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The Impact of Resource Inequality upon Participation and Success at the Summer and Winter Paralympic Games

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Introduction

Alongside the issues of health, inclusion and empowerment that are addressed as part of the sport for development agenda, the most visible challenge faced by the IPC, with direct significance to its legitimacy as an international advocate for disability rights, is the gulf in resourcing for Para-sports, between resource-poor and resource-rich regions. This gulf creates an asymmetry between national teams, evident in levels of representation and podium success at Para-sport events, significant enough to challenge the very notion of the Paralympic Movement as truly international in its reach.

(Beacom, 2018; p. 354)

The above claim made by Beacom (2018) forms the basis for this piece of research. In a study of National Governing Bodies of Olympic sports in Great Britain and their relationships with FTSE 100 companies, Morrow and Robinson (2013) claim that “predictably the unequal distribution of valued resources leads to asymmetric exchange and power relations between organisations and arguably it is the less resource rich organisation that will be the less powerful partner” (p. 414). In terms of disability and Paralympic sport, Novak (2014) claims that there is a failure “to recognize a persistent ‘disability divide’ between the communities who possess the economic means to compete on the playing field and those who do not” (p.57). Although both Beacom and Novak make the claim for a link between access to resources and representation and podium success, it would appear that this claim has

yet to be empirically tested. The aim of this paper, therefore, is to investigate these claims in terms of participation and medal success at the Paralympic Games in order to ascertain whether, and to what extent, access to resources might play a part and to investigate some of the possible reasons for this.

The Growth of the Paralympic Games

For an event that began its life in 1948 as a small demonstration to the public at a spinal injury rehabilitation centre in Stoke Mandeville, UK, of what people with spinal cord injuries could achieve (at a time when society generally consigned most people with disabilities to the scrapheap of life), the Paralympic Games have grown beyond all recognition in a relatively short space of time (Brittain, 2016). This is particularly true of the last thirty years starting in Seoul 1988 since when the Paralympic Games have consistently been held in the same host city and venues as the Olympic Games. Brittain (2016) claims that this connection to the Olympic Movement has played a major part in the growth of the Paralympic Games. These Games since 1988 are often referred to as the modern Paralympic Games (Legg & Steadward, 2011). Over the last thirty years, tables 1 and 2 clearly show that involvement in the summer Paralympic Games has developed rapidly on all continents, but with some major differences. Africa in particular has grown from just four competing nations in 1988 to forty-two in 2016. However, even though the number of competing nations from Africa at the Rio 2016 Paralympic Games was exactly the same as the number of competing nations from Europe (42) there was a marked difference in average team size between the two continents (Europe = 42 athletes, Africa = 7 athletes). The differences for the winter Paralympic Games (see table 2) are even more stark with the vast majority of teams and athletes at the latest Games in PyeongChang 2018 coming from Europe. One of the aims of this paper is to investigate the potential role of resource accessibility in deciding who can and who cannot participate.

Table 1. NPC and Number of Athletes Participation by Continental Association at the summer Paralympic Games (1988 – 2016)

Location	Europe	Americas	Africa	Asia	Oceania	Total
Seoul	(27) 1479 (55)	(11) 706 (64)	(4) 73 (18)	(16) 610 (38)	(2) 189 (95)	(60) 3059 (51)
Barcelona	(33) 1798 (54)	(16) 630 (39)	(11) 94 (9)	(20) 316 (16)	(2) 147 (74)	(83) 3001 (36)
Atlanta	(41) 1939 (47)	(18) 654 (36)	(16) 130 (8)	(25) 339 (14)	(3) 197 (66)	(103) 3259 (32)
Sydney	(41) 2076 (53)	(20) 668 (33)	(20) 213 (11)	(33) 583 (18)	(7) 339 (48)	(122) 3882 (32)
Athens	(42) 1927 (46)	(24) 695 (29)	(28) 216 (8)	(36) 778 (22)	(5) 192 (38)	(135) 3808 (28)
Beijing	(45) 1954 (43)	(24) 751 (31)	(30) 251 (8)	(40) 858 (21)	(7) 197 (28)	(146) 4011 (27)
London	(47) 2085 (44)	(28) 803 (29)	(39) 307 (8)	(42) 854 (20)	(8) 188 (23)	(164) 4237 (26)
Rio	(44) 1859 (42)	(26) 1010 (39)	(42) 314 (7)	(39) 925 (24)	(6) 207 (35)	(157) 4315 (27)

Right Brackets = No. of NPCs; Middle Figure = Total No. of Athletes; Left Brackets = Average Team Size

Table 2. NPC and Number of Athletes Participation by Continental Association at the winter Paralympic Games (1992 – 2014)

Location	Europe	Americas	Africa	Asia	Oceania	Total
Tignes	(18) 288 (16)	(2) 48 (24)	(0) 0 (0)	(2) 17 (9)	(2) 12 (6)	(24) 365 (15)
Lillehammer	(24) 367 (15)	(2) 61 (31)	(0) 0 (0)	(3) 30 (10)	(2) 13 (6)	(31) 471 (15)
Nagano	(22) 396 (18)	(2) 82 (41)	(1) 1 (1)	(4) 74 (19)	(2) 9 (5)	(31) 562 (18)
Salt Lake	(25) 273 (11)	(3) 86 (29)	(1) 1 (1)	(5) 48 (10)	(2) 8 (4)	(36) 416 (12)
Torino	(25) 315 (13)	(4) 92 (23)	(1) 1 (1)	(6) 54 (9)	(2) 12 (6)	(38) 474 (12)
Vancouver	(30) 310 (10)	(5) 101 (20)	(1) 1 (1)	(6) 77 (13)	(2) 13 (7)	(44) 502 (11)
Sochi	(30) 334 (11)	(6) 128 (21)	(0) 0 (0)	(7) 66 (9)	(2) 10 (5)	(45) 538 (12)
PyeongChang*	(31) 273 (9)	(6) 131 (22)	(0) 0 (0)	(9) 116 (13)	(2) 14 (7)	(48) 534 (11)

Right Brackets = No. of NPCs; Middle Figure = Total No. of Athletes; Left Brackets = Average Team Size

*Does not include neutral Paralympic athletes ((1) 30 (30))

Resource Dependency Theory

Resource Dependency Theory (RDT) was first introduced by Pfeffer and Salancik (1978) in order to explain how an organisation's strategy, structure and survival are contingent on resources and dependency relationships with external institutions in its environment. Hillman et al (2009) claim that RDT has become highly influential within the fields of management and strategy due to the importance of resource availability on the ability of organisations to operate, develop and succeed. These

resources can be tangible (physical and financial) or intangible (corporate reputation, employees' knowledge, experience and skills, and their commitment and loyalty) (O'Boyle & Hassan 2014; Pfeffer & Salancik, 1978). According to Yeager et al (2015) RDT focuses upon the significance of the external environment in understanding the decisions made by organisations, with those possessing the necessary resources finding themselves in a position of power and those that find themselves dependent upon others being vulnerable to control (Malatesta & Smith, 2014). The organisation in possession of the most important resources within a network will typically hold a strategic control within that network (Yan & Gray, 2001). Problems may arise for an organisation within that network not only because it is dependent upon its environment, but also because the environment itself is not dependable or certain (Pfeffