, in the UK, the DCMS sport policy document, in its section on ‘sporting excellence,’ states that ‘We can no longer rely on chance and goodwill. We need to learn the lessons of our competitor nations and have the most professional system for talent development and support of sporting excellence’ (DCMS, 2000, p. 15). Australia’s success at the Sydney Olympic Games, in 2000, provided evidence that professional systems were successful. The formation and consequent success of the AIS provided a catalyst for other western nations to adopt a systematic approach to the management of elite sport.

### 2.5.3 ELITE SPORT POLICY IN THE UK

Elite sport policy has a history of fluctuating policy objectives and has formally resided within the Government’s 'field of vision' (Houlihan and White, 2002). Within the UK the journey to some extent begins with the creation of the Great Britain (GB) Sports Council in the early 1970s, Conservative and Labour administrations alike have adopted an increasingly interventionist role in the sport policy sector in England. Until the mid-1990s, policy emphasis was largely directed towards mass participation initiatives, or what has been termed, ‘Sport

for All', and also the provision of facilities for sport and recreation (Coghlan and Webb, 1990; Houlihan, 1991, 1997; Henry, 1993, 2001). Politics and political objectives driving policy have meant fluctuations in funding and interest in sport as a policy objective.

## 2.5.4 DISABILITY SPORT POLICY IN THE UK

It is established that in many countries, the promotion and development of sport has become a common feature of government sport policy and sport development related activity, while in other social policy fields sport is frequently used as a malleable policy tool intended to achieve a variety of non-sport objectives (Green 2006, Coalter 2007, 2011, Houlihan 2011). Houlihan and Groeneveld, (2011) noted, in many of these countries the growing willingness to use sport as a vehicle of social policy designed to achieve a range of policy outcomes is closely associated with the tendency for the state to become increasingly interventionist in setting the sport policy agenda. It is also associated with the substantial contribution made to the provision of sport by voluntary organisations (Donnelly and Harvey 2011, Houlihan and Groeneveld 2011), which have long played an especially important role in shaping the nature and organization of sports provision in policy sectors such as disability sport (Thomas and Smith 2009, Thomas and Guett, 2013). Although there has been increased involvement of the state in shaping the landscape and direction of mainstream sport policy, disability sport has, by comparison, been relatively ignored as a political and policy priority. Disability sport policy remains mostly unexamined by those with an interest in sport policy (Thomas and Smith 2009) and consideration of its impact on the lives of people with disabilities is lacking (Nixon 2007, Thomas and Guett, 2013).

As acknowledged by Thomas and Guett (2013) the UK has demonstrated an increased political interest in disability sport and, in particular, elite competitive disability sport. Despite the growing emphasis on social inclusion and the supposed desirability of mainstreaming disability sport since the 1990s, disability sport has historically been a marginal policy priority (Thomas and Smith 2009). Additionally, disability sport is at best loosely integrated into the sport development activities of national governing bodies of sport and local authorities, and responsibility for its organisation and provision has traditionally been kept at a distance from direct Government involvement (Thomas and Smith 2009, Thomas and Guett, 2013). Because of the lack of policy leadership and direction for disability sport policy in the UK there has been the emergence of a highly fragmented structure, with a wide variety of specialist and non-specialist bodies all competing for attention and funds as they seek to shape the nature of sports development provision for people with disabilities (Centre for Social Justice, 2011).

Weed (2016) argues that the UK Government's theory of change that sport can be used as a public health intervention to increase physical activity among the less and least active to deliver improvements in the physical health of the population is not credible. Therefore, the critical outcomes identified, improved physical and mental wellbeing, individual development, social and community development and economic development, will not be met (Weed, 2016). The Sporting Future (2015) strategy acknowledges that there are several demographic groups, whose engagement in sport and physical activity is well below the national average, including disabled people, along with women and girls, those in lower socio-economic groups, and older people. Using elite sporting success as a catalyst for increasing sport participation (Grix and

Carmichael, 2012) is a contentious use of resources. An empirical investigation of the relationship between the success of the UK in the 2016 Paralympic Games, where Team GB placed second in the medal table with 147 medals and the low participation rates by disabled people participating in sport is lacking.

Patatas et al. (2018) provide an understanding of how parasport differs when compared to non-disabled sport and what this means for sport policy. A caveat to their findings is that the sampled experts came from developed nations with reasonably professional elite sport systems and high levels of international success(Buts et al. 2013). Although more elite Paralympic athletes receive similar support as their non-disabled peers, Patatas et al. (2018) contend that there are still significant differences between both systems that influence the way sport policies should be developed. Furthermore, they claim to offer a comprehensive framework for understanding the differences between non-disabled and parasport.

### 2.5.5 PARA-ATHLETICS FUNDING

Para-athletics has been awarded £11,824,489 between 2017 and the 2020 Tokyo Paralympics (UK Sport). Appropriate funding and financial support are consistently noted as an essential component for elite sport development (De Bosscher et al., 2008; Green and Houlihan, 2005; Houlihan and Green, 2008; Oakley and Green, 2001). Academics have outlined the contours of ever-changing sport policy (Houlihan 1997, Green 2004, 2006), and the question as to why Governments invest in elite sport has been explored by Grix and Carmichael (2012), the assumption being that investment in elite sport is intrinsically good (Coalter, 2007).

Targeting funds to a select few organisations is an increasingly recognised principle of Government funding distributions for elite sport (De Bosscher et al., 2008; Green and Houlihan, 2005; Houlihan and Green, 2008; Oakley and Green, 2001). Targeting is perceived to be financially prudent since it intuitively implies ‘value for money’ while countering the potential criticism of ‘spreading resources too thinly' (Aucoin, 1995).

### 2.5.6 ORGANISATION AND ADMINISTRATION IN UK ATHLETICS

A significant difference between non-disabled and parasport according to Patatas et al. (2018) is the governance, structure and organisation of elite sport. Sport opportunities for people with disabilities worldwide have been organised by impairment instead of by sport (Legg et al. 2003). Multiple organisations are involved in disability sport governance, and consequently, parasport policies are organised with considerable variance. Patatas et al.’s (2018), investigation found that parasport organisation is more fragmented than non-disabled sports which are organised by international sport federations, whereas elite parasport is organised under the IPC umbrella or several other international governing options.

The IPC is the international governing body for the policy development of both summer and winter Paralympic sports. Moreover, in addition to the complexity of the organisation and structure of parasport, there is a mixture of other sport and disability-specific federations, with some sports developing their own international sports federation, such as wheelchair basketball (Patatas et al., 2018). Moreover, there are also disability specific federations, at the international level also known as International Organizations of Sports for the

Disabled (IOSD), which oversee some sports for a particular disability group for example International Blind Sport Association, Cerebral Palsy International Sport and Recreation Association, International Wheelchair and Amputee Sports Federation, International Sports Federation for people with an Intellectual Disability. There is an intertwining of responsibilities as IOSDs have responsibility for the development pathway for athletes from specific impairment groups below the Paralympic level. Some sports are part of non-disabled sport federations, which is the case of UK Athletics (Patatas et al., 2018; Depauw and Gavron 2005; Wilson and Clayton 2010).

Oakley and Green (2001) and De Bosscher et al., (2015) identified that clear understanding of the role of the different agencies and the importance of uncomplicated, joined up administration were factors which were essential for success. Further to this Oakley and Green (2001) concluded that a comprehensive planning system specifically for athletics would be an essential element, together with an integrated approach to policy development (De Bosscher et al., 2016)

Grix's (2009) consideration of the impact of UK sport policy on the governance of athletics acknowledges that the Government White Paper, Modernising Government (1999), clearly set out the vision of a modern Government, one which is more forward-looking, joined-up and strategic with public services more responsive to the needs of users and which are more efficient, effective and delivered to higher quality standards (Sanderson 2002, p. 62). As part of this modernising process, NGBs were required to professionalise their management and introduce 'techniques, values and practices that are taken from the private sector' (Deem 2001, p. 10). For Green and Houlihan (2006, p. 50)

'modernisation' programmes as a political rationality of Government have emerged as one of how Governments have sought to shape and sculpt the management and administration of NGBs especially those identified as failing organisations (Grix, 2009).

Literature around 'New Managerialism' in the context of the specific domain of sports policy (in particular, Green and Houlihan 2006, Green, 2007), emphasises some of its key beliefs of centrally imposed targets, directives and performance indicators, which form the part of a modernisation process attempting to bring Government and its partners into line with best practise in business (Green and Houlihan 2006, p. 53). The shift is seen as a move away from 'statist-bureaucratic forms of government' (Green 2007, p. 59) towards a network of interlocking 'state and non-state governance structures' which 'provides a basis for overcoming the rigidities associated with hierarchy' (Sanderson 2002, p. 8). Grix (2009) claims that this shift is apparent in UK sports policy, especially within para-athletics, with a bewildering array of stakeholders?. There are many parties with overlapping and unspecified roles involved in the delivery of sport policy, including non-departmental public bodies, for example, UK Sport, a Sports Minister, a UK Sports Institute, the British Paralympic Association all working together with the DCMS to deliver sport-related services (Grix, 2009). A DCMS document went so far as to suggest that the key institutions involved in sport policy in the UK lack a 'shared understanding of who did what and which organisation was the lead' in delivering sport (DCMS 2002, p. 129)

Grix (2009) considered how UK Athletics (UKA) had been transformed from an amateur body run by volunteers and mavericks into a business-like

organisation, run on business lines by business people, with a focus on measurable ‘evidence’ has influenced the delivery of sport policy on-the-ground. When thinking about the impact of sport policy on NGBs, other factors which play a major part in their functioning are, for example, pre-existing structures and influential agents with expert knowledge of their sports. Whilst key personnel within UK para-athletics all have a background within athletics, a key effect of the move to businessmen heading the athletics NGB and a major difference with other core NGBs has been a shift in the direction of accountability away from the grassroots of the sport, the clubs, up towards the sport’s paymaster, UK Sport (Green and Houlihan 2006, p. 66).

## 2.6 SPORT POLICY FACTORS LEADING TO INTERNATIONAL SPORTING SUCCESS

Through the structure of the English Institute of Sport, Sport Scotland Institute of Sport, Sport Wales and Sports Institute for Northern Ireland there is an inevitable overlap between non-disabled and parasport structures and support services. Clumpner (1994) noted the importance of sustained financial support for athletes, well-funded training centres, concentration on a selection of sports and the development of a pool of athletic talent. In an attempt to conceptualise elite sport systems, Oakley and Green's (2001) analysis identified ten characteristics of successful elite systems. Further to this Green and Houlihan (2005) developed the initial analysis undertaken by Oakley and Green (2001) and identified specialist facility development, sport science and medicine services, a competition structure focused on preparation for significant sport competitions such as the Olympic Games, high-quality coaching and well-funded athletes as integral to success at the highest levels. This research stream was further developed and refined by the extensive Sports Policy

Factors leading to International Sporting Success research programme (De Bosscher, De Knop, van Bottenburg, Bingham and Shibli, 2008; 2015; De Bosscher, Knop, and Van Bottenburg 2006, 2009, 2015). In the formation of the SPLISS nine pillar model. Sport participation rates are frequently cited (Oakley and Green, 2001; De Bosscher et al.; 2015; Digel, 2002; Green and Houlihan, 2005) as a pertinent factor influencing international sporting success. This review has previously identified the challenges associated with disability sport participation and low participation rates in the UK.

## 2.6.1 COMPARATIVE ELITE SPORT POLICY

In short, previous comparative elite sport policy studies showed similar elements to achieving sporting success. Furthermore, several studies analysed elite sport policies or strategic management at a sport-specific level, for instance in athletics (Grix 2009, Truyens et al. 2016), canoe (Sotiriadou et al. 2014) and tennis (Brouwers et al. 2015). These studies considered the causal influence of culture and the environment with specific policies for a sport. Table 2.1 provides an overview of international comparative elite sport policy studies published to date. A gap in research was identified along with the lack of an empirically grounded, coherent theory on the factors, which determine international parasport success. No prior research exists in publication that considers international parasport success in a specific parasport. Also, the one study which considers parasport (Patatas et al., 2018) samples a population of sixteen ‘international Paralympic experts’, in semi-structured interviews, without consideration of athletes, coaches or stakeholders responsible for delivering success.

De Bosscher, Det al 2009) assumed inductive procedures to combine all relevant sources from a comprehensive body of literature on the former Soviet Union and East Germany (Broom, 1991, Douyin, 1988, Krüger, 1984, Riordan, 1989 and Semotiuk, 1990) and later on the organisational context of countries in elite sport (Clumpner, 1994; Digel, Burk, and Sloboda, 2003; Digel, Miao, and Utz, 2003; Digel and Kruse, 2004; Green and Houlihan, 2005; Larose and Haggerty, 1996; Oakley and Green, 2001; Stamm and Lamprecht, 2000). De Bosscher et al (2007) noted that a critical element omitted in all the previous attempts to model sports policy influences on success was the involvement of athletes and coaches who are key stakeholders responsible for delivering their nation's success. Following on from this, De Bosscher et al (2009) used supplementary literature by commensurate studies at the micro-level, which attempt to understand success determinants for individual athletes instead of nations (Conzelmann and Nagel, 2003; Duffy, Lyons, Moran, Warrington, and Macmanus, 2001; Gibbons, McConnel, Forster, Riewald, and Peterson, 2003; Nys, De Bosscher, and De Knop, 2002; Unierzyski, 2002 and van Bottenburg, 2000). The principal hypothesis of De Bosscher et al (2009) is that there is a link between how nations perform in elite sport and how they rate against the nine pillars of SPLISS, which will be discussed shortly. Whilst this model can be used as a benchmark for the systematic approach to parasport policy and support structure, consideration of parasport has not been isolated in the communication of findings.

Factors determining international success have been discussed in many studies of the Olympic Games. These include determinants of international sporting success and predictions and evaluations of performance in the Olympic Games (Shibli and Bingham, 2008). Studies have been primarily based on the

identification and exploration of macro-level factors, with more recent researchers additionally considering the micro and meso levels. The factors explored in these studies have varied in approach with some focussing on economic and others on sociological factors. (Baimbridge, 1998; Bernard and Busse, 2000; De Bosscher, De Knop and Heyndels, 2003a, 2003b; Den Butter and Van der Tak, 1995). Table 2.1 provides an overview of comparative elite sport policy studies.

**TABLE 2. 1** AN OVERVIEW OF INTERNATIONAL COMPARATIVE ELITE SPORT POLICY STUDIES

| Authors, Methods and study characteristics | Countries and sports | Factors analysed |
|---|---|---|
| Green and Houlihan (2005)<br>Descriptive and comparative; qualitative data collection: interviews and document analysis; ACF to analyse policy changes; aims to identify the degree of similarity in elite sport development models | 3 Countries: Australia, UK and Canada<br>3 Sports: swimming, athletics, sailing/yachting | Support for full-time athletes<br>A hierarchy of competition opportunities centred on preparation for international events<br>Elite facility development<br>Provision of coaching, sports science and sports medicine support services |
| Digel et al. (2006)<br>Descriptive and comparative; qualitative data collection: interviews and document analysis; questionnaires (3 sport associations –ministries responsible for HP sport, National Olympic Committees, country-specific organisations) | 8 Countries: Australia, China, France, Germany, Italy, Russia, UK, USA<br>3 Sports: Athletics, swimming, volleyball | Resources<br>Politics<br>Education<br>Competition<br>Talent search<br>Science<br>Mass media and sponsorship |
| Bergsgard, Houlihan, Mangset, Nodland, Rommetveldt (2007)<br>Contextual and historical; descriptive;<br>contributors from each country | 4 Countries: Germany, England, Canada, Norway Overall (national) level | Context, cultural background and<br>historical development |
| Houlihan and Green (2008)<br>Contextual and historical; descriptive; author(s) from each country describe elite sport policies, generally based on<br>literature and document analysis; builds on Green and Houlihan's (2005) ACF | 9 Countries: China, Japan, Singapore, Germany, France, Poland, Norway, New<br>Zealand, USA<br>Overall (national) sports<br>level | Historical; politics; education; competition; talent search; science;<br>mass media and sponsorship |
| Andersen and Ronglan (2012)<br>Contextual and historical; aims to look beyond the designated sport organisations and to capture the more detailed structures as well as intentions and processes behind national elite sports systems; descriptive; contributors from each country<br>Aims to identify how national elite sport systems came about, how they relate to success in individual sports, how they differ in terms of | 4 Nordic countries (with similar systems) + success stories of sports:<br>Norway (women's handball), Finland (men's ice hockey), Denmark (track<br>cycling), Sweden (tennis and golf) | Historical sport developments in Nordic countries, in relation to elite<br>versus mass sport; critical decisions; resources; controversies; success stories – different roads to<br>excellence; differences and similarities, policy issues,<br>systematic comparisons; key dimensions in elite sport development<br>Mass sport foundation<br>Facilities<br>Strategies and key factors<br>Team building focus |

| | | |
|---|---|---|
| centralisation, responsibilities and roles and how this influences the capacity for successful elite sport development | | International influence<br>Interaction with national |
| De Bosscher et al. (2006, 2008), De Bosscher et al. (2015) SPLISS<br>Focus on meso-level factors, using SPLISS model and comparing 103 critical success factors; mixed methods research: qualitative + quantitative; stakeholder involvement (athletes, coaches, performance directors); scoring system: to move beyond the descriptive level of comparison | 15 Countries: Belgium (Flanders + Wallonia), Denmark, Estonia, Finland, France, The Netherlands, Northern Ireland, Portugal, Spain, Switzerland, South Korea, Japan, Australia, Canada, Brazil | Overall (national) sports level<br>Pillar 1: Financial support<br>Pillar 2: Governance, organisation and structure<br>Pillar 3: Sport participation<br>Pillar 4: Talent identification and development<br>Pillar 5: Athletic and post athletic support<br>Pillar 6: Training facilities<br>Pillar 7: Coach provision and development<br>Pillar 8: (Inter)national |
| Patatas, De Bosscher and Legg (2018)<br>Focus on how elite sport policy approaches differ between able-bodied and parasport.<br>A sample of Sixteen international Paralympic experts in semi-structured interviews guided by the theoretical framework of the SPLISS. | 8 Countries: Canada, Brazil, Netherlands, Spain, UK, Australia, USA, Belgium. | This study provides a framework illustrating the major differences between the able-bodied and parasport systems.<br>SPLISS –Financial Support; Governance, structure and organisation; Sport Participation; Talent Identification and Development; Athletics and post career support programmes for parasport; Athlete career pathways; Training Facilities; Coaching Provision and Education; (Inter)national competition; Scientific research<br>The results of this study suggest that a 'one-size-fits-all approach' does not exist in order to develop an effective parasport system. |

(Adapted from De Bosscher et al.,2015, p39)

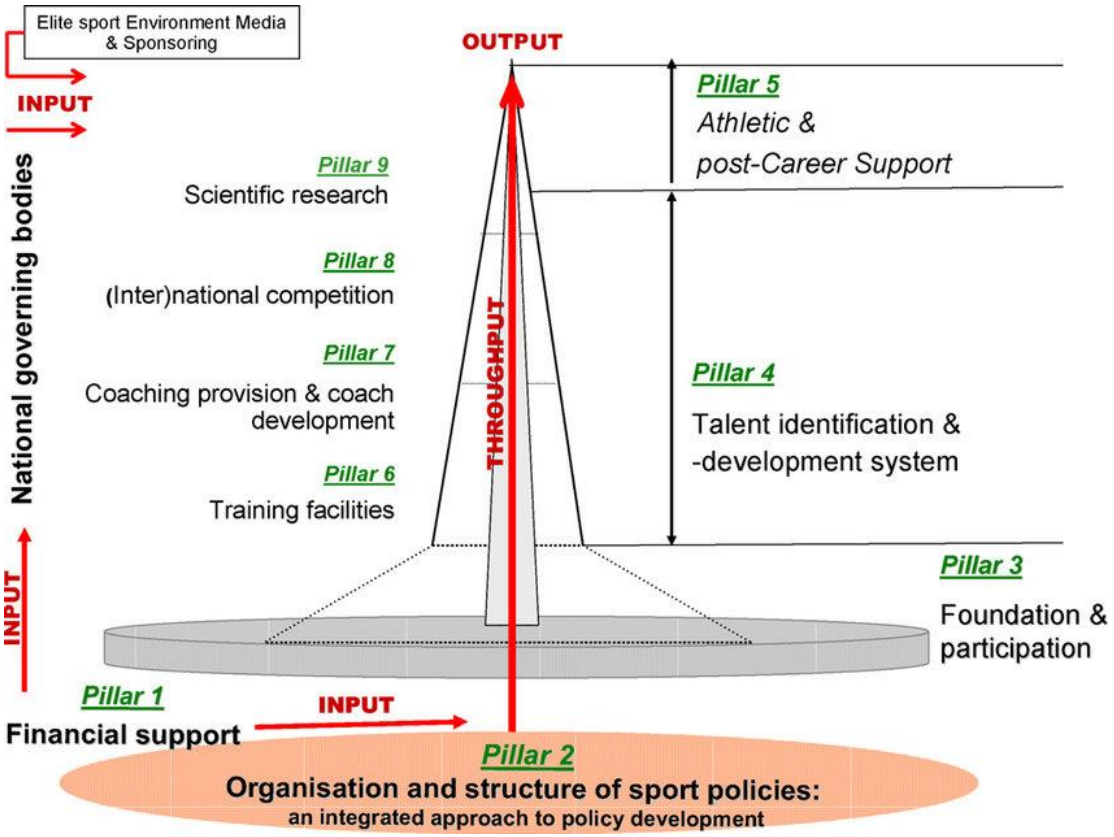
The SPLISS model (De Bosscher et al. 2006) has been described as one of the most inclusive studies of elite sport policy factors. A coherent theoretical model analyses the relationship between elite sport policies and sporting success that is empirically tested (Shilbury et al. 2008, Brouwers et al. 2015, Hutzler et al.

2016, Truyens et al. 2016; Patatas, 2018). In the SPLISS model, nine elite sport policies called ‘pillars’ were identified along with 96 critical success factors (CSF). The pillars and CSF were clustered and empirically tested, first in six nations (De Bosscher et al. 2006, 2008) and later in 15 nations (De Bosscher et al. 2015). The nine sport policy pillars are (1) financial support; (2) governance, organisation and structure; (3) foundation and participation; (4) talent identification and development; (5) athletic and post-career support; (6) training facilities; (7) coaching provision and education; (8) (inter)national competition and (9) scientific research and innovation (presented in Figure 2.3). Whilst this model appears to be the most appropriate, this does not mean that it is without limitations, some authors noting challenges such as identifying contextual factors and general sport culture and political background in a given context (Truyens et al. 2014, De Bosscher 2016).

Oakley and Green (2001); and De Bosscher et al., (2015); Digel (2002); Green and Houlihan (2005) cite a well framed competition structure which includes gradual progression as an essential element in leading to international sporting success, a hierarchy of competition opportunities which is centred on preparation for international events. In London, 2017, for the first time, the World Para Athletics Championships were held alongside the World Athletics Championships, signifying the joined up approach to non-disabled and para-athletics in the UK. The World Para Athletics Championships has grown significantly from Berlin 1994: 1,154 athletes from 63 countries to London 2017: 1,300 athletes from 100 countries (The Telegraph). Domestically, a comprehensive competition structure is a challenge in some event classifications. Well-developed, specific elite training facilities are also cited by the exciting elite sport models (Oakley and Green, 2001; De Bosscher et al;

2015; Digel, 2002; Green and Houlihan, 2005) as essential factors for international sporting success. For UK Athletics elite training facilities are shared by elite para-athletes and non-disabled athletes. The ‘specific’ nature of these facilities lacks empirical evidence from a parasport perspective to support the assumption that the facilities available are appropriate for all elite, para-athletes and non-disabled, athletes.

FIGURE 2. 3 SPLISS MODEL: THEORETICAL MODEL OF 9 PILLARS OF SPORTS POLICY FACTORS INFLUENCING INTERNATIONAL SUCCESS




(De Bosscher et el., 2015)

In addition to the SPLISS model, studies exploring Eastern Bloc success note the significance of recognition of physical education and sport within constitutional law, early talent spotting through schools, high training frequency embedded in the school system, and training and qualification systems of professional coaches (Broom, 1986; Douyin, 1988; Krüger, 1987; Semotiuk, 1990).

Oakley and Green (2001) identified ten items that could be regarded as unvaryingly observed in sporting success namely: clear understanding about the role of the different agencies involved; an effective communication network which maintains the system; simplicity of administration through common sporting and political boundaries; interaction between support team staff; resources targeted on specific sports; specific planning for sport needs; talent, facilities with priority access, acknowledgement and acceptance that developing excellence has costs, with appropriate funding for infrastructure and people; lifestyle support and preparation for life after sport (Larose and Haggerty 1996, Clumpner 1994; Oakley and Green 2001).

## 2.6.2 MACRO, MESO, AND MICRO LEVEL FACTORS

De Bosscher et al. (2006, p.4) classify the above factors which determine international sporting success. At the macro-level: the social and cultural context in which people live; economic welfare, population, geographic and climatic variation, the degree of urbanisation, political system, and cultural system. Meso level factors are well-considered sport policies which may influence long-term performance. Micro-level factors refer to; the individual athletes (genetic qualities) and their close environment e.g. parents, friends,

coaches. At the micro-level, some factors can be controlled, such as training techniques or tactics, and others cannot e.g. genetics.

The primary studies undertaken at a macro level to determine international sporting success overwhelmingly focus on Gross National Product per capita and population. Many highlight the impact of two independent macro-economic variables: the Gross National Product (per capita) of a nation and its population (Bernard and Busse, 2000; De Bosscher, De Knop and Heyndels, 2003; Jokl, 1964; Kiviaho and Mäkelä, 1978;; Morton, 2002; Novikov and Maximenko, 1972; Suen, 1994; Van Bottenburg, 2000). With parasport, there is also a necessity when comparing nations to consider disability prevalence. According to De Bosscher et al. (2006), Gross National Product (GNP) and populations consistently explain over 50% of the total variance of international sporting success. What is not clear is the impact of the disabled population and the impact of that on performance.

Macro-level studies have assumed that sporting talent is equally distributed globally; for parasport, this would also assume that disability is also equally distributed and that every nation has equal opportunities to produce competitive elite athletes (Grimes, Kelly and Rubin, 1974; Kiviaho and Mäkelä, 1978; Morton, 2002). The consideration of the disabled population is beyond the realms of this research as it investigates success determinants, in one sport, in one nation.

**NUMEROUS STUDIES HAVE EXAMINED FACTORS THAT CONTRIBUTE TO OR INHIBIT ELITE DEVELOPMENT. SOTIRIADOU AND SHILBURY (2009) GROUPED THESE STUDIES UNDER THREE LEVELS OF ANALYSIS; MACRO, MESO AND MICRO LEVEL. THESE GROUPINGS ARE PRESENTED IN** Table 2. 2.

TABLE 2. 3 LEVEL OF STUDY

| Study level | Micro-level studies | Meso-level studies | Macro-level |
|---|---|---|---|
| Factors Influenced | Individual athlete, close environment. | Sports policies and strategies | Social and Cultural context in which people live |
| Example | Genetic qualities, coaches, friends, parents. | Sports policies and allocation of resources, Programs and strategies which may influence long-term performance. | Population, political, economic, and cultural system, geographic and climatic variation |

*Adapted from Sotiriadoua and Shilbury (2009)*

Micro, meso, and macro-level studies may be incorporated to form a body of evidence for parasport. This study contends that a combination of micro, meso, and macro-level factors must be examined if international parasport success factors for UK para-athletics are to be determined.

**Micro Level Factors**

Bernard and Busse, 2000; De Bosscher et al., 2003;; Johnson and Ali, 2002; Kuper and Sterken, 2003) reveal that most of these studies examine determinants of elite development that are beyond the immediate control of politicians, governments and the organisations that represent them (De Bosscher et al., 2006).

Furthermore, Baker and Logan (2007) focusing on micro factors, examined an athlete's birthplace and its effects on athlete success, a factor that sport strategies or sport agencies cannot directly control but can undoubtedly utilise. An additional micro level for consideration in the field of parasport is disability classification. While most individuals endorse a unique set of personal beliefs

about social groups e.g. disabled people, that they consider to be true, these personal beliefs may or may not overlap with cultural stereotypes widely communicated and reinforced through socialisation (Berger, 2003). Throughout history, disabled people have been consigned to particular social roles e.g. the sick patient and unemployed beggar while being excluded from others such as parent, partner, business executive, athlete (Asch, Rousso, and Jefferies, 2001). The lived experiences and stereotyping of disabled people vary dramatically depending on birthplace (Nario- Redmond, 2010).

Consideration of micro-level studies enables consideration of factors that influence individual athlete success (Conzelmann and Nagel, 2003; De Bosscher and De Knop, 2003, De Bosscher and De Knop, 2004; Gibbons, McConnel, Forster, Riewald, and Peterson, 2003; Greenlead, Gould, and Diefen, 2001; Nys, De Knop, and De Bosscher, 2002) such as personal and internal factors, financial factors, role models, coaching, training and competition, facilities, and specialist advice. Success factors identified at this level can sometimes be controlled e.g. training or not e.g. genetics. Mallett and Hanrahan (2004), for example, found that the coach is central to facilitating adaptive forms of motivation to enhance the quality of performance. These results have practical implications, as they would encourage sport psychologists to work directly with coaches to enhance the quality of sport performance.

Lack of time, lack of motivation, and difficult accessing facilities are among the most frequently mentioned barriers by Paralympic athletes (Tenenbaum and Eklund, 2007). People with physical disabilities experienced additional barriers to sports such as energy level, transportation, information access, qualification of supervision, and adjustment of facilities (Rimmer, Riley, Wang and Rauworth

and Jurkowski, 2004; Tenenbaum and Eklund, 2007; Kehn and Kroll, 2009). Facilitators of sports for non-disabled people and people with physical disabilities seem to be very similar: both groups frequently mention enjoyment, motivation, health benefits, and social aspects (Godin, Colantonio, Davis, Shephard, Simard, 1986; Wu and Williams, 2001; Shihui et al., 2007; Tenenbaum and Eklund, 2007; Kehn and Kroll, 2009). Pensgaard, (1999) identified that Norwegian Paralympic and Olympic athletes showed similar motivational factors and coping strategies. However, sport participation of Paralympic athletes was not only dependent on effort but also external factors such as wheelchairs, most previous studies identified focusing on patients with spinal cord injuries or amputation (Wu and Williams, 2001; Kars et al., 2009; Kehn and Kroll, 2009).

Furthermore, previous studies were not based on a framework or theory, which led to a lack of coherence in their results, echoing the justification that this literature review has adopted a narrative rather than systematic approach. Jaarsma et al (2014) adopted frameworks to coherently identify barriers and facilitators in athletes were the International Classification of Functioning, Disability and Health (ICF) of the World Health Organization (2011) and the theory of planned behaviour (TPB) by Ajzen (1991) in order to explore barriers and facilitators of sports in Dutch Paralympic athletes. There is a lack of empirical research which attempts to determine facilitators for international sporting success.

Ajzen (1991) combined several factors that determine intention or motivation, consequently leading to behaviour. Factors identified by Jaarsma et al. (2014) are attitude, subjective norm, and perceived behavioural control. Furthermore,

Jaarsma et al. (2014) explain “Attitude” refers to positive or negative outcome expectancies of behaviour, “subjective norm” to the social pressure regarding the behaviour and “perceived behavioural control” to belief of control a person has over their behaviour in certain situations (Ajzen, 1991). Both frameworks are often used in research into sports participation and can help determine essential factors related to sports participation in people with physical disabilities (Kosma, Cardinal, Bauer and McCubbin, 2007; O’Donovan Doyle and Gallagher, 2009; Saebu, 2010).

Micro-level factors, Jaasma et al. (2014) termed ‘facilitators’ identified by Dutch Paralympic athletes were fun, health, and competition. With health and competition being mentioned more frequently for maintaining sports than for initiating sports. Wheelchair athletes mentioned health for maintaining sports significantly more than ambulant athletes. The most mentioned environmental facilitator was support from family. Furthermore, Jaarsma et al. (2014) found ‘barriers’, were a dependency of others, a common environmental barrier was too little sports facilities in the neighbourhood, mentioned more by wheelchair athletes than by ambulant athletes. Over one-third of the athletes did not experience any barriers. Competition or winning were also factors that were experienced as personal facilitators, which is to be expected of athletes in general, but also of disabled athletes (Pensgaard et al., 1999; Wu and Williams, 2001; Shihui et al., 2007).

**Meso Level Factors**

Elite success factors at the meso-level are fully or partially determined by sports policies and politics (De Bosscher et al., 2006, p.8). Meso-level studies underpin the majority of research into success factors however they are less

numerous compared to macro and micro level studies. While a plethora of research considers the development of elite athletes and international sporting success it is overwhelmingly dominated by non-disabled subjects and policy, creating justification for a Paralympic meso-level study. Paralympic research may demonstrate concomitant findings to the aforementioned non-disabled research, although this assumption may be quixotic.

## 2.7 CHAPTER SUMMARY

This chapter has presented a review of published materials and grey literature about parasport. The evolution of disability sport beyond therapeutic use has been explored, and sport policy and elite sport structures have been considered through a parasport lens. This chapter has considered existing attempts to model elite sport structures and the determinants of international sporting success. This review of the literature has determined that there is a dearth of parasport studies, the limited empirical research undertaken in the context of parasport is clustered around classification. A small number of studies have also explored the impact of parasport events on participation in sport by disabled people. Elite sport development literature is overwhelming concentrated on Olympic and therefore non-disabled athletes, coaches, systems and policy. One of the most significant developments in elite sport in the last 30 years has been the increasing profile of parasport, prompting the investigation of the applicability of these studies to parasport.

As identified in the aims and objectives, this research will assess the applicability of existing models and add to existing knowledge in the validation or adaptation of existing models or, if appropriate, create a new one to be used by both academics and practitioners. The findings can be used to inform

resource allocation, infrastructure and public spend, consequently determining international parasport success, providing a framework for future evaluation.

# CHAPTER 3 METHODOLOGY

## 3.1 INTRODUCTION

The purpose of this chapter is to present an overview of the research methodology adopted in this study to investigate the determinants of international parasport success in para-athletics. This research is undertaken to fulfil the requirements of a Professional Doctorate, The Professional Doctorate award is detailed and the context of parasport as a research environment is given. The ontological and epistemological approach used to conduct this empirical research are then outlined. The study is undertaken with a philosophical approach of critical realism and the chapter includes an appraisal of that approach. A mixed methodology research design is applied, and this chapter explains the research design as a four-phased approach. Ethical issues associated with the research are outlined and the measures taken, as a reflexive researcher, to reduce researcher bias are outlined Finally, reflexivity of the researcher is detailed.

## 3.2 THE PROFESSIONAL DOCTORATE

In accordance with a Professional Doctorate programme in Professional Studies (DProf), this thesis provides a programme of in-depth study and personal scholarship in elite para-athletics. Alongside the development of knowledge and critical understanding, the research project provides evidence for the advancement of professional practice in elite parasport. The principal vehicle in achieving advancement is the creation of a model to be used by practitioners to assist in the allocation of resources in the pursuit of international para-athletics success. The provision of a specific evidence-based decision-making tool

provides a distinctive contribution to the advancement of the sport development and coaching in para-athletics, and the development of a community of professionals committed to evidence-based practice.

The professional doctorate involves two years taught and assessed programme, before the research phase. The taught element includes; Review of Learning and Professional Experience; Research for the Working World (doctoral level); Project Planning 1; Project Planning 2 and Critical Professional Practice and Development. Throughout these modules understanding of the research process and approaches to research are covered as well as planning for the research phase.

On entering the research phase consultation with British Athletics' Head Coach was sought. This meeting affirmed the need for evidence, on which decisions could be made and findings that could be presented back to funding bodies. In conjunction with ongoing conversations with the Head Coach, continuous interaction with an experienced para-athlete and coach were essential in the shaping of the research project. Consultation with practitioners combined with the findings of the literature review shaped the research approach, objectives and design for this study.

## 3.3 RESEARCH CONTEXT IN PARASPORT

The World Health Organization (WHO), World Report on Disability (2011) provides global guidance on implementing the United Nations Convention on the Rights of Persons with Disabilities (CRPD) the situation of people with disabilities, their needs and unmet needs, and the barriers they face to participating fully in their societies are presented. As acknowledged in the

literature presented in Chapter Two, there has been a paradigm shift in approaches to disability. In recent decades the move has been away from a medical understanding towards a social understanding, that disability arises from the interaction between people with a health condition and their environment. The CRPD reflects this emphasis on removing environmental barriers which prevent inclusion. Additionally, the CRPD reports that disability prevalence is high and growing. As identified in the preceding chapter, limited academic social research in the context of parasport exists. Parasport, as a facet of elite sport, has increased complexity when compared to non-disabled elite sport, with both international variation in the percentage of disabled people in a national population and socio-cultural perspectives of impairment, making parasport success factors more complex than elite non-disabled sport.

The parasport environment is complex, as demonstrated by the multiple event disciplines, events that are para exclusive e.g. seated club throw, and the diversity of athlete needs and impairments. The varied nature of para-athletics is evident across different parasport disciplines, but also within a specific event classification. The athletes competing in a T55 400m race will have a single below knee amputation and therefore require a prosthetic or have moderately reduced function in one or both legs, requiring a brace or have no specific equipment needs. In addition to differing impairments within a single event classification, an athlete's impairment can be congenital or acquired. The impact of this complex environment presents multiple research opportunities and provides both the research context and further rationale for this study. The

complexity of para-athletics as a research environment is relatively unexplored, when compared to elite sport and non-disabled athletics.

International comparative studies in parasport present additional challenges. Approaches to measuring disability vary across countries and influence the results making it challenging to compare nations. Further to this, operational measures of disability vary according to the purpose and application of the data, the conception of disability, the aspects of disability examined – impairments, activity limitations, participation restrictions, related health conditions, environmental factors – the definitions, question design, reporting sources, data collection methods, and expectations of functioning. Impairment data are not an adequate proxy for disability information. Broad groupings of different types of disability have become part of the language of disability, with some surveys seeking to determine the prevalence of different types of disability based directly or indirectly on (United Nations, Global Status Report on Disability and Development, 2015)

The absence of research in the field not only provides a rationale and opportunity for academics, it creates a problem for nations in the design of systems to facilitate success, as well as recommendations for targeted allocation of resources. In the Global Sporting Arms Race, targeted funding and considerations related to the allocation of resources can give nations a competitive advantage. Targeted funding may also produce a higher return on investment (in terms of success) for nations where resources are less readily

available. This research intends to create a framework for para-athletics policymakers and performance directors to consult when designing systems to support athletes. As previously mentioned, the playing field in parasport is not level. The proportion of disabled people in the population, within a nation, influences the pool from which para-athletes can be 'created'. Disability, a complex multidimensional experience poses several challenges for measurement, comparison and the creation of a system that facilitates success for the heterogeneous population of elite para-athletes. Notwithstanding the environment, the creation of a decision-making framework will assist evidence-based decision making.

## 3.4 PHILOSOPHICAL APPROACH

All research is based on philosophical assumptions about the nature of the world, ontology, and about how knowledge can be obtained, epistemology (Myers, 2009). Ontology is concerned with questioning the nature of existence (Crotty, 1998) and reality (Denzin and Lincoln, 2005) and the assumptions that individuals make about the nature of reality (Easterby-Smith, Thorpe and Lowe, 2002). Epistemology refers to the set of assumptions made about knowledge and how it is obtained (Hirschhiem, 1992). These philosophical assumptions ultimately have an effect on the formulation of the research objectives posed, as well as the selection of the methodology and methods with which to conduct the research (Easterby-Smith et al. 2002; Myers, 2009). Easterby-Smith et al. (2008) explain the positivist, relativist and constructionist positions., the former two assuming that there is a reality that exists independently of the researcher

and the job of the researcher is, therefore, to identify the facts from this pre-existing reality.

All research, regardless of being qualitative or quantitative, is based on an underlying philosophical assumption about what the researcher considers to be ‘valid’ research and what research methods are most appropriate (Myers, 2009). In essence, these philosophical assumptions represent the researcher’s world view, i.e. a lens through which we view the world, and which shapes our choice of methodologies and methods. Qualitative researchers study things in their natural settings and attempt to make sense of, or interpret, phenomena in terms of the meanings people bring to them (Denzin and Lincoln, 1994), the qualitative researcher is viewed as a participant in their research (Patton, 2002). Qualitative research is generally associated with an interpretive, naturalistic approach to the world (Denzin and Lincoln, 2000) that seeks to understand the values, beliefs, and meanings of social phenomena, achieving ‘verstehen’ (Weber 1904/1949), a deep and sympathetic understanding of human cultural activities and experiences (Smith and Heshusius, 1986).

The belief that science can produce objective knowledge rests on two key assumptions. Firstly, there is an ontological assumption that there is an objective reality 'out there' to be known and secondly that it is possible to remove all subjective bias in the assessment of that reality (Johnson and Duberley, 2000). Ontology is the study of being and 'what is' (Crotty, 2003), referring to the nature of reality assumed by the researcher. In the positivist paradigm, the researcher assumes that the 'real world' being studied is seen by the researcher.

Conversely, in interpretive and similar approaches the researcher's perspective is not privileged; emphasis is placed on the varying views and realities as perceived by the people being studied (Veal and Darcy, 2014). Epistemology is usually understood as being concerned with knowledge about knowledge, or more simply how we know what we know (Johnson and Duberley, 2000), referring to the relationship between the researcher and the phenomenon being studied, again the distinction being most sharply drawn between the interpretivst and positivist stances. Ontological and epistemological assumptions are often closely intertwined, and for most practical purposes it is difficult to think of them otherwise (Thomas, 2004).

Sport is a unique area of study meaning that different paradigms and research methods will be found in different areas of sports research. The study of sport requires a tremendous appreciation of so many different things (Smith, 2010). If one were to venture into the social side of sport, for example, sports psychology or sports sociology, reality would be viewed from a constructivist position and one would assert that social phenomena are not independent of social influence and one would, therefore, search for 'social meaning', being aware that reality is in a state of flux and revision (Smith, 2010).

### 3.4.1 CRITICAL REALISM

This research was conducted within the theoretical framework of critical realism. The critical realist accepts that all observation is fallible and subject to error and that consequently 'truths' are subject to revision. To that end, the critical realist is critical of humans' ability to know reality with any degree of certainty. Critical realism is described by Maxwell (2012) as an inclusive meta-theoretical perspective, accommodating the strengths of positivism and constructionism

while avoiding their many pitfalls (Owens and Ridley, 2011). As a meta-theoretical perspective, critical realism differentiates ontology and epistemology, recognising realism as its ontological worldview and theorising that the social world exists independently of human understanding (Maxwell, 2012). This recognition differs from the naive realism of positivism that assumes that reality can be observed (Owens and Ridley, 2011). However, despite true reality being unknowable, critical realists postulate that humans possess unique interpretations of reality that reflect their life experiences and that these many perspectives are equally valid (Morris, 2003). This study explores the life experience of athletes, coaches and those leading UK para-athletics. Factors impacting human performance, human interpretations of real experiences and perspectives are valid to identify determinants of success in para-athletics will also be investigated. Whilst critical realism is ontologically realist , similar to positivism, it is epistemologically relativist, similar to constructivism, meaning that reality is a true but unknowable concept and that knowledge is constructed and contingent on factors such as perception, experience, and convention (Guba and Lincoln, 1994, Maxwell, 2012).

Bhaskar (1978) has suggested that critical realism has a layered rather than flat ontology and this has significant epistemological implications. The layers are the empirical, the actual and the real. The empirical domain is where observations are made and experienced by observers. However, events occur in the actual domain and may not be observed at all or may be understood quite differently by observers. There is a process of interpretation that intervenes between the two domains (Easton, 2010); events occur as a result of the processes of reality. Since there can be no definitive criteria to judge the “truth” of a particular version, critical realism relies on the researcher to collect further

data that helps to distinguish alternative explanations and on the community of researchers to debate them thoroughly. In the case of this research, to ignite the debate and assess the applicability of existing models of elite sport and the factors determining international parasport success, criticality is essential to understand the features of the real world (Woodside and Wilson, 2003; Woodside, Pattinson, and Miller, 2005).

The literature affirms the view that critical realism does not have an obligation or allegiance to a single form of research. The critical realist approach proposes, via research to get beneath the surface, to uncover the truth and explain why things are the way they are. This study , attempts to answer “what the determinants of international sporting success for para-athletics are”. Regardless of the complexity of statistical analysis, or the richness of an ethnographic interpretation, this research explores the reality of para-athletics..

A significant advantage of this study utilising a critical realist approach is that it maintains reality while still recognising the inherent meaningfulness of social interaction which allows us to construct a consistent and coherent account of our experience (Bisman, 2010). From a realist standpoint, the approach provides the means to determine the reality of the determinants of international parasport success, through the triangulation of cognition processes, which include elements of both positivism and constructivism rather than solely one or the other (Krauss, 2005). Sayer (2000) explained that when compared to positivism and interpretivism, ‘critical realism endorses or is compatible with a relatively wide range of research methods, but it implies that the particular choices should depend on the nature of the object of study and what one wants to learn about it’ (Sayer, 2000, p. 19). The fundamental principle of critical

realism is that we can use causal language to describe the world, therefore enabling non-academics to interpret findings and then act , in this case, implementing recommendations to improve performance. Since all philosophical positions rely on assumptions, they can only be ultimately judged pragmatically, not in the limited sense used by pragmatists but in terms of our beliefs that they result in better explanations. Critical realism is performative (Easton, 2010), in addition to being opposed to meta-theoretical positions (Calder, 2011). The conjoining of ontological realism and epistemological constructionism within critical realism renders research sensitive to both observation and interpretation (Owens, 2011). The approach characterised by epistemological dualism, that is the perceived/cognitive world vs the outside/unknown world, methodological pluralism, the acceptance/legitimacy of different research methodologies and is a meta-theoretical position which often underpins mixed-method research and the multi-perspective study of phenomena.

Within realist qualitative research, language can accurately reflect and describe experiences (Widdicombe and Wooffitt, 1995). Within constructionist qualitative research, language can articulate the constructs and perspectives that the word has been experienced within (Braun and Clarke, 2006), as experienced by the athletes and coaches. A tenet of critical realism research, which differentiates it from other qualitative paradigms, is the requirement for researchers to engage with prior theory during the early phases of the research process, so that underlying structures and conceptual models are developed before data analysis begins (Sobh and Perry, 2006). This study has reviewed the existing elite sport development models to identify themes for investigation. Typically, critical realist research follows a sequential, staged structure so that prior work is undertaken to generate information, with consideration of existing models,

identification of conceptual frameworks, and exploration of underlying structures via consultation with literature and people with experience of the phenomenon of interest (ibid). Within the framework of critical realism both quantitative and qualitative methodologies are appropriate (Healy and Perry, 2000). Fraser (2014) advocates the use of critical realism, a middle-ground research philosophy. Critical realism, while allowing researchers to hold a preferred philosophical position, provides the opportunity to undertake mixed method research, which has a greater potential of producing research likely to bring us closer to the 'truth'. Rather than being supposedly value-free, as in positivistic research, or value-laden as in interpretive research (Guba and Lincoln, 1998), realism is instead value conscious that is aware of the values of human systems and researchers.

# 3.5 RESEARCH APPROACH

## 3.5.1 A MIXED METHOD APPROACH

A combination of research methods has previously earned a plethora of names, possibly impacting on its ambiguity (multiple methods, blended research, multimethod, triangulated studies, and mixed research). In management research, "multimethod" and "mixed method" research are the most commonly used labels. The terms are not however synonymous that is multimethod research involves multiple types of qualitative inquiry such as interviews and observations or multiple types of quantitative inquiry for example surveys and experiments and mixed methods, which involve the mixing of the two types of data (Morse, 2003). Mixed methods research has become the most popular term for mixing qualitative and quantitative data in a single study (Johnson, Onwuegbuzie, and Turner, 2007).

Over the past four decades, the amount of social-scientific research that has attempted to integrate both qualitative and quantitative research methods into a single study has steadily increased to the extent that, 'there can be little doubt that mixed methods research has moved forward a great deal in recent years' (Bryman, 2008, p.8). Denzin (1978 p14) explained the value of triangulation in the study of the same phenomenon; 'by utilising mixed methods, the bias inherent in any particular data source, investigators, and particularly method will be cancelled out when used in conjunction with other data sources, investigators, and methods' and 'the result will be a convergence upon the truth about some social phenomenon'. The advantages of mixed methods research can be summarised as allowing researchers to have more confidence in the results; stimulating the development of creative ways of collecting data and generating to thicker, richer data. Additionally, mixed method research can lead to the synthesis or integration of theories and occasionally uncover contradictions (Jick, 1979).

Mixed method research is widely defined as combining at least one quantitative method and one qualitative method (e.g., Hanson, Creswell, Plano Clark, Petska, and Creswell, 2005; Jick, 1979; Maxwell and Loomis, 2003). The combining of quantitative and qualitative data in a single study can be beneficial in a variety of ways, producing a set of data that has complementary strengths and non-overlapping weaknesses (Brewer and Hunter, 1989; Johnson and Onwuegbuzie, 2004; Johnson and Turner, 2003; Tashakkori and Teddlie, 1998). The fundamental principle of mixed research is to strategically select a mixture of quantitative and qualitative approaches that will adequately cover the objective or set of objectives of a research study and to do it in a way that eliminates overall study design weaknesses (Johnson and Turner, 2003, Rudd

and Johnson, 2010). According to Onwuegbuzie and Johnson (2006) this fundamental principle can be adapted to multiple purposes including initiation where contradictions are discovered, expansion, that is attaining a more profound and broader understanding, complementarity, in which overlapping parts of a phenomenon are examined), and development, whereby results from one method inform the use of a second.

While the mixing of qualitative and quantitative data is not new to sport management scholars, the use of mixed methods principles and design types is. Researchers who use mixed methods have suggested a need for understanding these principles and distinguishing between studies that utilise the two types of data without serious integration and studies that mix the data sets effectively (Tashakkori and Creswell, 2007). Moreover, a study that includes both data types without integration is merely a collection of methods. Robust mixed methods studies, however, address the decision of how to integrate the data as well as the timing and priority (Creswell and Plano, and Clark, 2011) about the research objectives.

There is an assumption that the combining of different methods within a single piece of research raises the question of movement between paradigms. It has been referred to as the 'third methodological movement' behind quantitative and qualitative, despite the claim by Bryman (2003) that mixed methods research should not be regarded as a new approach. However, a set definition is yet to be introduced with the closest provided by Creswell and Plano Clark (2011, p5);

> "Mixed method research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves

> philosophical assumptions that guide the direction of the collection and analysis and the mixture of qualitative and quantitative approaches in many phases of the research process. As a method, it focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches, in combination, provides a better understanding of research problems than either approach alone."

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According to Hammond (2005, p.241) there are five main, interrelated, benefits of choosing mixed methods research: “(a) initiation - discovering fresh perspectives through paradoxes and apparent contradictions; (b) triangulation - testing the convergence or validity of results; (c) complementary - elaboration, enhancement, illustration and clarification of results; (d) development - using the results from the first methods to inform, design and implement the second methods; and (c) expansion - extending the breadth or scope of the project”.

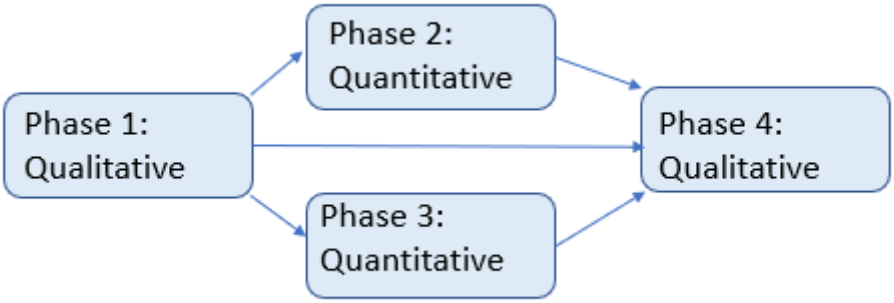
As well as benefitting from Johnson's (2006) idea of the fundamental principle of mixed method researcher, to some extent all five of the categories outlined by Hammond (2005) helped influence the selection of a mixed methods approach in the present study, through the 'initiation', 'complimentary' and 'expansion' justifications, which are all of significance. As Wooley (2009, p. 8) has noted that ‘mixed methods research questions are those that ask either what and how or what and why’. In such cases both quantitative and qualitative approaches are of use, providing a way of considering structures and processes, establishing relationships, and thereby bridging macro-micro levels of social analysis. Thus, as Hammond (2005, p.241) has claimed, combining methods is valuable, or pragmatic, because each approach provides a different approach on the topic and since each approach has its limitations or 'imperfections', which can be compensated for by using alternative methods' ,

mixed methods research designs can often help answer complex research questions such as those underpinning the present study.

## 3.6 RESEARCH DESIGN

The mixed method approach of this research had a four-phase, sequential, exploratory design: a qualitative phase followed by two quantitative phases, then a final qualitative phase as outlined in Figure 3.1.

FIGURE 3. 1 STUDY PHASE DESIGN




Access to athletes and coaches was granted by the Head Coach for the British Athletics Para Programme, following an email to outline the purpose of the study, and the researcher and Head Coach meeting to discuss the study. All World Class Podium and World Class Potential Athletes and Coaches are required to attend national squad preparation camps and access to these was granted. The first squad camp attended was the preparation camp for the Rio 2016 Paralympic Games, and much of the focus regarded logistical details, selection criteria and process. The researcher delivered a brief presentation to outline the purpose of the study and gave a verbal guarantee of anonymity and 'pitch' for participants to volunteer in phase one. The questionnaires used in

phase two and three were distributed by email to all national squad athletes and their coaches by the head coach and shared on closed Facebook groups. Some athletes requested hard copies of the questionnaire to complete; these were distributed and collected by the researcher at the National Performance Centre. Phase four, the interview with the head coach, was arranged by direct correspondence using email and was scheduled on completion of the analysis of phases one, two and three.

### 3.6.1 PHASE ONE

The initial phase undertaken involved a qualitative exploration in which the factors as classified by De Bosscher et al. (2006) were considered by exploration of individual athlete and coach experiences and perceptions of critical success factors for parasport performance. “This design is based on the premise that an initial qualitative exploration is needed for one of several reasons: measures or instruments are not available, the variables are unknown, or there is no guiding framework or theory” (Creswell and Plano Clark, 2007, p. 75). The initial research phase involved consideration of micro-level factors by an exploratory approach, as there is no current knowledge base of factors that influence individual para-athlete success, such as personal and internal factors, financial factors, role models, coaching, training and competition, facilities, and specialist advice (Conzelmann and Nagel, 2003; De Bosscher and De Knop, 2003, De Bosscher and De Knop, 2004; Gibbons, McConnel, Forster, Riewald, and Peterson, 2003; Nys, De Knop, and De Bosscher, 2002). As discussed in Chapter Two, success factors identified at this level can sometimes be controlled e.g. training or not e.g. genetics. In relation to controllables, the micro factors findings of this study can have practical implications, encouraging sport

psychologists to work directly with coaches to enhance the quality of sport performance

Unlike methods which adopt sampling techniques in order to generalise to a larger population, all phases of this study use purposive sampling which involves selecting informants based upon a vital characteristic or set of characteristics (Myers, 2009). Phase one of the study used critical case sampling, a subset of purposive sampling techniques, the intention being to select a small number of important cases that were likely to 'yield the most information and have the greatest impact on the development of knowledge' (Patton, 2002, p.236). Critical case sampling focuses on selecting cases on the basis that they make a point dramatically or, as in this case, because they are primarily about the research questions. This sampling technique is particularly useful for exploratory, qualitative research, where resources are limited and, although it may not yield broadly generalizable findings, it allows the researcher to develop valid generalisations from the abundant evidence produced when studying a few cases in depth (Patton, 2002). In addition to the requirements of exploratory research, this study required participants from a specific population, international athletes, coaches and performance directors.

The use of semi-structured interviews allowed the gathering of data from a broad range of coaches and athletes in different classifications and events (Myers, 2009). It enabled a nuanced, deep understanding of the main factors related to para-athletics success encompassing the different disciplines and classifications. When considering the question of 'how many interviews?', Guest, Bunce and Johnson (2006) consider that 12 interviews are usually sufficient for purposive sampling amongst relatively homogeneous groups of

individuals. However, purposive sampling requires careful selection, and interviews are not the only method of data collection being included in this research. With this caveat in mind, a total of 12 interviews with seven para-athletes and five coaches took place between March and August 2016 and four interviews between August and December 2017.

**INTERVIEWS**

Myers (2009, p.124) identifies three types of interview - structured, semi-structured and unstructured. Structured interviews use pre-formulated questions and strictly regulate the order of the questions and sometimes regulated with regards to the time available. Semi-structured interviews use some pre-formulated questions but have no strict adherence to these questions, and the interviewer can add new questions during the conversation. Unstructured interviews have few if any, pre-formulated questions and interviewees have free rein to say what they want, and there is often no set time limit. Each technique has its strengths and weaknesses.

Semi-structured interviews attempt to create a balance between structured and unstructured interviews (Myers, 2009). They are best used when it is unlikely that the researcher will get a second chance to interview someone (Bernard, 1988) and should be viewed as a guided open interview (Easterby-Smith et al. 2008). The interviewer in a semi-structured interview generally has a basic framework of themes or questions to be explored, but this structure allows new questions to be brought up during an interview as a result of what the interviewee says (Lindlof and Taylor, 2002). Semi-structured interviews offered the most appropriate interview technique for this study for many two key reasons. Firstly, because of time constraints, it was unlikely that athletes,

coaches and performance directors would be available for a second chance to interview. Secondly, having a basic structure allowed relevant issues to be explored relevant to the research questions, themes identified by the literature review, existing models and overall aim, while also providing a degree of flexibility that allowed exploration of any emerging or unexpected issues that might arise. Using in-depth, semi-structured interviews allowed the opportunity to probe deeply in order to follow up specific comments, open a new dimension of an issue, and to secure, as far as possible, authentic accounts that were based upon the personal experiences, reflections and understandings of the interviewees.

## 3.6.2. PHASE TWO AND THREE

Phase two and three used questionnaires to examine the success factors for para-athletes according to athletes and coaches respectively. This part of the study provides a quantitative examination of the impact that meso, micro and macro level factors have on the success of para-athletes and thus, supplements the findings of phase one.

**SELF-COMPLETION QUESTIONNAIRES**

Surveys can take a variety of forms, but the self-completion questionnaire, is the most widely used method by social scientists (Bryman, 2008; de Vaus 2002). Among the many benefits of self-completion questionnaires is their capacity to gather large amounts of data on a range of factors in a relatively short space of time (de Vaus, 2002; Gray, 2009). While previous studies have attempted to determine policy factors leading to international sporting success

(Green and Houlihan, 2005; DeBosscher et al. 2006; 2009; 2015; Oakley and Green, 2001; Digel, 2002) they have focused on Olympic sport. The purpose of this study is to contextualise athlete and coach experiences in determining international parasport success factors.

Self-completion questionnaires were used to help understand the micro and meso level factors determining international success in para-athletics. The questionnaire, which took approximately 20 minutes to complete, gathered data on the characteristics of elite para-athletes, the factors which determine their sporting success and their evaluation of the services accessed as contributing factors to success. There were two versions of the questionnaire, one for athletes to complete and one for coaches. The questions were based upon the findings of the existing literature reviewed in Chapter Two, findings of phase one of this study and matters of interest to the researcher.

The first section was about the athlete or coach and generated basic data on athlete and coach biographies, which included age, event(s) and classification competed in or coached, age started athletics, sex, the age of event specialisation, world ranking, year of best ranking and whether (for athletes) their impairment is congenital or acquired. For coaches surveyed, this question was omitted, and the respondent was asked if they had a disability or long-term illness. In the athlete survey, the second section explored training frequency and behaviours, as well as travel time. This data provided vital prerequisites for making adequate sense of the diversity and heterogeneous nature of para-athletics, areas which hitherto were ignored in the academic literature. The next section explored the role of charities, a theme that emerged from the athlete interviews conducted as the first phase of this study. Funding and finance are

frequently acknowledged as determinants of sporting success; the next section of the questionnaire investigated financial support.

As well as representation of the range of para-sport classifications, events and the role of charities and financial support, it was essential to develop an understanding of support services available, the para-sport environment in British Athletics and perception of accessed support services. The athlete questionnaire required athletes to rate the services accessed, their coach's level of expertise, competition opportunities and rate the factors identified in the literature as determinants of international sporting success. Athletes were required to identify individuals that are essential for the athlete to live, train and compete as an elite athlete, in order to provide data in this area as a theme raised in phase 1 of this study. In addition to the areas addressed in the athlete survey, coaches were asked to review talent development support and accessibility of services for young athletes, coach education and development opportunities.

The limitations of self-completion questionnaires have been well documented (Bryman, 2008; De Vaus, 2002) and were borne in mind when interpreting the data presented in the following two chapters. It is now recognised, that questionnaire respondents tend to over-report some lifestyle behaviours e.g. the amount of time spent training and it is also apparent that there are several difficulties with respondents memory lapses, for all 'people, cannot be relied on to recall their subjective states (opinions and attitudes) accurately at earlier points in their lives' (Roberts, 2009, p.152). This is particularly true when the recall period is extended, the activity being discussed is not salient, and the behaviours under discussion are not habitual (Bryman, 2088; de Vaus, 2002).

Wherever possible, therefore, the self-completion used short time frames, such as services used in the past 12 months, but when exploring aspects of participants' earlier biographies for example their introduction to parasport) it was essential to adopt longer time-frames to capture all of the relevant details of their development and experiences.

### 3.6.3 PHASE FOUR

Phase four of the study involved a semi-structured in-depth interview with the Head Coach for the British Athletics Paralympic Programme. The learnings from phase one informed phase two and three, and phases one and two and three informed phase four. By completing these four phases of research, this allowed conclusions to be drawn about the applicability of existing sport development models or whether a revised model would be proposed based on the findings.

### 3.6.4 RELIABILITY AND VALIDITY

Whereas quantitative research defines quality in terms of the validity and reliability of data (Myers, 2009), an interpretive approach relies on the authenticity, plausibility and criticality of the 'story' and the quality of the overall argument (Walsham and Sahay, 1999). Adopting an interpretive approach provides 'a new means of investigating previously unexplored questions, thus enabling management researchers to conduct research that leads to new forms of knowledge about management and organisation' (Sandberg, 2005, p.45). Golafshani (2003) presents a variety of definitions of validity and reliability in qualitative research and suggests that if testing is 'a way of information elicitation, then the most important test of any qualitative study is its quality' ( p601). As a critical realist, approaching research 'combining features of both positivism and constructionism' (Easterby-Smith et al., 2015,p.334), validity

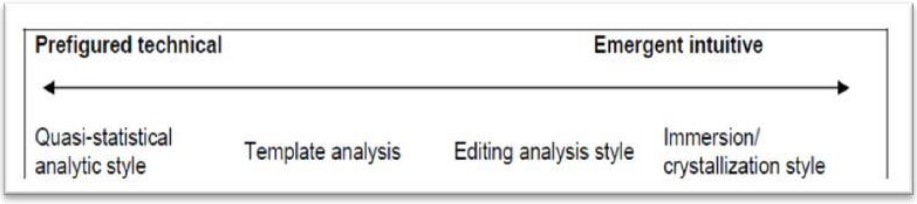
aims to eliminate plausible alternative explanations and have a sufficient number of perspectives included (Easterby-Smith et al., 2015).

# 3.7 DATA ANALYSIS

## 3.7.1 ANALYSIS OF INTERVIEW DATA

Analysis of the data began almost as soon as the first interview was transcribed and was an on-going, emergent process. Each interview lasted between 40-70 minutes and was based around a protocol and interview guide (Appendix 5). Each interviewee was provided with a copy of the interview protocol and questions before they were interviewed. Although these initial questions provided a starting point for each interview, adopting a flexible, semi-structured approach enabled the interviewer to deviate from the 'script' and pursue other interesting responses made by the interviewees. All the interviews were recorded then then transcribed and imported as a Word document into Quirkos, a qualitative data analysis software tool. A parallel consideration when planning the gathering of interview data and its input into Quirkos was how to use that data and how to analyse and interpret the interviews? As Symon and Cassell (1998, p.5) point out: 'despite the increased popularity and use of qualitative methods, there is relatively less information available about how to conduct qualitative data analysis'. They do, however, mention the work of some exceptions to this general point, such as Dey (1993); Miles and Huberman (1994); Silverman (2001) and Strauss and Corbin (1990). Marshall and Rossman (2011) describe data analysis as the messy, time-consuming and creative process of bringing order, structure and interpretation to the data collected.

FIGURE 3. 2 CONTINUUM OF IDEAL-TYPE ANALYSIS STRATEGIES.




Marshall and Rossman, (2011, p.209)

At one end of this continuum are the pre-figured technical, quasi-statistical, scientific strategies of the researcher who adopts an objectivist/positivist stance relative to the inquiry and who has stipulated categories in advance. At the other end are the immersion/crystallisation strategies, which do not anticipate categories and rely on the researcher's intuitive and interpretive capacity. Between these two extremes lies both 'template' and 'editing' strategies. Template strategies are reliant on sets of codes that are developed and applied to the data, whereas editing strategies are less prefigured and the researcher 'engages the text naively, without a template' (Crabtree and Miller, 1992, p.20), searching each text to generate codes and themes to illustrate categories of meaning.

## 3.7.2 THEMATIC ANALYSIS

King (2004) notes that thematic template analysis is often referred to by other terms such as 'codebook analysis' or 'thematic coding', but the essence of the approach is that the researcher produces a list of codes, i.e. the template, representing themes they have identified from their data. Some of these themes will usually be defined *a priori*, but these will be modified, added to, or removed as the researcher conducts the iterative process of reading and interpreting the text. The template approach can thus be seen as occupying a position between

content analysis (Weber, 1985), where codes are all predetermined, and their distribution is analysed statistically, and grounded theory (Glaser and Strauss, 1967), where there is no *a priori* definition of codes. Thematic template analysis was selected because it allowed the combination of the *a priori* codes identified from the literature and existing models of elite sport development.

The research strategy incorporated plans for the analysis of the interview data that combined the *a priori* themes identified from the literature review and themes that emerged from the analysis data collected throughout the previous phases of the study. While Marshall and Rossman's (1992) continuum places template analysis towards the quasi-statistical end of their spectrum of analysis approaches, Crabtree and Miller (1999) suggest that template analysis offers an intermediate approach, allowing the researcher to combine some initial *a priori* codes with an immersion/crystallization style of analysis d discussed in more detail later in this chapter. King (2004) argues that template analysis is a useful tool for conducting a thematic analysis of qualitative data.

Thematic analysis provides a suitable method for analysing the interview data in this research because it is useful in identifying, analysing and reporting patterns, that is themes within data. Braun and Clarke claim 'It minimally organises and describes the data set in rich detail. However, frequently it goes further than this and interprets various aspects of the research topic' (Braun and Clarke, 2006, p.79). Thematic analysis seeks to unearth relevant themes in a text at different levels and facilitate the structuring and representation of these themes (Attride-Sterling, 2001). It does not rely on a pre-existing theoretical framework and, as it can be used to report meanings and experiences of participants, it can support a critical realist perspective (Braun and Clarke,

2006). The advantages of using a thematic approach are summarized by Braun and Clarke (2006, p.27), who claim it is: 'flexible, can summarize critical features of a large body of data, highlight similarities and differences in a data set, generate unanticipated insights, and allow for social as well as psychological interpretations of data'.

There are differing views about when in the data analysis process a researcher should engage with the literature. In summary, some argue that a more inductive approach would be enhanced by not engaging with literature in the early stages of analysis, whereas a theoretical approach requires engagement with the literature before analysis (Braun and Clarke, 2006). On the other hand, Tuckett (2005) argues that engaging with the literature in both approaches at an early stage sensitises the researcher to the more subtle features of the data. The literature review for this research has indicated the potential success factors that might emerge, as well as informing the development of the *a priori* codes and themes in the revised model.

Braun and Clarke (2006) outline the phases involved in data coding when conducting a thematic analysis (see Table 3.1) This begins with familiarizing oneself with the data, followed by generating some initial codes, searching for and reviewing themes, defining and naming the themes, and, finally, conducting the final analysis and producing a report of the findings. They stress that these are guidelines rather than rules, and any data analysis method needs to allow for flexibility in the way it is applied. They also provide some guidance regarding potential pitfalls to be avoided when using thematic analysis. Their first point is that there is sometimes a failure. Thematic analysis is not just a collection of

extracts strung together with little or no analytic narrative, nor is it a selection of extracts with analytic comment that only paraphrases their content.

**TABLE 3. 1 PHASES OF THEMATIC ANALYSIS**

| Phase | Description of the process |
|---|---|
| 1. Familiarise yourself with your data | Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas. |
| 2. Generate initial codes | Coding interesting features of the data in a systematic fashion across the entire data set, collecting data relevant to each code. |
| 3. Search for themes | Collating codes into potential themes, gathering all data each potential theme. |
| 4. Review themes | Checking the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis. |
| 5. Define and name themes | Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme. |
| 6. Produce report | The final opportunity for anlaysis. Selection of vivid, compelling extract examples, final analysis to the research question and literature, producing scholarly report of the analysis. |

(Braun and Clarke, 2006, p.16)

Another pitfall to avoid is using the research interview questions as the 'themes' that are reported. In such a case, no analytic work has been done to identify themes across the data set, or to make sense of the patterning of responses. They also point to a weak or unconvincing analysis, where the themes do not appear to work, where there is too much overlap between themes, or where the themes are not internally valid. Braun and Clarke (2006) suggest there can be a mismatch between the data and the analytic claims that are made about it. In such an unfounded analysis, the claims cannot be supported by the data, or, in the worst case, the data extracts presented suggest another analysis or even

contradict the claims. A mismatch can also occur between theory and analytic claims, or between the research questions and the form of thematic analysis used.

A good thematic analysis, therefore, needs to make sure that the interpretations of the data are consistent with the theoretical framework that is adopted, in this case, a critical realist view. Even a useful and insightful analysis which fails to spell out its theoretical assumptions, or clarify how it was undertaken, and for what purpose, is lacking crucial information (Holloway and Todres, 2003), and thus fails in its purpose. With these caveats in mind, the analysis was undertaken using a template as a framework to thematically interview data.

### 3.7.3 TEMPLATE ANALYSIS

Template analysis (Crabtree and Miller, 1999; King, 2004) is one method of thematically analysing qualitative data. This approach involves developing an initial coding 'template' summarising the themes identified by the researcher and organising them in a meaningful and useful way. Template analysis emphasises hierarchical coding, i.e. beginning with broad themes and then encompassing sequentially narrower, more defined themes as the analysis progresses. Template analysis often begins by the researcher identifying some *a priori* codes related to the main research question and Crabtree and Miller (1999) suggest that researchers can develop codes: 'only after some initial exploration of the data has taken place, using an immersion, crystallisation or editing organising style. A common intermediate approach is when some initial codes are refined and modified during the analysis process; this intermediate approach is demonstrated in this study.

*A priori* codes used in this study are based on the determinants of success identified in Chapter Two and are based on the SPLISS model. According to King, Bell, Martin and Farrell (2003*), a priori* codes often develop because a researcher has started with the assumption that certain aspects of the phenomena being investigated should be a focus of the investigation. King (2004) supports three positions when generating *a priori* codes. Firstly, have some *a priori* codes based on the theoretical position of the research, in this case, SPLISS; secondly, develop codes after some initial coding of a subset of data, (phase one and this case; thirdly, use a combination of these two approaches that is start with some pre-defined codes and refine these after some initial exploration of the data in this study, the analysis of phases one, two and three. *A priori* codes are, therefore, often identified before the full data set has been analysed and can emerge from initial coding of a subset of the data, or be drawn from the literature review, or emerge from recommendations in earlier research. As King, Carroll, Newton and Dornan (2002) recommended the *a priori* codes or themes were treated as provisional and sequentially developed throughout the phases of the study.

Once the *a priori* themes were defined, the next stage was to read through the interview transcripts, marking sections that appeared to the researcher to have some relevance to the research question. These codes were then organised into an initial template, based on the coding of a subset of the interview transcripts. This study undertook a subset of two interviews to develop the initial template used in phase one. The initial template was then applied to the whole data set, i.e. all the interview transcripts and modifications were made based on the new themes that emerged e.g. the role of charities in the development of talent. Once the final template was defined, as presented below in Table 3.2, it

was used to code all the interview transcripts, providing a basis for the researcher's interpretation.

**TABLE 3.2 ANALYSIS TEMPLATE**

| ***A Priori* Themes** | **Emergent Themes** | **Sub Theme** |
|---|---|---|
| Finance | | *Charity, Sponsorship, Agent,* |
| Organisation & Management | | *Disability Sport Associations, Home Nations, British Athletics, Local Club, IPC, IPA* |
| Foundation & Participation | | |
| Talent ID and Development | | *Home Nation, Talent ID, Subjective, Talent transfer.* |
| | Education | *School, University, Mainstream or Specialist Schooling* |
| Athletic and Post Carer Support | | |
| Training Facilities | Support Services | *Strength and Conditioning, Medical, Sport Psychology, Facilities, Sport Science, Overseas Training Opportunities, Specialist Equipment.* |
| Coaching Provision & Coach Development | Coaching | *Coach Reliance, Volunteer Culture, Adaptability, Coach Education and Development, Luck and Location,* |
| (Inter)national Competition Structure | Competition Structure | *Structure, Classification Specific, Integrated, Frequency* |
| Scientific Research | Influential Individuals | *Parental Support, Teachers, Previous coaches, Role of the carer.* |
| | Media | *TV coverage, Focus on Disability, Role Models* |
| | Personal Challenges | *Travel, Reliance on others, Role of the carer, Personal Assistant.* |
| | Classification | *Visibility, Equity, Variation of standards.* |
| | Evolution of Para Sport | *Post London, Public Interest, Professionalization, Equity of rankings and standards.* |
| | Able bodied comparisons | *Mainstream, Olympic Comparisons, Event Inclusion/Exclusion, Discrimination, Standard of Performance, Number of participants* |

The main advantage of template analysis as an analytical technique is that it offers a flexible, iterative approach that does not tie itself to any one philosophical position. Template analysis enabled a systematic approach to

data analysis while maintaining a reflexive approach (King, 2006). Crabtree and Miller (1999) note that template analysis allows the researcher to focus an initial effort on the text that is relevant to the aims while allowing the identification of additional themes later through engaging with the data in a more nuanced 'line-by-line' scrutiny. This approach to analysis enabled a move away from often-descriptive initial *a priori* themes to make connections to more interpretive themes, making template analysis a useful tool for exploratory qualitative research.

Using King's (2004) template analysis approach, a thematic template was created that enabled consideration of the relationship between the *a priori* and emerging codes, between themes, and between different levels of themes, i.e. main themes and subthemes. Some of these codes are identified as significant themes in the analysis, some form sub-themes, and others are discarded as the analysis progresses. By combining a 'deductive-inductive' approach to coding the data, King's original technique has been extended. Incorporating *a priori* coding of the data across the hierarchy of the three levels of codes in the final template, rather than just using *a priori* coding at the first level. During thematic analysis, data were first coded under the nine SPLISS *a priori* factors in a deductive reasoning process. When a new factor or policy area emerged, a new code was assigned using inductive reasoning, and a description of what the new code meant was added. All quotations which were coded within each policy area or theme were then reread. By continually comparing the quotations, data were then coded under more specific first and second level sub-themes until no further coding was possible (Biddle et al. 2001, Braun and Clarke 2006, Flick and Gibbs 2007).

## 3.7.2 ANALYSIS OF QUESTIONNAIRE DATA

A total of 52 athletes met the eligibility criteria for the athlete survey; the response rate was 79% with 40 athletes responding. The coach survey received 32 valid responses. Once completed electronically, the questionnaire data was downloaded and uploaded to SPSS for analysis. After that, the respondents were grouped according to event classification, in order to use this as an independent variable in the subsequent analysis. The data were checked by the researcher, and the eight hard copies of the questionnaire were input and checked against the original questionnaire to verify the accuracy of the data. The data was then analysed using statistical analysis.

Para-athletics presents a heterogeneous population, with variables including typical population variables such as age, sex, place of birth etc. plus specific variables, including: disability type; classification; wheelchair user/non-wheelchair user; acquired/congenital disability; classification; classification group; track/field; throws/jumps/sprints/distance. The population size is limited by the inclusion criteria of elite para-athletes, coaches and professionals. The purposive sampling approach used in this study would impact the significance of statistical analysis if every combination of event and classification were considered. The complexity is increased further by consideration of whether the impairment is congenital or acquired. To that end, the heterogeneous nature of the sample means that analysis that considers all possible variable combinations would be dependent upon such a small sample size that statistical analysis would be flawed and conclusions impossible to reach.

The goal of the statistical analysis undertaken was to determine whether there are significant differences in the mean dependent variables across the

conditions of the independent variable. T-tests were used as a hypothesis testing tool, which allowed testing of an assumption applicable to the population. The t-test considers the t-statistic, the t-distribution values and the degrees of freedom to determine the probability of difference between two sets of data. In general, t-tests involve computing a ratio of the observed means to the expected difference between the means (Scherbaum and Shockley, 2015). For the independent t-tests, the null hypothesis is that the mean population from condition 1 e.g. seated athletes is the same as the mean of the population with condition 2 e.g. non-seated. For paired t-tests the null hypothesis is that the mean difference in rating or score in the population is zero.

The one-way analysis of variance (ANOVA) was used to determine whether there are any statistically significant differences between the means of three or more independent, unrelated groups. Participants were grouped for this study by the event groups of Throws, Jump Sprints and Distance, by classification group and by nature of impairment . The null hypothesis for this analysis is that there are no significant differences among the populations.

## 3.8 ETHICAL CONSIDERATIONS

Consideration of ethics requires the researcher to consider whether research design is socially and morally acceptable. Specific research designs, for example experimental designs, often raise important ethical questions that need to be addressed, before commencing any data collection (Gratton and Jones 2004). Researching social phenomena such as sport is challenging to do without coming across some ethical issues. Veal and Darcy (2014, p105) state: ‘Ethical behaviour is important in research, as in any other field of human activity’. To that end, research should be beneficial to society, researchers

should be qualified, supervised and that subjects should participate freely, under informed consent (Veal and Darcy, 2014). In line with Sheffield Hallam University's Ethics Review System, all participants were provided with a Participant Information Sheet (Appendix 6) and completed an Informed Consent Form (Appendix 7).

An additional complexity to the study is that the athlete population are disabled . The Department of Health (2019) defines a vulnerable adult as 'a person aged 18 years or over who is or may be in need of community care services by reason of mental or other disability, age or illness, and who is or may be unable to take care of him or herself, or unable to protect him or herself against significant harm or exploitation'. The participants of the study are all elite athletes and able to compete at the highest sporting level; they were not accessing community care. Athletes within the T20 and F20 classification group, that is those with Intellectual Impairment were omitted from phase one of the study, and the questionnaire was sent to carers (as advised by the head coach) for joint completion by both athlete and carer. One participant in phase one attended the interview with a parent carer to assist in communication, as their disability means they have slurred speech, and clarification of responses was occasionally given.

Ethical practice is defined as a moral stance (Myers, 2009), involving: 'respect and protection for the people actively consenting to be studied' (Payne and Payne, 2004, p.66). While there is a question regarding the balance of responsibility between the research participants and the wider public (Westmarland, 2005), McNabb (2002) considers that there are four guiding principles in relation to ethics and research. The first is truthfulness; it is

unethical for researchers to lie, be deceitful or purposely mislead. The second is thoroughness; researchers should be methodical and not cut corners. The third is objectivity; researchers should not allow their values or bias to affect their research. The fourth is relevance, research should be relevant to the research question and objectives. Research should not be done for frivolous, wasteful or irrelevant. It was important for this study, for the researcher to be mindful of their prior involvement with British Athletics, as a former elite athlete, para-athlete coach, mentor and training partner. Objectivity was continually sought by an ongoing discussion with the Director of Studies. The ‘golden rule’ of research ethics states that ‘you should do unto others as you would have them do unto you’ (Myers, 2009, p.46). In other words, if you are unsure about the ethics of your research, it is a good idea to put yourself in the other person’s shoes and consider how they might feel about how they are portrayed (Jackson, 1987). As a former international non-disabled athlete, empathy was achievable. Having been involved in previous research as a participant, this objective was relatively easy. When navigating delicate areas of disability 'putting oneself in the others person shoes' was somewhat challenging, as a non-disabled person.

## 3.9 REFLEXIVITY

Reflexivity is the process of the researcher being aware of his or her effect on the process of conducting research as well as on the outcomes of research and is based on the premise that knowledge is not separated from the knower (Steedman, 1991). For the phases of the study conducting qualitative research, the researcher is not able to remain ‘outside’ of the subject matter, and their presence will have an impact on the outcomes.

Throughout the research journey reflection is an important element. As a professional doctorate student, reflection plays a part throughout the taught phase, in the formulation of the research question and in the research design and in the interpretation of the data collected. An aspect of the taught element requires the development of a critical portfolio of evidence of advanced professional practice and development commensurate with the requirements of doctoral level study and achievement. The module ran throughout the first four years of the programme and required the maintenance of a critical professional practice and development electronic portfolio. The portfolio included a critical commentary demonstrating doctoral-level learning outcomes, a reflective diary and evidence of continued professional development. The key themes within this reflective portfolio were; the researcher as a coach, the researcher as an academic leader, the researcher as a lecturer/teacher, and the researcher as a former elite non-disabled athlete, training partner and mentor of para-athletes. This latter identity, as a former elite athlete has been the focus of significant reflection. Existing relationships with key stakeholders have enabled this research, by granting access not only to participants but also in immersion into the para-athletics world; attending training camps and having lengthy conversations with para-athletes and coaches during the development of the research objectives and design. The identity as an insider was pivotal in gaining access, trust and understanding of the nuances of para-athletics. The relationships developed during this consultation also presented challenges in maintaining status as the researcher, and in eliminating bias and maintaining objectivity as an outsider. As a critical realist, the researcher's interpretation presents another version of reality. The researcher is aware of this and ensures

continuous guidance is sought from the Director of Studies and Head Coach, as the principal professional advisor to ensure objectivity.

The electronic portfolio provided formal capture of reflection throughout the research journey. An informal personal diary reflecting on thoughts, questions and areas for future consideration was also kept using a password protected iPhone app called ‘Reflectly’. This enabled the researcher to make notes at any location at any time. Areas reflected upon included individual interviews, listening to recordings of interviews, observations of socio-cultural factors and behaviours and norms. While this did not form part of the data analysis, it was integral to the ordering of themes, findings and interpretation for wider communication.

The concept of reflexivity has been defined by Alvesson and Sköldberg (2000) as the interpretation of interpretation, in other words, as another layer of analysis in addition to the original interpretation of the data. Borkan (1999) views immersion and crystallisation as a suitable reflexive technique to demonstrate the validity of qualitative data. Immersion is the process whereby researchers immerse themselves in the data they collect by reading or examining some portion of the data in detail. Crystallisation is the process of suspending immersion in order to reflect on the analysis experience and attempt to identify and articulate patterns or themes noticed during the immersion process (Richardson, 1994, p.182). These complementary processes continue until all the data have been examined and patterns and claims emerge from the data that are meaningful and can be well articulated and substantiated.

## 3.10 CHAPTER SUMMARY

The chapter has outlined the philosophical framework of the research, placing it firmly in the epistemological and ontological stance of critical realism. The research design, as a four-phased approach is outlined, explaining how the data was collected and analysed. Associated ethical issues are then also discussed. The approach is underpinned by the importance of including critical stakeholders i.e. para-athletes, coaches and UKA para staff. The chapter identifies the need to discover the individual experiences and perceptions alongside a consideration of NGB support structures in place for para-athletes.

# CHAPTER 4 DETERMINANTS OF INTERNATIONAL PARA-ATHLETICS SUCCESS

## 4.1 INTRODUCTION

This chapter presents the factors determining international para-athletics success as identified by para-athletes, coaches and stakeholders responsible for delivering success. The chapter presents an analysis of the data that was collected using a four-phase (sequential) exploratory design, as described in chapter three: a qualitative phase followed by two quantitative phases, then a final qualitative phase. The qualitative data generated in phases one and four have been thematically analysed using template analysis. Pseudonyms are used in the extracts from transcripts to protect the identity of participants and those referred to. The quantitative data generated are statistically analysed and presented. The chapter explores some of the critical aspects of influence in determining international sporting success.

The chapter indicates significant areas of similarity with previous research conducted in non-disabled sport, recent research which has explored comparative parasport and previous work that explored resource-based perspective on countries' competitive advantage in elite athletics. The data presents findings that highlight the heterogeneous nature of para-athletics as well as emergent themes, previously unexplored as factors for further consideration. The chapter will draw comparisons with previous research determining success in international sport and present new areas for consideration.

The presentation of findings, from the data analysis, is based around the prevalent themes identified by analysis of both quantitative and qualitative data. As explained in chapter three, the *a priori* themes were the starting point, and emergent themes were added as they arose in the analysis. The a *priori* themes selected, namely the nine factors identified by SPLISS, underpin the globally reoccurring approach to the systematic production of international sporting success. The homogeneity in this approach is reflected in common characteristics observed in elite sport systems globally which support both para-athletes and non-disabled athletes.

## 4.2 FINANCE AND FUNDING

Financial support was identified by athletes and coaches as the most significant factor influencing success.

> *"I think it's the financial support, as far, far more, it's most important" (Parallel Success Coordinator)*
>
> *"Financial support…it makes a huge difference" (T34 Athlete)*
>
> *"British Athletics are actually on par with how they treat us to Olympic people" (F41 Athlete)*

The literature exploring factors determining international sporting success unanimously cites finance as the primary factor. In the athlete survey, 68% of respondents stated that the financial support they received was enough to pay for their costs as an elite athlete. De Bosscher et al. (2013) claims that the most accurate predictor of a nation's success appears to be the absolute amount of funding allocated to elite sport. As the competitive climate in parasport increases, with more nations participating, more prestige and greater recognition globally, there is a need for nations to commit increasing investment

to maintain competitiveness. To that end, there is an understanding within the literature, that the rules of the game are dictated by what rival nations are doing, not by what an individual nation is doing now compared with what it did in the past.

Shibli (2008) identified that prioritisation as an approach is consistent with other nations adopting a strategic approach to elite sport, particularly in the early stages of programme development so it is wise to remember that when compared to Olympic elite athletes, parasport is in the early stages. In 2005, the National Audit Office stated that UK Sport prioritised its funding on four categories of sport, namely those which can clearly demonstrate likely medal success in the current Olympic /Paralympic cycle; which have a track record of international success; in which there is an appropriate level of national governing body support for high-performance programmes; and in which the investment is considered to represent value for money (Shibli and Bingham, 2008, p. 284). The prioritisation of funding within parasport mirrors the approach of Olympic sport, with funding being allocated based on the likelihood of success.

UK Sport's 'value for money' category, implies the need to operate within the bounds of a resource constraint. Within this constraint, nations can be seen to be taking a prioritisation approach to elite sport development as an effective short-term strategy (Shibli and Bingham, 2008). This approach means British para-athletes are funded by their potential to achieve international sporting success. Shibli and Bingham (2008) acknowledge that there are diminishing returns to scale when investing in sports in which a nation is already dominant; Britain's previous success in para-athletics is notable and outweighs non-

disabled performance. They also claim that having a broader range of sports or events in which a nation has medal winning capability protects it from being over-reliant on a minority of sports to deliver a high volume of success.

### 4.2.1 TARGETED FUNDING

Para-athletics demonstrates good value for money, especially with increasing public interest in parasport. Targeting funds to a select 'few' organisations is an increasingly recognised principle of Government funding distributions for elite sport (De Bosscher et al., 2008; Green and Houlihan, 2005; Houlihan and Green, 2008; Oakley and Green, 2001). Para-athletics, with multiple medals available, demonstrates a prime candidate for targeted sport funding and is consequently a consistent recipient of financial support.

There are chiefly two reasons for targeting sports, both of which are tied to the essentials for public accountability. The first is that targeting is perceived to be financially prudent since it intuitively implies 'value for money' while countering the potential criticism of 'spreading resources too thinly' (Sam, 2012, p.207). In this sense, targeting provides a form of assurance (Aucoin and Heintzman, 2000) demonstrating that public funds are being used effectively, and with a return on investment (i.e. high international rankings and podium finishes). British Athletics Head Coach explains targeted funding and strategic allocation of resources based on return on investment:

> *"If you've got somebody who's number seventh in the world, but he's four seconds away from podium. Now, I will, cos I'm thinking long term investment, I would invest in the person who is twentieth because they're closer. That is a very hard thing for people to accept. Is that why I'm number seventh, you're not getting the funding, he's number twenty, why's he getting funded and it's like,*

*explaining, actually, yes, he's twentieth, but if you look, look where he is to the podium…" (Head Coach)*

The athlete survey asked participants if they received a monthly salary, as an elite athlete from British Athletics. Athletes in the sample ranked higher than 13th in the Para-Athletics World Rankings (formerly IPC Athletics) stated that they received a monthly salary from British Athletics. The proximity of a para-athlete to a podium finish influences whether (or not) they are selected for funding. Rather than a blanket 'all athletes ranked in the top 10 will be funded' and as outlined by the Head Coach, there is a strategic approach that is based on the percentage improvement required to achieve a podium finish. One participant reported that they were ranked 8th but did not receive a monthly salary. Respondents reporting rankings of 14th and 17th, and who also completed the survey, but stated they do receive a monthly salary, providing further evidence to support the strategy outlined by the head coach in the allocation of funding.

In preparation for the 2012 London Paralympic Games, British Para-Athletics was awarded £6,730,000 (UK Sport) and secured 29 Paralympic Medals (International Paralympic Committee), in Rio 2016 this figure rose to £10, 837 658 (UK Sport) and British Para-Athletics returned with 33 medals (Paralympics.org). At £232,068 per London 2012 Para-athletics medal and £328,413 per Rio Para-Athletics medal, para-athletics success provides relative 'value for money', when compared to the £4.19 million cost of Olympic medal at the 2012 London Olympic Games and £3.84 million at the 2016 Rio Olympic Games for able-bodied athletes.

Sam (2012, p., 207) claims that the second reason for targeted investment is that it is a means of holding organisations to account and is thus tied to the various permutations of performance management. To achieve this, targeted allocations are a valued form of organisational control, intended to recognise successful organisations but also highlight the 'underperformers' in need of reforms (Bevan and Hood, 2006). Though grossly oversimplified, the logic of targeting funds may thus be reduced to 'rewarding the winners and punishing the losers' by tying resource allocation being proportionate to performance (Moynihan, 2006). Contrary to the trend in performance-based funding allocation UK Sport recently announced additional funding for sports not achieving their performance targets to justify mainstream performance funding allocation. The £3m 'Aspirational fund' allows sports to bid for up to £500,000 to facilitate performance success in Tokyo (Ingle, 2018).

One of the critical discussions about elite sport competition is to what extent medals can be "bought". De Bosscher et al. (2015) illustrate that there is a strong positive relationship between the absolute amount of elite sport funding invested by nations and their success. In the recent SPLISS consortium findings:

> "The countries that invest most in elite sport (Korea, Japan, France, Australia and Canada, all with government/lottery funding over 100 million euros a year) are also the most successful nations in summer/winter sports. Nation by nation diagnostics shows that Australia, France, Japan and the Netherlands can be identified as the most efficient nations in summer sports given their investment in elite sport because they are located above the line of best fit. 'Funding determines success … but does not guarantee it!'" (De Bosscher et al., 2015., p. 16)

Furthermore, De Bosscher et al. (2015) acknowledge that with 'money in equals medals out' it does not follow that 'more money in equals more medals out'. For

most nations, more money was required to invest in the system, just to maintain a consistent level of success (De Bosscher et al., 2015). In an increasingly competitive parasport environment, there are diminishing returns to scale in terms of additional resources and the extra output achieved from them. The return on investment over time has decreased, with the cost of a Paralympic athletics medal increasing by 42% (£96,345), highlighting medals have become even more expensive.

The rationale for public investment into international sporting success is often the use of elite sporting success as a facilitator for increasing physical activity participation in the population. Weed, Coren, Fiore, Wellard, Chatziefstathiou, Mansfield and Dowse (2015) affirm that this claim is unsubstantiated on two counts: First, that there had been no evidence collected or collated that any previous Games (Olympic or Paralympic) had raised participation, acknowledging that the absence of evidence does not necessarily imply that participation has not been raised, but stating that there is a non-factual assumed research base. Second, no previous Games had previously employed strategies for raising sport participation. While the trend in conducting assessments or evaluations of sport events in general, and the Olympic and Paralympic Games in particular, was and continues to be to move beyond a straightforward focus on impacts to consider opportunities that can be 'leveraged' (Chalip, 2004; Chalip and Leyns, 2002), sport participation had not been leveraged explicitly by any previous Games.

Despite there having been no collection, collation and analysis of available evidence, the UK government and LOCOG still constructed a primary narrative for the legacy of the London 2012 Games that focused on delivering sport

participation outcomes (Coe, 2005; DCMS, 2008). As such, London 2012 became the first Olympic and Paralympic Games to explicitly and pro-actively set out to use the Games to deliver increases in sport participation levels (Weed, 2012), but did so based on a belief rooted in intuition and anecdote that critics argued was driven, at least in part, by the need to develop a political position that allowed positive outcomes to be claimed from the Games (Coalter, 2007; Weed, 2012, Weed et al. 2015).

### 4.2.2 EVENT INCLUSION AS A FUNDING FACTOR

The Paralympic Games and Para World Athletics Championships present a scheduling conundrum for event organisers, the consequences of which have not previously been explored. The inclusion or exclusion of an event has direct implications on individual athlete funding. The number of events across the different classifications exceeds the allocated timetable capacity; to that end, some events are omitted from the programme.

> *"The problem is there just aren't enough medals to make sure every event can be included and there isn't enough time in the timetable so every four years they chop and change how many events are included and I don't know…London I was a funded athlete and continued training until I found out that my event had been taken out of the Rio 2016 Paralympic Games and I would only have continued on the World Class Podium Plan if my event had been at the next Paralympic Games and as it wasn't I was then removed from funding" (F12 Athlete)*

As with able-bodied sport, while the benefit of being 'funded' is widely acknowledged, athletes must reach a certain standard before funding is allocated, that presents a particular challenge.

> *"I think that's fortunate because the thing is until you're doing well you don't get funded so before that we paid for everything and if you don't have that again it's quite hard to be successful*

*unless you start to get picked up and you only get picked up if you're successful" (T44 Athlete).*

*"You have to make it on your own before you get any funding, if you haven't got any money, its hard, you…you might not make it, like you might not be able to afford to make it. It could be that you aren't good or it could be not because you aren't good enough, but because you can't afford the things you need to get good enough. The equipment needed is really expensive…and erm… well you need it. You can't compete without it, or train, or anything. Some people get in debt just trying to get on funding. Some people, they might not get to being on funding because they haven't reached the standard. But its hard because you need to be so good to get funding, but you need funding to get good, you know" (F32 Athlete).*

As an athlete with high equipment needs the impact of not being funded is more significant for para-athletes. Put simply, the costs to even participate in the sport are higher. The prospect and reality of being an on/off funding athlete also presented individual challenges:

*"When I wasn't on funding we got into a lot of debt and we were funding ourselves having to live on credit cards just to survive every month because when you lose your funding you also lose your HiPAC membership, you lose your physio, you lose your massage, medical insurance, transport to competition, competition entry fees…erm…gym membership, psychology support so it's not even just the money that goes into your account that falls off it's everything around it…funding is a twelve month cycle you're always being lured into thinking that…within twelve months you'll be back in the plan so it's a temporary thing….and …and…errr…if you have to use credit cards obviously the credit cards were kicking in when my student loan was running out or when I was getting to the end of the three months before my student loan was coming in and we just didn't, you know, we didn't have any money to live on so you kind of think you'll just top it up with a credit card or you take out a loan just to get you through the next few months and you do everything you can to compete and you compete well and then you and you're not on funding again and it's another twelve months" (F12 Athlete).*

The financial strain of performing at an elite level is not unique to para-athletics, however, the Head Coach acknowledges the significant specific costs associated with para-athletics and the high equipment needs:

> *"the, the, the cost, errr, for, you know, for your, your amputee, you have to get a running leg which can cost up to four-thousand pounds…you know, wheelchair costs three to five thousand pounds. Erm, if you, erm, in one of the classes where you've got limited function, you may need a personal assistant, and so the cost associated by doing your sport, for some of the, some of the athletes and some of the classes, is really expensive…we can't buy any athlete. So, any athlete comes in. So, when we do our talent ID, if an amputee turns up, generally they are running in a day leg…When we see them is that we have to make some big assumptions and they, they look at their movement, we'll look at other characteristics" (Head Coach)*

The Head Coach also acknowledges the challenges relating to the allocation of funding:

> *"So, obviously for me, we are funded all by UK Sport. So, we have money and gotta spend it on athletes on the World Class programme and so we can't do anything below…For development, we've got England who, like, who money employs Sandra and her team, with Joel, Kelly and Karen…Erm… So, it's separate funds. So, that's Sport England money…So, eee, that's where your difficulty going is like, cos some of the, there's that grey area in between…So, you know, somebody's not quite on funding, but they look like they're going to bounce on, and we wanna do something with them, we have to then go back to Sarah and her budget to make sure" (Head Coach).*

Financial support is vital to the entire support system, while individual athletes receiving a monthly wage enables them to focus on training and competing, there is also a need for resources that are not directly allocated to specific athletes. To enter an athlete in the World or European Championships there are entry fees as with non-disabled sport

> *"It costs five-hundred pounds. So, that is our, that is always going to be a factor in how many British athletes we can select because we have to, you know, account for that thirty-thousand pounds that are gone before we've even selected the team. And, that goes up*

> *to maybe nine-hundred pounds when you talk about, erm, the World Championships…So, I've always been really honest and said, this is what we spent, this is what it costs us to take you guys to international classifications, cos we don't charge you, but there is, there's money…say two-thousand, but you've got twenty-five on podium, and then you've given each of their coaches fifteen-hundred, and then you've given them a podium athlete, erm, a podium athlete coach and, and athlete, five-thousand pounds, that's, so what, a lot of money" (Head Coach).*

When asked about the critical determinant of international sporting success, The Performance Director confirmed that the principal factor is financial support.

> *"I think, I think money, [pause] money gives you the opportunity to, to try and buy and access more things … to do a functioning, well, you know, a well-run and a high-quality programme. But, there was, like, nice little final touches. You know, if you think of, yeah, another fifty thousand where you'd…I'd probably look at, and now, I'm getting excited now cos I, I don't know why cos I haven't got it…Erm, I think I would always look at, cos the, the athletes would say, oh, give it to us. But, I would look at a service. So, at the moment we've got [tuts], erm, Jen Savage, brilliant sports psyche. Absolutely brilliant. Critical to our programme, but she's working across both programmes (Olympic and Para). (Head Coach)*

Patatas (2018) acknowledged that financial support is equivalent for Olympic and Paralympic programmes in the nations reviewed, there is however disproportionate funding at the broader end of the performance pyramid, with grassroots level disability sport lacking financial support, especially about the extra cost involved in parasport. While elite para-athletes receive similar public funding as elite non-disabled athletes the lack of funding for grassroots parasport creates a discrepancy. The interview participants cited that involvement in para-athletics often requires expensive equipment and additional costs are incurred to support athletes in certain classification groups, with specific needs, this is particularly pertinent for athletes with high support needs. To that end, charities were cited as a significant factor in determining athlete

development and consequent success. The survey sought to clarify the role of charities in the development of athletes included in the sample.

### 4.2.3 THE ROLE OF CHARITY

Within the theme of 'Finance and Funding,' an emergent theme was the theme of 'Charity'. Misener and Darcy (2014), reflected on the many challenges and barriers specific to the Paralympic domain including lack of funding, coaching provision, accessibility, and training and competition opportunities. The role of charities as a significant factor in contributing to international sporting success has not previously been identified by research attempting to define factors attributing to international sporting success. Multiple participants cited charity support as significant in their development and progression. The two key areas of support were identified as financial support in the awarding of grants and significantly as the principal provider of essential equipment. As shown in table 4.1, Sixty six percent of athletes stated that they either 'strongly agreed' or 'agreed' with the statement 'The support of a charity has been essential in my athletics career'. Further to this, 40% of athlete participants stated that they wouldn't have reached the level they are at, without the support of a charity, with 55% stating that they would be unable to participate in the event at all, without the support of a charity (or charities), conversely 46% stated that they hadn't needed the support of charities. When asked if the role charities play in supporting athletes is acknowledged within sport 55% of athletes surveyed felt it was, charity contribution is however omitted from the literature as a factor determining success, it may, however, be an underlying theme yet to be explored within the themes of financial support and specialist equipment needs.

**TABLE 4. 1 ATHLETE PERCEPTION OF ROLE OF CHARITY**

| | Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| The support of a charity has been essential in my athletics career | 28% | 38% | 15% | 10% | 8% |
| Without the support of a charity I would have still reached the level I am at | 8% | 33% | 15% | 30% | 10% |
| Without the support of a charity I would not be able to participate in my event | 10% | 23% | 13% | 45% | 10% |
| The role of charities in developing athletes is acknowledged in the sport | 8% | 47% | 15% | 27% | 3% |
| I am aware of charities that support athletes but haven't found them necessary for me | 18% | 28% | 23% | 30% | 3% |

## 4.2.4 CHARITY SUPPORT

The survey results cited key charities that supported the athlete's development. Within the athlete interviews further context was provided:

> *"I've been really fortunate to have support from a charity called READY and also a charity called Variety Club that have been helping me get my racing chairs and also I've had support from the Rotary Clubs locally and they've been really, really supportive…financially,. They help, as well" (T34 athlete).*

> *"There is, is no pot of money. There's some charities if you, if you're young, there's some charities, like 'Get Kids Going', or which kids, erm , Caudwell's children. So, if you, if you, if you're like a teenager or younger you, there's charities you can apply for financial help, but, essentially, it's a case of, erm, fund raising" (Wheelchair Racing coach).*

Get Kids Going! provides funding for British disabled youngsters to compete in sporting events. Provision begins at grassroots level and continues to international level. Get Kids Going! provide grants to help with; training, physiotherapy, travel, competition fees, design and development of sports' equipment. The cost of a bespoke racing wheelchair is about £4,000 and a lightweight manual wheelchair around £3,000. Sports grants can be anything from £500 to £15,000 per year for each youngster. The participants reflected on the support received in their early careers.

Charities are cited as providing essential equipment to enable participation in para-athletics. One participant cited that due to their income from full-time work, they were ineligible for financial support from British Athletics, but acknowledged that it is considered the norm for athletes to gain assistance from charities to cover the high equipment costs:

*"I'm in a different position to most athletes in that I work full time and I bought my chair, I didn't need to get charity funding for that, I bought my throwing frame and my local club has been good as well in terms of, my local athletics club in terms of providing me time and the facilities and putting the tie downs in so I can actually practise there" (F55 Athlete).*

The Head Coach acknowledged the element of 'fundraising' and reliance on the support of charities.

*"We'll look at the physical physical, physicality of them. And then, they have, they really go out and either do some fund-raising. Or, go to their own NHS, erm, and see if… they can, err, from their local authority, get some support. Now, most people have been able to do that. So, I don't think there's an, we've lost anybody because they couldn't get a running leg. So, I think, once we show an interest from British Athletics, that's always a big of a, right, oh...Somebody's identified me. Erm, so they've been able to get into pockets of, erm, funding. Erm, there's a charity, I think it's called kids, what's it, Kids Go Running or something, and they do, do grants. Erm, generally for wheelchair racers" (Head Coach).*

Athletes in the sample were grouped according to classification and event group; throws, jumps, sprints from 100m to 400m and distance, 800m to marathon). Table 4.2 presents the results of the ANOVA considering variance between event groups demonstrates that there is a significant difference between event groups and how athletes reported their involvement and reliance on charities. The analysis of these questions enables us to distinguish whether para-athletes perceive the impact of charity a significant success factor. A further ANOVA to analyse the difference between classification groups found no significant difference between different impairment classification groups.

TABLE 4. 2 CHARITY IMPACT VARIANCE BETWEEN EVENT GROUPS.

| | Variance significance between event groups | Variance significance between classification groups |
|---|---|---|
| **The support of a charity has been essential in my athletics career** | 0.235 | 0.056 |
| **Without the support of a charity I would have still reached the level I am at** | 0.001 | 0.165 |
| **Without the support of a charity I would not be able to participate in my event** | 0.075 | 0.848 |
| **The role of charities in developing athletes is acknowledged in the sport** | 0.609 | 0.422 |
| **I am aware of charities that support athletes but haven't found them necessary for me** | 0.303 | 0.109 |

**Significance factor of less than 0.05 is considered as significant variation.*

# 4.3 TALENT MANAGEMENT

The coach survey asked if talented athletes received enough support. 77% of respondents stated that the support received was insufficient, with 22% responding that talented athletes receive enough support. Talent identification is the process of recognising current participants with the potential to excel in a sport, and talent development is the provision of the most appropriate learning environment to realise this potential. (Russel, 1989; Williams and Reilly, 2000).

The coaches surveyed stated that young, talented athletes can access lifestyle support, technical support in the form of filming and biomechanics analysis and soft tissue and physiotherapy medical support . Coaches also reported that the support was not available nationally and two respondents stated that while the athletes could access the services listed, they felt the athletes were ‘not ready’

for these services but would be 'more relevant as their standard progress'. When asked which services young talented athletes could access, the coaches surveyed reported access to the services as detailed in Table 4.3.

**TABLE 4. 3 SUPPORT SERVICES AVAILABLE TO YOUNG TALENTED ATHLETES AS REPORTED BY COACHES.**

| Provision/Support Available | Percentage of coaches stating this support/provision is available |
|---|---|
| Strength and Conditioning | 83% |
| Sport Psychology | 80% |
| Training Programmes | 77% |
| Nutrition | 77% |
| Elite Training Facilities | 71% |
| Anti-Doping Advice | 66% |
| Frequent and Intensive Training | 54% |
| Clothing (Kit) | 49% |
| Financial | 48% |
| Transport | 37% |

In many organisations and elite teams, science-based support systems such as psychological counselling, physical conditioning and computer-based match analysis are now fundamental to the preparation of elite athletes. However, due to the lack of scientific grounding for most talent programmes, many scholars have suggested that research efforts should be transferred from talent identification and detection to talent development and guidance (Bartmus, Neumann, de Marées, 1987 and Durand-Bush, Salmela, 2001). Yet, despite the change in research focus, many national governing bodies and club teams, particularly in the professional sports, including British Para-Athletics continue to invest considerable resources to identify exceptionally gifted youngsters at an early age in order to accelerate the development process. The findings of this

study indicate that for British Athletics, to focus on individuals at an early age may be misguided for para-athletics, as demonstrated by Participant 8, who acquired their disability in their late thirties and began participating in seated throws, aged 41.

> *'…with the benefit of hindsight I had seen stuff around athletics talent days but I think a lot of the adverts, I think at one point I remember saying something that said "if you're aged between 14 and 25" and I'm 41 and to be fair I don't look like a traditional thrower so I don't think I would ever have come through the traditional route but I hadn't even seen it, I didn't even know it existed and I'm pretty sure there's loads of other people in the same position' (F55 Athlete).*

Few attempts have been made to identify the pathways and stakeholders' roles, as well as quality indicators in the athlete-development system, for non-disabled athletes. One approach has been to describe the athlete's pathway, with an example being the long-term athlete-development (LTAD) model (Balyi, 1999). This model depicts a six-phase progression across age and stages of athlete development. Namely, FUNdamentals, learn to train, train to compete, train to win, and the transition phase, active for life. The FUNdamentals stage is typically from ages 6 to 9, with the competitive train-to-compete phase introduced in later adolescence, typically ages 15 to 16 and up. The fundamentals approach is reported to have problems in application for para-athletes.

> *'Fundamental skills, yeah, brilliant for mainstream kids. But, it's completely different for para. There's some fundamental stuff that you can do, but they're more specific and they want, they know what they wanna do. They know what events they want to do' (Parallel Success Coordinator).*

Sport participation experiences of the athletes interviewed were varied and depended on several variables. Athletes with congenital impairments and athletes with impairments acquired before school age who also had low care needs reported participation in non-disabled sport, typically through mainstream schooling and sport clubs.

> *'I was in the school rugby team and football team and did triathlons at the time so quite sporty. I think up until that point when people said I should pursue athletics I was pretty much good at everything, well not good at everything, but tried everything, did everything and had no specific interest in one sport' (F44 Athlete).*

> *'When I was growing up, I was football mad - wanted to play football and loved playing on my bike and all sport really... the suggestion to try athletics was at school, yes it was at school, my PE teacher, he suggested I went to a Paralympic sports talent day…'(F41 Athlete).*

Parasport events were introduced to the participant that had attended specialist schooling and has high care needs.

> *'They introduced club throwing as one of the events they do in PE lessons' (F32 Athlete).*

The introduction to parasport enabled participants to compete 'on a level playing field', three athletes stated that they loved sport, and before being introduced to parasport, they would play alongside non-disabled peers:

> *'Because I have dwarfism it's hard to specialise in a particular sport so I've always played football with my mates but I was never going to get anywhere in that so I'd say I specialised from twelve years old and concentrated, I wanted to go to the Paralympics when I was twelve years old…you always think "I'm rubbish" and that but I think they (parents) took me to Dwarf sports when I was five and they inspired me as well to think "wow*

*I can compete on an even playing field" and it's just grown and grown from there' (T41 Athlete).*

*'I did able bodied first and saw the qualification distance was well within my reach, but never pursued it until someone said one of our friends knew a friend who was in the Paralympics, come along to an analysis day they're having at Stoke Mandeville and then that's when they said I was eligible, this is the criteria what we have to get you classified as, attend national competitions and that's how it began, all from that friend of ours saying I should go to Stoke Mandeville' (F44 Athlete).*

The participants in this study all experienced rapid progression to elite levels, when compared to the development age of able-bodied athletes. The survey data demonstrated that 47.5% of respondents in the athlete survey stated that they specialised in their current event over the age of 18. There was however no correlation between age first participating in para-athletics and international success as determined by highest IPC ranking or age of event specialisation and international success. Para-athletes and coaches interviewed frequently reported rapid progression to international competitive success and participation in major championships:

*'I started as an under 13s, I did two years as an under 15 and it was the second year as an under 15 that I started competing internationally as a disabled athlete so I'd done a couple of years as a club thrower and I happened to be competing for a small club so because they were under 15 competitions and I was winning the discus the points that I was gaining for the club meant that we could move from division two to division one so I was able to compete every weekend. I became of World rankings and British rankings and within a couple of months I qualified for the IBSA World Championships which is the International Blind Sport Association and I was selected to compete at the World Championships in Canada so that's the first competition I did and that's where it really took off….within a few years' (F12 Athlete)*

*'My first international race was at the Paralympic World Cup in Manchester in May 2012. I then set a new 100 metres world record in amputee sprinting at the United States Paralympic track and field trials, I ran 10.85, I had my first international, in the same year as I won the Paralympics, yeh – was really quick, my life changed*

*completely. It all happened really quickly, I was 18 when it was the Paralympics in London' (T44 Athlete).*

*'I went to the World Championships this year really without much of a clue what I'm doing and I'm still in the technique development stage' (F55 Athlete).*

*'it's not unusual for us to find, identify a fourteen-year-old and she's winning global medals at fifteen (Sprints Coach).*

Talent transfer is demonstrated by Participant 8, achieving elite status in three different sports, after acquiring their disability at the age of 37. Talent transfer is a recently formalised process used to identify and develop talented athletes by selecting individuals who have already succeeded in one sport and transferring them to another (Collins, Collins, MacNamara, and Jones, 2014).

*'I competed in London doing sitting volleyball, so I had an accident in 2008, went to the BPA talent ID day in 2010 had a go at lots of sports. I remember athletics, but I definitely wasn't any seated throws that I remember seeing there it was like a running thing and I thought that's not going to work. I had a go at sitting volley ball, really enjoyed that so that's what I took up and competed in that in London and then after London sitting volleyball wasn't really going to progress beyond London and I was looking for something different so I spent some time working out what sport I could do and again I'd never heard of seated throw and went to pistol shooting, did that for a while and got to the World Championships but didn't really enjoy it and did that whole thing about do I do this because I want to go to Rio or … you know not really. So I left that, spent about three months not knowing what I was going to do and then a friend of mine who is an able bodied thrower said "why don't you have a go at throwing " and I said because I can't spin in a circle for one and they said "no there's this thing called throws… (F55 Athlete).*

This participants' previous experiences of competing at an elite level equipped them with the skills to make realistic performance evaluations and thus maximize learning, a certain amount of physiological and/or motor control overlap would benefit the transfer process. MacNamara and Collins (2015) stress that, although further evidence is needed, mechanisms behind talent

transfer and the factors responsible for causing success are multiplicative, rather than the simpler, uni-dimensional approaches that seem to be currently employed. Talent Transfer initiatives offer a unique pathway for athletes to continue participation in sport at the highest level and, by doing so, potentially increases a nation's capacity for success at major sporting championships. Undeniably, there are some examples of successful talent transfers athletes competing successfully at the highest level, albeit there are equal or even greater numbers of 'success stories' apparent from informal, as with Participant 8, rather than expensive, structured, formal Talent Transfer programmes (Collins et al., 2014).

The coach survey identified several issues in para-athletics talent management. The critical barriers identified were facilities in terms of access and standard; equipment access and cost; competition opportunities; the age of focus, impairment from birth/acquired; dependency and support.

### 4.3.1 FACILITES AS A BARIERS TO DEVELOPMENT

Within the coach survey, respondents frequently cited access to quality training facilities as a challenge in the development of talented athletes. Table 4.4 presents the issues and concerns raised. These were grouped around standard, locality and availability of indoor facilities; facilities suitable for throwing and; disability accessibility.

**TABLE 4. 4 FACILITIES FOR TALENT DEVELOPMENT**

| **Standard of facilities, locality and Indoor** |
|---|
| *'All areas need to be developed further in our geographical region'*<br>*'Local indoor facilities'*<br>*'Athletics facilities - like a local track of adequate standard'.*<br>*'Facilities we can use, nearby'*<br>*'I have tried local leisure centres, but nobody will help'.* |
| **Throws Specific** |
| *'Use of throwing facilities all the year round'.*<br>*'I have six seated throwers and nowhere to train indoors'.*<br>*'I have tried the only throws centre in NI - they refused, saying adapting throws area for disabled athletes would be a trip hazard'.* |
| **Disability Access** |
| *'They are not interested in helping disabled athletes. Some seem to think that all they need to do is widen the doorways and have a disability toilet. There is no help or assistance for those athletes to participate fully in sports programmes and leisure centre activities'.* |

## 4.3.2 COACHING TALENTED YOUNG ATHLETES

In addition to raising concerns regarding the quality and accessibility of facilities available to talented young para-athletes, Table 4.5 presents the responses given by coaches when asked about the barriers preventing progression that cluster around the theme of coaching. The main concerns focus around a lack of coaches, a lack of specific para coaching and development opportunities, financial support for coaches and improved integration of sport science support.

**TABLE 4. 5 COACHING TALENTED ATHLETES**

| |
|---|
| *'There is a shortage of coaches at all levels'.* |
| *'More coaches needed'* |
| *'There is a significant lack of coaches'* |
| *'Coach development, specific for para events'* |
| *'We need to ensure that upcoming athletes are taken notice of and their coaches assisted with the options that are available rather than the athletes being encouraged by the system to leave their coach to go to 'a better coach'.* |
| *'Coaching support from the governing bodies. This does not mean them having to pay exorbitant amounts of money to get their ongoing coaching qualifications'.* |
| *'Coaching development opportunities specifically for para coaching'* |
| *'Better integration of Science and technology into training programmes, to help guide coaches and athletes on what is available to them, and best practice for developing athletes'.* |

In further support of the coach survey data, which states that geographic location has a direct impact on the access to facilities, access to appropriate coaching expertise can prove to be a postcode lottery too.

> *'So, somebody comes in and they've got a neurological problem, say CP [Cerebral Palsy] or MS [Multiple sclerosis]...With a CP athlete, they've got the model of what is a good sprinter, but they just have to make accommodations for what they see in front of them. So, it's no different and the same for ambulant throws, you look at the, the model, or you look at the person, you've just got to try and optimise them as much as you can. A lot of the athletes can fit into the mainstream club, but we still, we still probably get more questions from the clubs saying what do we do Someone's turned up with a disability' (Parallel Success Coordinator and Coach).*

> *'Yeah. So, erm, if they're first starting and they're grassroots then they just have the same access as the mainstream athletes. It's just a club and coach and that's it. When they get to talent, err, when they get to event academy and talent development, the event academy they get access to sport psych, and they get access to our coaches, erm, with SandC, but then we only have three days out of the year throughout the winter' (Wheelchair racing coach).*

The Parallel Success Coordinator at British Athletics acknowledges the challenge of funding and resources available for talent development.

> *'I'll tell ya, we've got a couple of kids who are just bubbling under, who are on the talent ID programme, and they could certainly do with more resources to crack on. But, in the, for the time being we've having to do things like, you know, assist them with fund raising and bits and pieces and I suppose that's where everybody starts out. You know'(Parallel Success Coordinator)*

## 4.4 SUPPORT SERVICES

It is acknowledged within the literature and by practitioners that in supporting sporting excellence of para-athletes, sport scientists face multiple challenges. The most critical include: the development of an evidence-based sport-specific classification system, which dominates para-sport science research; understanding the causal mechanisms of specific para-sport injuries; implementation of a comprehensive sport counselling system, a person-centred support system; understanding disability-specific responses to exercise and their effect on training strategies, and understanding the effect of "boosting" and the consequent implementation of an antidoping education programme (Vanlandewijck, 2006).

The athlete's interviews discussed the support services that they accessed and found beneficial. Two athletes cited accessing support services; both are ambulant athletes with low care needs and high equipment needs.

> *"We get a wage and support for training and that, buying equipment, all sorts of stuff and then we get physio, massage and nutritional advice, psychological advice with that so it's a complete package so it's really enabling me to perform for the country but also to minimise risk of injury, so if I'm training full time there's the lack of injury, so it means we can go pain free or give us the extra confidence compared to our competitors"(T44 Athlete)*

> *"A few of the options open to us are there are high speed and high resolution camera video recording so I think it's 500 frames per minute it's really high res slow-mo so we can actually dissect the technique and look at other options which is really good for technical and then to complement that we do a lot of testing in the SandC weight room so we use Biotech I think it's called so it measures force velocity generated from the ground, resistant velocity and time travelled velocity so it means that with my nutritionist she can measure my body fat and the SandC guys will link in to see what my muscle to fat ratio is like in sessions so it's all very geared around everything to lose a little bit of weight to make me faster but to maintain strength and speed and looking at the video analysis to see where we need to be stronger in certain positions" (F44 Athlete)*

Within this study athletes were asked to rate the services which they had accessed in the past 12 months, and responses are presented in Table 4.6. The services accessed by the highest percentage of athletes were Sport Massage (84%), Physiotherapy (83%), National Performance Centres (78%) and Nutrition Advice (73%). The services accessed least were Biomechanics (35%), Financial Guidance (25%), and Post Career Support (20%) and least accessed was Legal Advice (15%). Athletes within the survey sample ranked support services they had accessed within the past 12 months, using a Likert Scale. Performance lifestyle was rated 'high' by sprinters but 'low' by distance athletes. Post-athletic career services also demonstrated variance with throwers rating the service as 'high'; distance athletes rating it as 'very low'.

It is evident from data in Table 4.6 that there is variation in the rating of services by the different event groups. Sport psychology again demonstrates throwers as an 'outlier group' with all event groups rating the service highly and throwers giving it a low score. Legal advice is consistently rated low. However, the sample size of athletes accessing this service is very low (n.6). Statistically, using an ANOVA, the areas where significant variations were found are physiotherapy and sport psychology. This finding indicates that there are

different support service requirements within different para-athletics event groups.

**TABLE 4. 6 SUPPORT SERVICE RATING BY EVENT GROUP.**

| Service | Mean Service Rating | Percentage of athletes accessing service in the past 12 months | Variation of mean significance factor (ANOVA) |
|---|---|---|---|
| **Performance Lifestyle Support** | reasonable | 48% | 0.167 |
| **Post-Athletic Career Support** | reasonable | 25% | 0.949 |
| **Legal Advice** | Low | 15% | 0.300 |
| **Financial Advice** | High | 20% | 0.401 |
| **National Performance Centres** | High | 78% | 0.222 |
| **Overseas Training Camp** | very high | 55% | 0.123 |
| **Biomechanics** | reasonable | 35% | 0.828 |
| **Performance Analysis** | reasonable | 45% | 0.769 |
| **Nutrition** | High | 73% | 0.313 |
| **Physiotherapy** | very high | 83% | 0.028 |
| **Sport Massage** | High | 84% | 0.178 |
| **Sport Psychology** | High | 60% | 0.032 |

**Significance factor of less than 0.05 is considered as significant variation.*

Within the interviews data generated demonstrates specific equipment and physiotherapy needs for a seated F55 thrower.

> *"The frame design and avoiding injury are key, because the way an athlete throws for instance, an athlete I coach has dislocated her shoulder throwing backwards, you can get a lot of injuries throwing backwards so fortunately I know a coach who was a thrower, and she had shoulder injuries, so she was very aware of what could happen so we do lots of prep work" (F55 Athlete).*

Regarding post-athletic career support, which only 25% of athletes reported to have accessed and had a mean score of 'reasonable', the lack of engagement in this service is acknowledged in the interview data.

> *"There was always a hint "you do need to prepare yourselves for life after sport" but nothing specific and certainly nothing… there was always somebody at the training camp or at the squad weekend, a lifestyle manager who would have been prepared to sit down with you if you'd wanted it or there would always be a five minute talk about "sport will come to an end one day and you do need to make sure you've got something lined up" but it was never followed through so I never actually had any support, nobody actually sat down with me and said "right have you got a plan for the future " but at the time I suppose I was quite independent, I was quite headstrong, I wasn't funded for a lot of the time leading up to London so maybe I missed some support that could have been there, maybe I just missed it because I wasn't on the funding plan at the time but as well I was doing my degree and already had a family, so maybe they took the view that I'd already sorted myself out" (F12 Athlete).*

National Performance Centres, while rated highly, presented a challenge for para-athletes not living nearby. Athletes living further from the Centres stating that they would like to access the facilities and services more, but access was challenging due to transport needs.

The specific challenges experienced by para-athletes are demonstrated by the para-athletes interviewed:

> *"I don't think I've got a lot of support in that sense really, I'm sure it's there for me it's more at the moment it's quite tough to get access to those things because of how busy things are really. It would be really nice to hopefully get more support locally, so hopefully I'll be able to do some more things with companies, try and get everybody on board especially because it's Paralympic year, get local people on board and try and get that support you need privately, it's hard for me to get to Loughborough and Lee Valley… I think it's really important to have the rest and have things there to help us to recover well, I know people are talking about covers on the windows and things so you can have better sleep and*

*things like having access to swimming pools, physio's for stretching and things like that just to make sure that we're at our best when we're racing" (T34 Athlete).*

*"British Athletics are actually on par with how the treat us to Olympic people, but in some ways, well we're all athletes, but we are different..." (F41 Athlete)*

*"I use a local public gym, I wanna stay home…Massage, physiotherapy, I have that, performance, lifestyle, media, I've had that in the past but about two years ago actually but not much…Athletic Camp we did media training and lifestyle sports and it's just like saying if you want to go to university they encourage you to and if you're good enough to go to the media, to be fair they are very good at stuff like that but I don't know how much people listen when they're there because they just want to throw and stuff"(T34 Athlete).*

It is also acknowledged that for some para-athletes, high support and care needs outweigh their specific elite sport needs.

*"In terms of lottery funding and the EIS support you get obviously some athletes in different classifications might say I need a lot of support, physio, full time strength and conditioning coach, we would prefer that more personal assistant level support than perhaps a sports physio every day"(Coach and Carer)*

For other participants the challenge is the specific nature of athlete impairments and that scientific research is clustered around event classifications with high equipment needs.

*"You ask British Athletics about the biomechanics of throwing if you're not able bodied and there isn't any. So everyone throws differently, everyone's got a different condition and there isn't enough research and yet they say the bulk of the medals will come from CP athletes, so you go where's the research? What should we be doing? Tell us how we should work…you're designing it as you go, it's a guessing game" (Throws Coach)*

The variance within British Para-Athletics is significant. One participant, with high care needs, cited that their care needs as a disabled person was where they felt they needed the most support and the coach working with athletes with similar impairments echoes this sentiment. Conversely, another participant is immersed in a professional, elite habitus, dominated by non-disabled athletes.

> *"When I'm in the UK I use the medical and psych and stuff too…Dan coordinates it all, him and the assistant coaches I work with the set up is spot on, I train and work with the best coaches and support in the world, everything we do is evidence and science based…obviously a lot of that comes from sprinting for ABs and we just adapt it a bit, Dan has coached both Olympic and Paralympic champions, the only coach to have done that, in any event, he's awesome really…Whether I'm at Altis (Arizona), or when I train at Loughborough University, we've got a high performance facility which has got everything from the weight room indoor track, and then obviously a 400 metre outdoor track, it's also got facilities for physio, doctors, diagnosis room, a kitchen for nutrition and offices and everything places you can chill out, so it's got everything under one roof"(T44 Athlete).*

Table 4.7 presents coaches responding to the survey. Notably they rated the GB para culture highly, with 60% of respondents stating that the culture at GB Para-Athletics is 'fairly high' or 'Very high'. Other notable findings include 57% of coaches stating that Para-Athletics participation opportunities that is recreational athletics for disabled people are low, with only 9% stating that opportunities are above reasonable. Support services holistically are given mixed reviews. An area which is explored further in the next section is Applied Scientific and Technology Developments, which 69% of coaches rated as low, with 42% of coaches stating that developments are 'very low'.

**TABLE 4. 7 COACH RATING OF SPORT POLICY FACTORS**

| | Financial Support | Organisation and Administration | Para-athletics Participation Opportunities (Recreational Athletics for disabled people) | Talent ID and Talent Development | Support Services | Facilities | Coaching Framework | National and International Competition Structure | Applied Scientific and Technology Developments | GB Para-Athletics Culture |
|---|---|---|---|---|---|---|---|---|---|---|
| Very High | 6% | 9% | 0 | 9% | 12% | 6% | 0 | 2% | 0 | 15% |
| Fairly High | 23% | 37% | 9% | 49% | 37% | 23% | 6% | 32% | 11% | 45% |
| Reasonable | 31% | 29% | 31% | 23% | 12% | 40% | 30% | 38% | 15% | 17% |
| Fairly Low | 17% | 11% | 34% | 6% | 26% | 12% | 35% | 17% | 27% | 15% |
| Very Low | 23% | 11% | 23% | 11% | 12% | 14% | 30% | 12% | 42% | 8% |

## 4.5 COACHING

Athletes reported that coaching in British para-athletics was of a high standard. 92% of athletes surveyed rated their coach's expertise as very high or fairly high. For knowledge and expertise at the highest international level, adaptability to needs and interpersonal skills, 95% of athletes rated their coaches as 'very high' or 'fairly high' on all three measures. 100% of athletes rated their coaches technical skills as 'very high' (70%), or 'fairly high' (30%).

When the coaches themselves were asked to review their development opportunities, the results present areas of concern for UK para-athletics, as the coaches survey and interview data stated that the support, coach education and development opportunities available to them were less than satisfactory. Coaching qualifications were rated 'reasonable' by most respondents, coach development opportunities were rated as 'fairly low', and both the accessibility of mentoring and availability of sport science support were rated as 'very low' by 49% and 43% of respondents respectively.

The significant findings from the coaches rating of their development opportunities indicate that while the athletes are satisfied with their coaches' ability, knowledge and expertise, there is a call for the improvement of all areas measured, by the coaches themselves. 75% of coaches reported that specialist mentoring was inaccessible and 66% of coaches rated the availability of sport science support as 'Fairly Low' (23%) or 'Very Low' (43%).

**TABLE 4. 8 COACH RATING OF DEVELOPMENT OPPORTUNITIES.**

| | Quality of Coaching Qualifications | Coach Development Opportunities | Accessibility of specialist mentoring | The availability of Sport Science Support |
|---|---|---|---|---|
| Very High | 20% | 26% | 3% | 3% |
| Fairly High | 9% | 11% | 6% | 17% |
| Reasonable | 52% | 23% | 17% | 11% |
| Fairly Low | 20% | 40% | 26% | 23% |
| Very Low | | | 49% | 43% |

These findings are further evidenced within the coach interviews:

*'I try to learn more, learn more about the event, pick little snippets up but then you've got to be really able to understand it so you can apply it. It is difficult when you've got someone in your own classification who wants to come through, it's competition but there should be but there isn't that forum to go "I'm having this problem and if you've been through that" for him to go "I have and the way we go around it is doing this, don't listen to the normal biomechanics of that". You don't really get that, you have to learn. I look on the web for lots of different bits of information and then you have to try and simulate yourself so not really, I'm not really supported' (Sprints Coach)*

*'There isn't enough research with certainly Amy's level of CP , I think when you get to the mild sprinters, then pretty much able bodied science and biomechanics works, when you get to Amy's level, for instance we've just gone through a winter training, where it's been a bit more specific, we'll have more strength and conditioning coaching specific input, so we've changed things a bit and went through a phase where although we're building strength we looked for some power and speed stuff through fast repetitions on heavy low rep weights, she's done the opposite, she'll do the slower' (Seated Throws Coach).*

Athletics is an individual sport, however, at major championships athletes represent GB and NI as a team and coaching representation at major championships can involve not having access to an athlete's personal coach at a vital time.

> *'I think you've been pretty lucky if your personal coach has been involved, you'd find out a couple of months previous to a major championships who the coaching staff were, the national event coach was always present and that was my coach for the first two or three years of my career, … but then if your coach wasn't the national event coach or if things changed then you would have to then… you'd go from having your own personal coach to a couple of weeks then of training with somebody else, somebody who maybe you're not as familiar with or somebody that has different opinions as far as training and your preparation which was always difficult because it's at that time that you really need your personal coach more than ever just leading into a major event you'd want that person there but he didn't attend' (F12 Athlete).*

Participants 1, 2, 3 and 5 are all throwers and give varying accounts of their priorities from a coach. Participant 2, a visually impaired athlete, stated that the event knowledge was far more 'important than an understanding of the disability'.

> *'Technique, event knowledge, disability awareness and the individual…a combination but I think a coach's understanding of the event is far more important than their understanding of the disability because I believe that just based on the coaches I've worked with over the years or the coaches that I'm aware of and other people's coaches, you can have somebody who's an expert in that disability but to get them then to performance and elite level it's not…not about the impairment'(F12 Athlete).*

Additionally, participant 3 prioritised Olympic coaching success, as an indicator of a coach's knowledge.

> "*For me it's trying to get close enough that it's worked in the past, seeing past Olympic champions and what sort of model my coach works to, which is very similar to what the big throwers use but then adapting it to my style of throwing. Because I turn out my heel instead of my toe, it just means we have to alter it a little bit, so biomechanically the position at the entry from the back of the circle into the middle is slightly*

*different. My coach focuses on adapting to a similar technique, on using a similar technique to the way he would normally coach" (F44 Athlete)*

Within events that are competed in at both elite non-disabled and para-athletics competitions, the data suggests that participants valued coach's knowledge and expertise from a technical capacity, irrespective of para-specific knowledge and experience. Typically, these athletes are those with low care needs and able to emulate the technique of non-disabled elite performers. In events that are specific to para-athletics, typically seated events, and where athletes may have high care needs, it is stated that understanding of their impairment and management of this is integral.

*"I need my coach to know me, to understand me. Sometimes I hurt too much to train… I still want to train. My dad coaches me and helps care for me. I need my coach to know about throwing but know about me too". (F32 Athlete)*

Wheelchair racing is unique to parasport, and therefore expertise resides within wheelchair events. The data suggests that there are transferable elements from other endurance events and that event knowledge would refer to wheelchair events and not non-disabled coaching experience.

*"My knowledge comes from understanding of endurance events generally, so that can be wheelchair racing. But also cycling, I get a lot of knowledge and transfer from studying how cyclists train. We're more like them in some ways – we just ended up in athletics" (Wheelchair racing coach).*

Participant 1 and Participant 5 stated that they see knowledge and experience of para-athletics as a success factor:

*'you've got to understand the condition then how to design a frame and avoid injury, that's the most important'(Seated Throws Coach)*

*'I've been lucky as well to always go into people who've coached people with a disability, and I think that does help' (F41 Athlete)*

# 4.6 COMPETITION STRUCTURE

It is acknowledged within the elite sport development literature (Joyner, 1993; Sparling, O'Donnell and Snow, 1998, Green and Houlihan, 2005; De Bosscher et al. 2009; 2015, Sotiriadou, and Shilbury, 2009) that national and international competition structure and opportunities are key success factors in determining international sporting success. This study finds that competition opportunities are not consistent across all events and classifications. Athletes within some classifications compete alongside able-bodied athletes, these athletes are those where; (i) the event exists in the able-bodied athletics timetable; (ii) athletes can compete with no impact on competitors e.g. para-athlete throwing a lighter implement; (iii) facilities to support their needs are available e.g. a visually impaired athlete running with a guide requires two lanes, without impacting other competitors. Integrated competitions become more challenging where the events do not exist in the able-bodied timetable, principally seated events.

Table 4.9 shows the competitive environment. When reviewing the competitive environment, both athletes and coaches rated competition opportunities in the UK highly, with most athletes stating the UK competition frequency as 'fairly high', coaches rated the frequency of competitions in the UK as 'very high'. International competition opportunities were rated 'fairly high' (28%) and 'reasonable' (26%) by athletes, whereas coaches rated international competition frequency overwhelmingly as 'reasonable' (40%). International Classification Specific Competition Frequency was rated 'fairly low' by coaches and athletes rated this type of competition 'fairly high'. An ANOVA found no

significant difference between athletes grouped by event group and classification. However, the ANOVA of the coach survey data found that there was significant variation between event group coached and rating of 'International Competition in the UK' and 'Classification Specific International Competition'.

**TABLE 4. 9 COMPETITION ENVIRONMENT RATING BY ATHLETES AND COACHES.**

| | National Level Competition Frequency | | International Competition Frequency | | International Classification Specific Competition Frequency | | International Competitions in the UK | |
|---|---|---|---|---|---|---|---|---|
| | Athlete | Coach | Athlete | Coach | Athlete | Coach | Athlete | Coach |
| Very High | 17% | 34% | 14% | 20% | 13% | 14% | 10% | 14% |
| Fairly High | 47% | 20% | 28% | 17% | 15% | 34% | 27% | 43% |
| Reasonable | 17% | 31% | 26% | 40% | 5% | 26% | 7% | 20% |
| Fairly Low | 12% | 6% | 20% | 14% | 43% | 23% | 40% | 3% |
| Very Low | 7% | 9% | 12% | 9% | 23% | 20% | 17% | 20% |

One of the athletes summarises their view of the competitive environment:

> *"For competition, national and international competition I would say for disability sport, I think they are making improvements but there's a long way to go yet" (F12 Athlete)*

Participant 4 demonstrated their development competitively through the London Marathon; as a wheelchair athlete there are also road racing opportunities:

> *'London Mini Marathon for three years now, the first year I did it I came second and for the last two years I've won and I've broken the course record for the under 14 girls' (T34 Athlete)*

Participant 9 also acknowledges that, as an amputee thrower, they can compete alongside able-bodied athletes, and have the opportunity to compete in both able bodied and para-athletics, increasing the number of competitive opportunities.

*" So, there's, there's a fair amount of stuff that we, that we're doing. Erm, it just depends on the discipline and, and who the athlete is. For the ambulant athletes, they can complete in an open competition anyway. You know, they don't need anything specific"(Wheelchair Coach)*

The data demonstrates that para-athletes have a rapid career trajectory, compared to non-disabled athletes. When recounting their competitive opportunities, frequently athletes stated that they took part in elite level competition, stating participation in a Major Championships as a success factor and a pivotal moment.

*'I became aware of World rankings and British rankings and within a couple of months I qualified for the IBSA World Championships which is the International Blind Sport Association and I was selected to compete at the World Championships in Canada so that's the first competition I did and that's where it really took off' (F12 Athlete)*

*'I went to the World Championships this year really without much of a clue what I'm doing and I'm still in the technique development stage' (F32 Athlete).*

## 4.6.1 STANDARD OF COMPETITION

When considering para-athletes as 'elite' athletes, the participants of this study raised concerns regarding the competitiveness and credibility of events.

*"I wouldn't rate it very highly to be honest but the problem with disability sport. is the standard varies so much between athletes and it's so vast. Compared, I think with able bodied sport, for example with disability sport because the standard of competition is so varied. So you've got some competitions which are really well represented, the standard is really high so to get a gold medal in those competitions you have to have got a world record, whereas you've got other competitions which you could win a gold medal and be a long way off the world record because the event happens to be weak or it's a new event which you happen to be at the right place at the right time, that's happened a lot even in Paralympic games, people*

*have come away with gold medals but there's been five in the event" (T42 Athlete)*

*"In Rio there was an amputee 100 metre sprint it was a straight final because there weren't enough athletes to do heats and there were only five in the final, one had a false start, one fell halfway so all three who were left were guaranteed medals so to win a gold medal in that event is much easier than to win a gold medal in another event so I think because the difference is so vast… you can get away with being a mediocre athlete who just goes training twice a week, you can do that in disability sport' (F12 Athlete)*

There are inconsistencies in the number of athletes within a classification and the standard of those competing. As a percentage of the population, due to the nature of a classification system that attempts to categorise athletes based on ability, there may be specific event classifications where the population demographic is too small to increase the number of participants and, therefore, competitiveness of that event.

# 4.7 FACILITIES

This study explored the appropriateness of the facilities most frequently used by para-athletes and coaches. The coaches' perceptions of facilities and areas for improvement are detailed in Table 4.11. Coaches frequently cited the need for increased access to indoor training facilities, improved quality and increased quantity of equipment:

**TABLE 4.10 COACHES PERCEPTION OF FACILITY IMPROVEMENT NEEDS**

| |
|---|
| *"Better equipment for use med balls etc"* |
| *"Indoor provision"* |
| *"More tie downs, circles and run ups"* |
| *"More accessible, better access to other tracks with seated throws* |

*capability and indoor facilities".*

*"The lift breaks down regularly, other coaches and athletes are fairly ignorant about disability sport and could do with awareness training".*

*"More improvements can still be made to Throwing facilities to make them more accessible for disability athletes".*

Throws coaches specifically raised concerns about the quality, accessibility and availability of throws facilities. Participant C23 identified specific issues when coaching field athletes, in ranging classifications.

> *"We have no indoor training. We can't use the facilities in poor weather. This winter has been the worst for some years. We were unable to train for about six weeks as the track was iced up/snowed in. Now that the better weather is starting to appear, the track is booked exclusively for schools training and sports days, so we won't be able to train for April through to June. Athletics tracks should prioritise athletics rather than football/ rugby. In some tracks there is no throwing allowed during the winter months. At my track hammer throwing is only allowed for 4 months of the year. Permanent seated throwing facilities for non-ambulant athletes would be a great advantage and might encourage more disabled athletes to come forward" (Throws Coach)*

Table 4.11 presents data that demonstrates both athletes and coaches rate the facilities available in the UK as 'fairly high' consistently, the only exception is that 40% of coaches rated training facilities as 'reasonable'. While the qualitative data in the survey open-ended questions shows that throws coaches provide more comments for areas of improvement for training facilities, an ANOVA of the different event groups coached, and the rating of training and competition facilities showed no significant difference between the different event groups and rating of training or competition facilities.

**TABLE 4. 11 RATING OF TRAINING AND COMPETITION FACILITIES IN THE UK**

| | Athlete | | Coach | | | |
|---|---|---|---|---|---|---|
| | Competition Facilities in the UK | Training Facilities | Accessibility of Training Facilities | Availability of Training Facilities | Competition Facilities | Training Facilities |
| Very High | 30% | 18% | 20% | 14% | 9% | 6% |
| Fairly High | 35% | 50% | 49% | 43% | 40% | 23% |
| Reasonable | 25% | 15% | 29% | 26% | 26% | 40% |
| Fairly Low | 3% | 5% | 3% | 14% | 20% | 14% |
| Very Low | 3% | 8% | | 3% | 6% | 14% |

# 4.8 ESSENTIAL INDIVIDUALS

The data generated from the para-athlete interviews indicated an emergent theme from athletes with high care needs. Some para-athletes cited the importance of individuals that were not acknowledged in the existing literature as a micro level critical success factor. These individuals were typically a carer or personal assistant (PA). In order to further investigate the role of carers and PAs, the para-athlete survey asked respondents to identify 'Which individuals are essential for you to live, train and compete as an elite athlete?' The responses are presented in Table 4.12. The data demonstrates that 95% of athletes identify their personal coach as essential; it is assumed that these findings would be concomitant with non-disabled athletes. An additional 52% of para-athletes in the sample are dependent on their parents to enable the habitus of an elite athlete, with 25% citing medical professionals as essential. An ANOVA identified that there was significant variation between classification

groups for those identifying ‘carer’ (0.042), ‘partner’ (0.021), and ‘National Coach’(0.033).

The variance in classification groups demonstrate that the level of impairment is a significant factor which influences the reliance of para-athletes on carers. Athletes with high care needs can be categorised in two key areas; para-athletes with high care needs consistent with the general disabled population and those with care needs specific to their sport, e.g. a visually impaired athlete requiring a guide, or a dwarf athlete needing equipment assistance in the gym.

**TABLE 4. 12 INDIVIDUALS ESSENTIAL TO THE ATHLETES**

| Essential Individual | Percentage of athletes |
|---|---|
| Personal Coach | 95% |
| Parent | 52% |
| Medical Professional | 25% |
| Partner | 23% |
| Other Family Member | 15% |
| Carer | 10% |
| National Coach | 12% |
| Teacher | 8% |

When athletes were asked to describe the role of these essential individuals, the following answers were given.

> “*care and support with my disability, transport, training education, financial support.”*
>
> *“By giving me total support with all my training and personal needs.”*
>
> *“Still live with my parents who cook/ clean/ keep me alive from day to day!”*

*"Support, personal care, life management."*

*"Take me to events, manage my time as I have an acquired brain injury and have a poor memory."*

## 4.9 CHAPTER SUMMARY

The data presented in this chapter demonstrates that in the context of UK para-athletics, there is evidence of the factors widely acknowledged as determinants for international sporting success in non-disabled elite sport and additional factors which determine success in para-athletics. The findings identified demonstrate factors specific to parasport that have not been previously recognised within the elite sport development literature.

The pertinent factors influencing the variation within this heterogeneous population are the:

- Nature of impairment (acquired or congenital)
- Support and care needs level
- Equipment need level

The acknowledgement of these micro level factors provides justification for a revised model depicting the factors determining elite parasport success and prompt further investigation and validation in a parasport research context. The meso level factors determining success not previously identified include talent management and development, para coach development, support service needs, classification competition opportunities and the role of charities as an enabler of success.

# CHAPTER 5 MODELLING SUCCESS FACTORS FOR PARA-ATHLETICS

## 5.1 INTRODUCTION

This chapter builds upon the literature reviewed in Chapter Two and the data analysis presented in Chapter Four. The data analysis and identified themes are ordered to present a model of the critical determinants of international parasport success in para-athletics, as reported by the key stakeholders responsible for delivering success; para-athletes, their coaches, coaches who are also parallel success coordinators, and the Head Coach. Presented in chapter 2, the literature review, in its consideration of the most applicable established model, SPLISS was identified as the most applicable to parasport. Based on this verdict, as outlined in chapter four, the SPLISS model provided *a priori* codes for analysis. The analysis of *a priori* and emergent themes is presented in chapter four, this chapter clusters the identified themes around the SPLISS nine pillars and the additional factor 'athlete carer pathway', as presented in Patatas et al. (2018) in their comparison of parasport and non-disabled policy factors leading to success. This chapter contains Table 5.1, a framework that depicts the Determinants of International Success in Para Athletics (DISPA).

## 5.2 DETERMINANTS OF INTERNATIONAL SUCCESS IN PARA-ATHLETICS

A strategic approach to elite sport development, the determinants of international para-athletics success, in this context can be simplified to the presence of some or all of the 10 factors outlined by Oakley and Green

(2001) or the ‘nine pillars’ derived from the literature by De Bosscher et al. (2007). In outline form, these nine pillars are 1. Financial support for sport; 2. An integrated approach to policy development; 3. A broad base of participation in sport within a nation; 4. Talent identification and development systems; 5. Support during and after an athlete’s career; 6. Training facilities; 7. Coaching provision and coach development; 8. Exposure to international competition; and 9. Scientific research. In principle, according to the data analysis, all factors identified in the existing models are evident determinants for international success in para-athletics. It is well documented in the literature, that the factors outlined are accepted determinants of success in Olympic sport. In addition to the factors outlined by the existing literature, this study supports the inclusion of Athlete Career Pathways, as outlined by Patatas et al. (2018).

As well as acknowledging the critical success factors identified in the literature review, this study identified additional aspects essential for securing international success in para-athletics. Athletics demonstrates variance across the different event disciplines; chapter four identified the different determinants of success, as identified by athletes and coaches that represent the different event disciplines. The data analysis presented in chapter four demonstrates the SPLISS framework in the context of para-athletics. The data establishes that for both *a priori*, SPLISS and emergent themes there is variation across the different event disciplines which has not previously been explored in the literature. When considering para-athletics, the amount of variation is magnified by the multiple classification groups. The difference between the determinants of success for a visually impaired

thrower and a visually impaired distance runner are as considerable as the variance between an amputee long jumper and a long jumper competing in a classification for athletes with coordination impairments. The IAAF lists 30 indoor events, and 40 outdoor events for both men and women (International Amateur Federation, 2019 and World Para Athletics identifies 10 eligible impairment types: eight physical impairments as well as visual impairment and intellectual impairment, within the different disciplines there are multiple classes: Running and jumping, 20 classes; wheelchair racing, 7 classes; standing throws 19 classes; seated throws 11 classes (International Paralympic Committee, 2019). With such an incredible array of events, ,, generalisations about athlete needs should be made with caution.

This study finds that the determinants of para-athletics international success can be summarised as consistent with the determinants evidenced in the literature. In addition to the factors acknowledged in the literature, this study found other variables, specific to para-athletics that determine success and influence the applicability of the existing sport development models, policy and consequential elite sport structures.

Those additional themes identified by this study that question the applicability of existing models and assumptions are::

- Nature of impairment (acquired or congenital)
- Support and care needs level
- Equipment need level

## 5.3 DETERMINANTS OF INTERNATIONAL PARA-ATHLETICS SUCCESS (DIPAS)

In order to best illustrate the variance in para-athletics, the findings of this research form the conceptual framework presented in Table 5.1 acknowledges that variation can, to some extent, be grouped by congenital/acquired nature of impairment, degree of support needs and degree of equipment need). These variables provide the principal areas of variance in determinants across the ten critical factors considered. The data analysed within this study identified variation between the existing models and the determinants of success . Rather than identifying omissions from the existing models, it is more pertinent to identify discrepancies between the acknowledged determinants of success and the data.

The DIPAS framework charts the influence that the nature of impairment i.e. whether it is acquired or congenital, has on the ten factors identified. For acquired impairments, the framework assumes acquisition before the FUNdamentals stage of boys aged 6 to 9 and girls aged 5 to 8 of Long-Term Athlete Development (LTAD) who would then follow the path of congenital impairment athletes. A para-athlete's impairment influences their introduction into parasport participation. Para-athlete's integration in non-disabled sport, for acquired impairments, pre-impairment participation and talent development varies considerably from parasport participation by athletes with congenital impairments or impairments acquired under five years of age. The level of support needs also influences talent development; an athlete with high support needs, who has attended specialist schooling,

follows an adapted national curriculum for sport and introduction of para-specific events.

The equipment needs of a para-athlete influence the support which they require, these needs dependent on classification and event. The financial support required by athletes with high equipment needs who require bespoke equipment exceeds the funding required to facilitate success for an athlete in an event with low or no specialist equipment needs. Moreover, the sport-specific care needs of a visually impaired athlete who requires a guide runner, who also receives funding, present an additional variable, and an additional resource cost. By considering the variables identified in the analysis, the DIPAS framework identifies the influence of the equipment and support needs of athletes, and degree of sporting and non-sporting care required care (non-sporting) or support (sporting).

Ultimately, a visually impaired long jumper when compared to an amputee sprinter has differing requirements from a support system, specifically, their equipment requirements. The support needs of these athletes differ again from the system required for a seated thrower with high care needs and a wheelchair racer, with no care assistance needs.

### 5.3.1 DIPAS FRAMEWORK APPLICATION FOR PRACTITIONERS

The DIPAS framework is created to present the findings of this study in a medium that is accessible for practitioners and academics. It is intended not only to be used as a presentation of knowledge and to prompt further

research in this area, but also as a framework to aid decision-makers in para-athletics. The research was conducted in the UK. At the outset the findings were intended to be used by UK Athletics to determine the effective allocation of resources, ensuring efficient use of public spend and increase the success of the British Athletics Para Team.

The DIPAS framework, while created in the context of the UK, has implications for the management and development of para-athletics globally. The intention is to assess the applicability of the DIPAS framework in other nations creating a platform for comparative research in the field of para-athletics and therefore parasport more broadly. Aside from the knowledge created by this and future research, the framework is designed to be used by practitioners in para-athletics to increase competitive success and enhance the elite sport systems that support para-athletes. To that end, it can be used in the creation and development of national elite parasport systems. The DIPAS framework presents the determining factors that lead to international parasport success in para-athletics. Additionally, in the absence of any existing parasport framework, sport specific or generic, the DIPAS framework is worthy of consideration for nations designing all elite parasport systems.

The framework can also be used to determine how best to support an individual. A practitioner can consult the framework to identify the support level needs of a specific athlete. Consideration of their specific needs should be structured around their nature of impairment, support level needs and care level needs, not just classification and event based. The DIPAS

framework can be used within club and educational institution setting to efficiently allocate resources, target funds and implement support services. The practitioner will simply answer three questions to help design a bespoke, individualised support programme: What is the nature of the athlete's impairment? What are their individual care needs? What are their equipment needs?

Taking a specific factor into consideration as an example, practitioners can use the framework to develop para-athletics talent programmes. Consultation with the framework prompts consideration of the diverse nature of impairment and encourage the inclusion of separate approaches for individuals with acquired and congenital impairments rather than on a classification or event basis alone.

The DIPAS framework presents the para-athletics specific variables and their influence on the factors determining success. Practitioners can use the framework to design a differentiated elite sport system for para-athletics, which is dependent on the variable factors identified; nature of impairment, equipment needs and care needs. Understanding of these variables and the implications of them on the support of para-athletes, through the DIPAS framework, will assist in the development of strategic targeted funding to achieve two key objectives:

1. Increased return on investment
2. Increased international success in para-athletics.

The amount invested by nations in the pursuit of international parasport success varies considerably. As nations increase funding, in order to maintain competitiveness in the 'Global (Para)sporting Arms Race', interpretation of the DIPAS framework provides developing nations with guidance for decision making. The DIPAS framework can help decide the best use of limited resources and will enable consideration of costs associated with the variable factors identified. The intention is to maximise both success in the design of a system and ensure calculated allocation of resources.

## TABLE 5. 1 Determinants of International Para-Athletics Success (DIPAS) Framework

| | Financial support | Governance, Organisation and Structure | Sport Participation | Talent identification and development | Athletics and post-career support | Athlete carer pathways | Training facilities | Coaching provision and education | (inter)national competition | Scientific Research |
|---|---|---|---|---|---|---|---|---|---|---|
| **Congenital** | | The complexity of increased federations and disability sport associations (DSAs) | | Mainstream schooling and non-disabled participation require para-athlete to overcome ability-based barriers and significant individual introduction to parasport. Specialist schooling may introduce para-specific events in a high care need environment | | Rapid progression, National level to Major championships within the short time frame (first international frequently major championships) | Accessibility; buildings, transport, | Lack of support for para coaches, including:<br><br>Mentoring, specific education and development opportunities. Appropriate inclusion of para coaching in mainstream coach education. Distinction needed between differentiation and inclusive practice. Progression from participation to performance. An integrated approach (the club set up). | Linked to rapid progression, lack of classification competitive opportunities, variation depending on event group (increased competitive opportunities for wheelchair track and those who can compete against able-bodied athletes) | Lack of research understanding training science for specific impairments. |
| **Acquired** | | The complexity of increased federations and disability sport associations (DSAs). Military rehabilitation centres; specific charities *(Help for Heroes') and event organisations* (Invictus Games) | Pre-impairment-acquisition non-disabled participation | Dependent on the age of impairment acquisition, able-bodied participation pre-acquisition at lower level | | Entry to sport at a late age. The transition from rehabilitation to elite sport. | | | | |
| **High Support Needs** | Support needs to perform day to day tasks *(care needs)* and sport specific care needs *(V.I. Guide)* | | Specialist schooling may introduce para specific events in a high care need environment. | | | | | | Care needs support at competition. Classification based competition | Coach/athlete/ carer relationship and dependency unexplored. |
| **High Equipment Needs** | Specialist equipment costs for wheelchair events, seated throw frames and prosthetic limbs. Essential charity support to enable participation | | Bespoke, high-cost equipment needed to participate | | | Funding requirement to enable participation. | Throwing facilities | | | Sport technology and engineering research is needed. |

## 5.3.2 PARTICIPATION AND TALENT MANAGEMENT IN PARA-ATHLETICS

This study found that those para-athletes able to adopt the habitus of non-disabled athletes, such as those with short stature, hypertonia or talipes impairments typically initially participate in able-bodied sport within school and club sport. Patatas et al. (2018) claim that the issue of fewer disabled people doing sport results from several complex barriers. The barriers include a far smaller population of potential athletes to start with. These athletes are spread over an increasing number of sports, in a complex and then this is compounded by a classification system to ensure fair competition which dilutes numbers further.

The findings from this study suggest that within para-athletics, entry into the sport is varied. It is dependent on the nature of impairment i.e. whether the disability is congenital or acquired through trauma or illness; initial engagement may be as a child, through specialist schooling adapted physical education or as an adult in a rehabilitation centre. To that end, para-athletics has unique demographics where elite para-athletes with acquired impairments enter and remain in the system at ages older than their non-disabled peers (Radtke and Doll-Tepper 2014), which can then have a direct influence on the process of talent identification and development in parasport. Conversely, athletes with congenital impairments entered the elite sport system in para-athletics at a much younger age than their non-disabled peers, with athletes citing rapid progression to the highest level of competition, while still of school age.

The findings of this study revealed the complex nature of entering the parasport system and the challenges of adopting one system to meet the needs of all. Whilst Patatas et al. (2018) identified that there are only a few, if any, systematically structured programmes for para talent identification and development, they acknowledged that differs somewhat from able-bodied talent development, where the age of talent identification and support of young and talented athletes is an essential ingredient of long-term success (De Bosscher et al. 2006). According to the existing literature, which focusses on non-disabled sport, the early identification and the appropriate support of developing athletes are essential to these talented individuals fulfilling their potential. Multiple studies that have shown the importance of structured high-performance sport programmes of talent development and its use to predict elite success (Abbott and Collins 2002, Green and Houlihan 2005, De Bosscher et al. 2006, Brouwers et al. 2012). Whilst a rationale can be made for the application of the non-disabled sport system to disability sport, the findings of this study indicate the need for an impairment-specific approach, with differentiated inclusion of congenital and acquired impairments.

### 5.3.3 COACHING IN PARA-ATHLETICS

It is acknowledged within the existing literature that the provision of coaching, coach education and coach development are pertinent factors in determining success. As a result of this affirmation, coaching attracts a plan for elite sport policy in able-bodied sport (De Bosscher et al. 2006, Digel et al. 2006). Within this study, athletes rated their coaches' coaching expertise

highly. However, the coaches surveyed reported that para-athletics coach education, support and the coach development system available to them was insufficient.

This study found that in events that exist in able-bodied athletics, which are typically non-seated, athletes value coaching experience in elite able-bodied athletics. However, in events that do not exist in able-bodied athletics, which are typically seated, experience in able-bodied athletics is less important than knowledge of the impairment. These findings are consistent with the limited existing literature regarding coaching in parasport, without isolation of the differential of the event type. Depauw and Gavron (2005) and Cregan et al. (2007) suggest that coaching an elite non-disabled athlete is similar to coaching an elite athlete with a disability and most of the same skills and previous technical and tactical experiences are needed. The contradiction, as noted by Wareham et al. (2017), is that coaches who had previously been involved only in mainstream sport indicated that they had very little prior knowledge of what the experience of coaching disabled athletes would require (Wareham et al. 2017).

This study also found that para-athletes in the UK receive similar support as their non-disabled peers. Patatas et al. (2018 p.247) identified that there are ‘significant differences between both systems that influence the way sport policies should be developed’. This thesis identifies that there is no ‘one size fits all’ approach for the development of para-athletics and commensurate international para-athletic success.

Several previous studies have acknowledged that the classification system, which (in categorises degrees of functional ability, is a critical difference between able-bodied and parasport (Vanlandewijck and Chappel 1996, Jones and Howe 2005, Howe 2008b, Tweedy and Vanlandewijck 2011). However this study has evidenced that classification is not the only differentiator in para-athletics. This work demonstrates that within para-athletics the system of supporting athletes is consistent across all classifications. This simplifies the approach logistically and, superficially, appears equitable. The data imply that a differentiated approach would produce improved results, by developing a greater understanding of the variables determining parasport success and a systematic approach which is inclusive of the different key variables identified; nature of impairment, care needs, and equipment needs. This study identifies that the variables outlined need consideration at all levels of parasport; disability sport participation, talent identification and development, and performance athletes. The data also suggest that it is worth considering further the strategic allocation of resources. Resource allocation based on proximity to a podium finish calculated as medal-winning time/distance compared to personal best and the strategic allocation of targeted funding based on equipment and support needs may prove better value for money.

# SUMMARY

The DIPAS framework summarises the variables identified within this study that influence the determinants of international para-athletics success and the difference between the determinants as identified by this research and

the current system. This thesis demonstrates that athlete pathways in parasport are not only sport specific but that consideration of both classification and impairment should determine elite para-athletics structures. While there is no parasport policy model or framework specifically, the findings of this study will add to the increasing body of literature in this area and provide sport-specific context. This advancement will provide policymakers with a better understanding of the different approaches that are required to organise and structure parasport, leading to bespoke elite parasport structures.

# CHAPTER 6 CONCLUSION

This conclusion reflects upon the significance of the data reported in the thesis for understanding parasport and developing international parasport success. The practical value that the research presented may have for parasport policy development and the facilitation of para-athletic success is also reflected upon. This chapter includes consideration of the limitations of this study and possible future areas for research and recommendations for para-athletics.

The central objective of this research has been to explore the determinants of international para-athletics success, assessing the applicability of existing models and, where appropriate, creating a new framework presenting the determinants of international para-athletics success (DIPAS). The findings are based on 35 self-completed coach questionnaires, 40 self-completion athlete questionnaires and 12 interviews with; a performance director, a head coach, a parallel success coordinator, three coaches and seven athletes, from a range of event classifications. The findings indicated that while the determinants previously identified by academics are observed, to varying degrees, there are factors worthy of consideration, that have not been acknowledged in the existing models.

The principal additional factors identified by this study were the nature of impairment, the level of support or care needs and the level of equipment needs. Further to this, talent management and coaching were acknowledged as areas for improvement , and there was an identification of the vital role that charities play in enabling participation and early stages of performance.

It was acknowledged by the participants that the system which supports athletes is a crucial determinant of success. Different support services available were perceived as having varied levels of importance and significance in the achievement of international para-athletics success. To that end, athletes engaged with services inconsistently and accessed support in varying frequencies. This variation in perception was noticed across all event classifications with significant variance across different event groups. Athletes identified being 'funded' as a mark of success and their elite para-athlete status.

This study has presented an overview of the determinants of international success in a para-athletics context by providing a framework in order to generate awareness among sport policymakers, Performance Directors and those in leadership positions within para-athletics. The purpose of this framework is to assist in understanding para-athletics, parasport and its intricacies. Although SPLISS was selected as a suitable framework to cluster the factors into policy dimensions, this study illustrated that additionally the contextual factors and culture of disability sports need to be taken into consideration when examining factors that influence parasport policy development, especially in the context of athletics.

This research found that in para-athletics, athletes have differing access points. These range from athletes with acquired impairments starting in rehabilitation centres to those with congenital impairments accessing athletic events through specialised schools, able-bodied sport clubs or disability associations. Consequently, this study demonstrates that athlete pathways

in parasport are not only sport specific but also potentially impairment specific.

Before this study, no sport policy model or framework had explicitly been created for parasport. This study provides an understanding of the experiences of para-athletes and coaches, their lives and the way policies can be implemented in a parasport context. This study generates a better understanding of a specific sport context, with the creation of DIPAS. As well as awareness of the heterogeneous nature of parasport, even in a specific sport context, para-athletics, this has led to the creation of a new conceptual model. The findings of this study urge those designing systems to support para-athletes to consider the specific environment and needs identified in DIPAS. These findings reaffirm the need for continued focussed attention to the support system in place to facilitate para-athletics success.

The findings identify that there are notable differences, from non-disabled athletics, and that sport policy should be developed to reflect these differences. From a theoretical perspective, this study offers a framework for understanding the policy success factors for para-athletics. From a sport practitioner's point of view, the findings of this study can help sport policymakers and performance directors improve understanding of the specific character of para-athletics, and the support services that are needed to enable success. Additionally, the DIPAS framework can assist UK Athletics and other national federations and NGBs.

## 6.2 LIMITATIONS OF THIS STUDY

This study sampled a population from UK Athletics National Para Squad; the inclusion criteria required athlete participants to have competed internationally and have had access to support services within the past Paralympic cycle. The population was therefore limited to the number of athletes at that level, at the time of the study and how the National Squad represents the different event classifications. The National Squad does not include all event classifications. Based on the findings of this study, there maybe be factors influencing success and progression within specific event classifications that are not considered in this study and therefore not captured in the DIPAS model.

During the period of data collection, there were several stories which concerned the GB Para-Athletics Team that made the national media. These stories concerned classification cheating and the culture within UK Athletics Para National Squad. As a result of subsequent investigations, athletes and coaches were informed not to give interviews or speak to outsiders about these issues. At this time the frequency of responses to the study slowed and it was decided that a response rate of 79% was sufficient to stop data collection. At the same time, the Head Coach agreed to continue with their scheduled interviews. If the study had remained open, there might have been an even higher response rate,

This study focuses on one nation, the United Kingdom and one parasport, para-athletics. The determinants of success are therefore limited to those

experienced by the UK para-athletics, and further investigation is needed to validate DIPAS, using a global population.

On reflection, the research approach was appropriate and enabled the research aim to be achieved. Data collection was enhanced by attendance at the national squad events. While this enabled the researcher to build rapport and trust with the participants, presence at a UKA hosted event may have led to feelings that individual responses may be shared with key stakeholders. Further to this, the distribution of the survey by email from the Head Coach may have influenced responses, despite the assurance that data would be anonymised. Without distribution in this way, the population would have been challenging to reach.

## 6.3 RECOMMENDATIONS FOR FUTURE RESEARCH

In order to further validate the DIPAS model, it is recommended that the research approach identified in chapter three is repeated in comparable, in terms of para-athletic performance, nations such as China, the USA Australia, Germany, and South Africa. The nations listed achieve success in both para-athletics and non-disabled athletics. Research in Tunisia, Brazil, Cuba, and Algeria would be especially beneficial, as they are nations that achieve greater success in para-athletics than in the non-disabled athletics medal tables.

This study identified variation in the factors determining success across different athletic event groups. This observation indicates that further

investigation into the factors determining success in athletics is needed. Academics have previously acknowledged that further investigation in sport-specific contexts is needed to explore the determinants of success fully. Comparative studies of a sport specific nature, especially in multi-disciplinary sports like athletics, may lead to established sport specific frameworks and contextualised modelling. International comparative research investigating the determinants of international sporting success across different athletic event disciplines in non-disabled athletics is also justified by the findings of this research

Finally, further exploration of parasport in the context of determining success factors is worthy of academic research in a range of sport science disciplines. Sport science and technology research is needed to develop adaptable equipment which will enable increased participation and facilitate talent identification, with a strategic, objective and scientific approach.

## 6.4 RECOMMENDATIONS FOR PARA-ATHLETICS

This study demonstrates that within para-athletics there cannot be a one size fits all approach to the production of internationally successful para-athletes. There are multiple significant variables which impact the effectiveness of the elite sport structures within which support para-athletics. The findings of this study identified elements of the existing support structures for UK para-athletics which require further development.

This research makes the following recommendations for para-athletics UK:

1. The development of mentoring programmes and a network for coaches to share practice would enhance the coaching communities experience. Coach education, coach development and mentoring opportunities specifically for para-athletics coaches are needed.
2. Implementation of wider-ranging talent development programmes to meet the different needs of different impairment types.
3. Investment in the development of technology for participation and adaptable equipment to enable wider participation and enhance talent identification entry assessments.

A final recommendation is made for UK Athletics broadly, which is the consideration of the specific needs of different event specialisms. Consideration should include sport science support, facility availability, accessibility, and quality across different event groups.

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# APPENDICIES

## Appendix 1 International Paralympic Committee Classification Guide

International Paralympic Committee

**Explanatory guide to Paralympic classification**

**Paralympic summer sports**

September 2015

International Paralympic Committee
Adenauerallee 212-214 Tel. +49 228 2097-200
53113 Bonn, Germany Fax +49 228 2097-209

www.paralympic.org
info@paralympic.org

## Athletics

**Eligible impairment types:**

| | | | |
|---|---|---|---|
| Impaired muscle power | ✓ | Athetosis | ✓ |
| Impaired passive range of movement | ✓ | Hypertonia | ✓ |
| Limb deficiency | ✓ | Ataxia | ✓ |
| Leg length difference | ✓ | Short stature | ✓ |
| Intellectual impairment | ✓ | Visual Impairment | ✓ |

**Sport classes:**

In athletics the sport class consists of a prefix "T" or "F" and a number. The prefix T stands for "track" and F stands for "field." It indicates for which events the sport class applies, either for track or for field events.

**Visual impairment – Sport Classes T/F11-T/F13**

Athletes with a visual impairment compete in 3 sport classes from T/F 11 (B1) to T/F 13 (B3) as described in Section 4. In order to ensure a fair competition athletes in the T/F 11 sport class are required to wear eyeshades.

**Intellectual impairment - Sport classT20/F20**

Athletes in this sport class have an intellectual impairment, which typically leads to the athletes having difficulties with regards to pattern recognition, sequencing, and memory, or having a slower reaction time, which impacts sport performance in general.

Moreover, the impairment of T/F20 athletes has been proven to have an impact on performance in the different disciplines. For example: 1,500m runners have difficulties in pacing, while in long jump the impairment makes the anticipation of the take-off board more difficult.

**Ataxia, athetosis and hypertonia - Sport classes F31, T32/F32-T38/ F38**

The 30s sport classes are allocated to athletes with athetosis, ataxia and/or hypertonia – often conditions associated with cerebral palsy or traumatic brain injury. The impairments typically affect the ability to control legs, trunk, arms and/or hand function. The lower the number is, the more significant the activity limitation.

You will see athletes in the sport classes 31-34 compete in a seated position, e.g. in wheelchair racing or using a throwing chair. By contrast, athletes in the sport classes 35-38

show a better function in their legs and better trunk control and therefore compete standing, e.g. in running events, long jump or throwing events.

**Short stature - sport classes T40/ F40, T41/F41**

Athletes with short stature compete in the sport classes T/F40-41. There are two classes depending on the body height of the athlete and the proportionality of the upper limbs, with athletes in sport class T/F41 being taller than athletes in sport class T/F 40.

**Limb deficiencies** - Sport classes: T42/F42 - T46/F46, T47

These sport classes are designated for athletes with limb deficiencies, such as amputations or dysmelia. In the sport classes 42-44 the lower limbs are affected by the impairment and in the sport classes 45-47 the upper limbs are affected, for example by above or below elbow amputations.

For example, a shot putter with a single above knee amputation competes in sport class F42. All athletes in the 40s classes compete standing and do not use a wheelchair.

**Impaired muscle power or impaired range of movement - sport classes T51-54; F51-57**

In the 50s sport classes, all athletes compete in a seated position, either in wheelchair or on a throwing chair, due to impaired muscle power, restricted range of movement, limb deficiency or leg length difference. Again, a lower number indicates a higher activity limitation.

Athletes competing in wheelchair racing events for T51-54 sport classes differ with regard to their arm and shoulder functions which are pertinent for pushing a wheelchair. Athletes in class T53 have full function in the arms, but similar to classes T51 and 52, do not have trunk function. Athletes in classes T51-52 have activity limitations in both lower and upper limbs. Unlike athletes in the sport classes T51-53, athletes competing in T54 have partial to complete trunk function and may demonstrate some leg function.

For field events, the group of wheelchair athletes compete in more differentiated classes.

Athletes in sport classes F51-53 have limited shoulder, arm and hand function to different degrees and usually no trunk or leg function. This profile is, for example, seen with athletes with spinal cord injury resulting in tetraplegia. Athletes in the class F54 have normal function in their shoulders, arms and hands, but generally no trunk or leg function.

Throughout the sport classes F55-57 the trunk and leg function increases, which is an advantage in throwing events. An athlete in the F55 class has partial to full abdominal muscle activity, but no leg function. Athletes in class F56 demonstrate some hip flexion and adductor muscle activity in addition to trunk function, while athletes in class F57

# APPENDIX 2: ATHLETE PERFORMANCE TEMPLATE

| | FACTOR | SCORE | OPERATIONALISATION |
|---|---|---|---|
| **Outcome** | Year's performance[1] | Score 1 to 20 as a reverse item | Based on place in World rankings, discounted to 3 per nation; 1st scores 20, 2nd 19 and so on. |
| | Progression[2] | Score 1 to 20 | Based on hard facts (PBs, placings, etc.) wherever possible, using as many years data as available |
| | Technical/Tactical ability[3] | Score1 to 10 | Related to technical models developed by UKA and/or by independent evaluation by an SPC or other authority. |
| | Competition Placing | Score 1 to 16 as a reverse item | Based on place in the major competition that year; 1st scores 16, 2nd 15 and so on. |
| **Process** | Physical Resilience | Score 1 to 10 as a reverse item | Reflects the fragility or 'injury proneness' of the athlete. Remember past weaknesses may explain lack of progress rather than predict it! |
| | Mental Toughness | Score 1 to 10 | Reflects the athlete's ability to 'produce the goods' in major championships and other pressure situations. Use data and exemplars to justify score. |

[1] In the event of serious injury, and with the agreement of the Head Coach, the previous season's ranking can be used

[2] Obviously, progression will plateau in senior athletes. In that case, consistent World Class performance would be reflected in an above average score on this factor (e.g. 15). For younger athletes, this item will reflect their ultimate potential, together with the progress made that season as compared to previous years.

[3] In the case of less technical events (e.g. Endurance), tactical skill plays a bigger part in this item.

| | | | |
|---|---|---|---|
| | Training Commitment | Score 1 to 10 | Rate the athlete's work ethic in training. Score should be substantiated by exemplars[4] and third party evidence. |
| | Lifestyle | Score 1 to 10 | Reflects the athlete's commitment to, and execution of, an appropriate lifestyle. An important but hard to define construct. Justifications for ratings need to be particularly clear here. |
| | Environment | Score –5 to +5 | Closely linked to lifestyle. Relates to the level of support enjoyed by the athlete across various areas such as finance, emotional support, facilities, etc. |
| **Characteristic** | London 2012 Potential | Score 1 to 20 | Based on potential to podium (13-20), top 8 (7-13) or semi-final (1-7). Score will incorporate progression of world standards in the event. |
| | 2016 Potential | Score 1 to 20 | As per London 2012. |
| | Coaching Quality | Score 1 to 20 | Based on observation, quality of coach's planning and technical input, and commitment to this athlete. |

[4] Good training commitment would usually include considered and justified 'performance indicators' as part of the programme.

# APPENDIX 3 ATHLETE SURVEY

## Athlete Survey

Sheffield Hallam University

**Researchers at Sheffield Hallam University are determining factors which lead to international sporting success in Para Athletics. Please complete the following survey to provide information regarding your experiences of being an elite athlete. All responses will remain anonymous. Please CROSS where required or write your answers in the spaces provided. Thank you in advance for your time completing this survey.**

1. **In which event(s) and classification do you compete?** *(e.g. F12 Long Jump)*

2. **Are you?** ☐ Male ☐ Female ☐ Prefer not to say

3. **How old are you?** ☐ 16-19 ☐ 20-24 ☐ 25-29 ☐ 30-44 ☐ 45-59 ☐ 60-69 ☐ 70+

4a. **At what age did you take up athletics for the first time?** ☐☐ years old

4b. **At what age did you concentrate solely on your current event(s)?** ☐☐ years old

5a. **What was your IPC ranking in 2017?** ☐☐ 5b. **What is your best IPC ranking?** ☐☐

5c. **What year was your best IPC ranking?** ☐☐☐☐

6a. **Which of the following best describes you?**

☐ I have had a disability since birth *(go to Q7)* ☐ I acquired my disability *(go to Q6b)*

6b. **How old were you when you acquired your disability?** ☐☐ years old

7. **How many hours a week do you spend on all your training activities?** *(including specific event training, strength and conditioning and other training activities, but not including rest)* ☐☐ hours

8. **How many hours a week do you spend travelling to and from training?** ☐☐ hours

9a. **To what extent do you agree with the following statements:**

| | Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | Not applicable |
|---|---|---|---|---|---|---|
| a. Without the support of a charity I would not be able to participate in athletics | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. The role of charities in the development of athletes is overlooked | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. I am aware of charities that support athletes but haven't found them necessary for me | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

9b. **If you have received support from a charity, please provide further details:** *(name of charity, when and how they supported you)*

10. **Do you receive a monthly salary for your elite sport activities?** ☐ Yes ☐ No

11. **Is this financial support sufficient to pay for your costs of living and training as an athlete?** ☐ Yes ☐ No

12. **What is your gross annual income?**

☐ less than £10,000 ☐ £10,005-£25,000 ☐ £25,001 - £40,000 ☐ £40,001 - £55,000 ☐ £55,001 - £70,000 ☐ more than £70,001

13. **Please rate the services you have used in the last 12 months:**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. Biomechanics/Performance analysis | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Strength and Conditioning training | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Nutrition (by a dietitian/nutritionist) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Physiology | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Sport Psychology | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Massage | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Draft

**Please turn over...**

**13. Please rate the services you have used in the last 12 months:**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| g. Physiotherapy | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| h. Sport Psychology | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| i. Performance lifestyle support | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| j. Legal Advice | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| k. Financial Advice | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| l. Media Training | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| n. Training facilities in the UK | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**14. How do you rate your current coach's level of expertise?** *(the coach you spend the most time with)*

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. Knowledge & Expertise at the highest international level | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Technical coaching skills | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Interpersonal coaching skills (contact with me as an athlete) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Adaptability (for my specific needs) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**15a. Which individuals are essential for you to live, train and compete as an elite athlete?**

☐ Parent ☐ National Coach ☐ Personal Coach ☐ Teacher ☐ Medical Professional ☐ Partner ☐ Carer ☐ Other Family member
☐ Other _____

**15b. How do the individuals identified support you?**

**16. How do you rate the competition opportunities you have?**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. National Frequency | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. International frequency | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. International classification specific | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. International events in the UK | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. competition facilities in the UK | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**17. How do you rate the following?**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. Financial Support for athletes | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. British Athletics Organization and Administration | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Para Athletics Participation opportunities | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Talent ID and Talent Development | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Support services (Medical, Psychology, Nutrition, etc) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Facilities | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. Coaching Provision | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| h. National and international Competition Structure | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| i. Applied Scientific and Technology Developments | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| j. Para Athletics Culture | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**18. How do you rate the elite sport climate for British Para Athletics, with regard to performing at the highest international level compared to that of other nations?**

| Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**20. Do you have any recommendations for improving the international success of British Para Athletics?**

Draft

**Thank you for your time!**

# APPENDIX 4 COACH SURVEY

## Coach Survey

Sheffield Hallam University

**Researchers at Sheffield Hallam University are determining factors which lead to international sporting success in Para Athletics. Please complete the following survey to provide information regarding your experiences of being a coach of elite athletes. Please CROSS where required or write your answers in the spaces provided. Thank you in advance for your time completing this survey.**

**1. In which event(s) and classification do you coach?** *(e.g. F12 Long Jump)*

**2. At what level do you coach and for how many years have you been an active coach at this level?**

a. National level ☐☐ years

b. International level ☐☐ years

**3. How many elite and talented athletes do you train at the moment?**

a. National level athletes ☐☐

b. International level athletes ☐☐

**4 How did you first start coaching Para Athletes?**

☐ As a carer ☐ As an athlete ☐ As a teacher ☐ Supporting a relative/as a parent ☐ Other _____

**5. How many hours a week do you spend on coaching?** ☐☐ hours

**6. How many hours a week do you spend travelling to and from coaching?** ☐☐ hours

**7a. Do you have a role in talent development?** ☐ Yes ☐ No *(go to Q9)*

**7b. please provide details of your talent development role:**

**8. Which of the following provisions and support can young athletes use?**

☐ Sport Psychology ☐ Strength & Conditioning ☐ Financial support ☐ Anti-Doping Education ☐ Training Programmes
☐ Frequent and intensive training ☐ Transport support ☐ Better training facilities ☐ Clothing (kit) ☐ Nutrition ☐ Other _____

**8b. Is this amount of support sufficient?** ☐ Yes ☐ No, *why not?* _____

**8c. What further areas of support are needed?** _____

**9. How do you rate the level of facilities where you coach most often:**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| b. the quality of training facilities | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. the accessibility of training facilities | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. the availability of training facilities | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**10. What improvements would you recommend to training facilities?**

**11. How do you rate the competition opportunities the athletes you coach have?**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. National Frequency | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. International frequency | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. International classification specific | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. International events in the UK | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Competition facilities in the UK | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**12. How do you rate your development opportunities as a coach?**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. The quality of coaching qualifications | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. The quality of coach development opportunities | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. The accessibility of specialist mentoring | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. The availability of sport science support | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

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**13. Please rate the services that the athletes you coach have used in the last 12 months:**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. Biomechanics/Performance analysis | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Strength and Conditioning training | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Nutrition (by a dietitian/nutritionist) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Physiology | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Sport Psychology | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Massage | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. Physiotherapy | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| h. Sport Psychology | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| i. Performance lifestyle support | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| j. Legal Advice | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| k. Financial Advice | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| l. Media Training | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| n. Training facilities in the UK | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**14.How do you rate the media coverage of the event(s) and classifications(s) you coach?**

| | Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. Quality | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Quantity | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**15. What is your gross annual income?**

☐ less than £10,000 ☐ £10,005-£25,000 ☐ £25,001 - £40,000 ☐ £40,001 - £55,000 ☐ £55,001 - £70,000 ☐ more than £70,001

**16. How much have you spent, in the last 12 months on your coaching activities?** _____

**17. Do you receive any financial reimbursements from British Athletics, for your coaching?** ☐ Yes ☐ No

**18. Does this cover the personal costs incurred due to your coaching activities?** ☐ Yes ☐ No

| **19. How do you rate the following?** | Fairly high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|---|
| a. Financial Support | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. British Athletics Organization and Administration | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Recreational Athletics for disabled people | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Talent ID and Talent Development | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Support services (Medical, Psychology, Nutrition, etc) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Facilities | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. Coaching Framework | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| h. National and International Competition Structure | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| i. Applied Scientific and Technology Developments | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| j. Para Athletics Culture | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**20. How do you rate the elite sport climate for British Para Athletics, with regard to performing at the highest international level compared to that of other nations?**

| Very high | Fairly high | Reasonable | Fairly low | Very low | Not applicable |
|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**21. Do you have any recommendations for improving the international success of British Para Athletics?**

Draft

**Thank you for your time!**

# APPENDIX 5 INTERVIEW PROTOCOLS

**INTERVIEW PROTOCOL**

**ATHLETE**

**Tell me a bit about yourself**

Age, Gender, Classification, Time in sport/time on programme, ethnicity.

**How did you get in to athletics?**

**Who has influenced your achievements?**

**Role of different organisations in your sport career**.

Entry into sport (talent ID), participation in other sport, transfer? Participation. NGB's

**Coaching details – nature of coach** (full time/part time), time with coach, contact, other support.

**Achievements** – Number of Major Champs? Junior?

**Financial support** – Disability benefits, Motability, Funding, Sponsorship, State funding?

Agent prompt?

**Competition** – Number of competitions, within classification, against able bodied, benefits, IPC points (inter class comps). Hierarchy

**Facilities and Equipment** – where do they train? Access to appropriate facilities.

**Sport Science informed practice/support.** Psych/Phys/Nutrition. Medical support? How often? where?

**Influential individuals?** What support? Individuals? Care needs?

**What do you do outside of athletics?** Post Career support, education, work, parents? Carer

**Role of the media?**

Barriers to improvement

Excellence culture

Role of difference agencies? Administration of the sport

Athlete progress monitoring

Lifestyle

Media – positive image

Economic success/business sponsorship.

**Coach add in development and sport science development. Policy factors/organisation and administration.**

**Head Coach Themes**

Tell me about you? Back ground, event experience etc

Themes to explore:

Funding

Professionalism

Sponsorship - agents

Funded/non funded

- support services
- performance analysis
- information dissemination

Classification

Different events

Event inclusion/exclusion

Able bodied comparisons

Coaching - development, mentoring, specialism,

DSA -role, participation

Home nations - role

Competition - national/international, classification, athlete progression and development

Talent Development - mainstream, where do athletes come from - which leads to success? Acquired/birth difference

# APPENDIX 6 PARTICIPANT INFORMATION SHEET

**PARTICIPANT INFORMATION SHEET**

International Sporting Success Factors for United Kingdom Para Athletics.

You have been identified as an elite Para Athletics coach or athlete and have been asked to participate in this research as the researcher values your experience to help identify factors which lead to Paralympic sporting success.

You will be asked to talk about your experiences in athletics and share you views in relation to what you believe determines sporting success. This will take place at your convenience. If you would like you can be provided with a transcript of our interview and have the opportunity to comment and make amendments. The transcript will be kept for five years and may be used for future research. Your anonymity will be maintained in this and future studies.

This study will inform a wider doctoral research project and is likely to last 18 months. Participation is voluntary and you may withdraw at any point.

If you have any questions please feel free to raise these at any point. You can contact Rebecca Peake r.peake@shu.ac.uk or Larissa Davies l.e.davies@shu.ac.uk with any concerns.

Thank you for agreeing to participate in this study. You time and contribution is much appreciated.

**Rebecca Peake**

Senior Lecturer Sport Business Management

Academy of Sport and Physical Activity, Sheffield Hallam University

A216, Collegiate Hall, Collegiate Crescent, Sheffield S10 2BP

# APPENDIX 7 CONSENT FORM

Sheffield Hallam University

## PARTICIPANT CONSENT FORM

International Sporting Success Factors for United Kingdom Para Athletics .

*Please answer the following questions by ticking the response that applies*

| | YES | NO |
|---|---|---|
| 1. I have read the Information Sheet for this study and have had details of the study explained to me. | ☐ | ☐ |
| 2. My questions about the study have been answered to my satisfaction and I understand that I may ask further questions at any point. | ☐ | ☐ |
| 3. I understand that I am free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher. | ☐ | ☐ |
| 4. I agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet. | ☐ | ☐ |
| 5. I wish to participate in the study under the conditions set out in the Information Sheet. | ☐ | ☐ |
| 6. I consent to the information collected for the purposes of this research study, once anonymised (so that I cannot be identified), to be used for any other research purposes. | ☐ | ☐ |

**Participant's Signature: _____ Date: _____**

**Participant's Name (Printed): _____**

**Contact details: _____**

---

**Researcher's Name (Printed): _____**

**Researcher's Signature: _____**

**Researcher's contact details:**

Rebecca Peake, a216, Collegiate Hall, Sheffield Hallam University, Sheffield, SA10 2BP

r.peake@shu.ac.uk 07980920093

**Please keep your copy of the consent form and the information sheet together.**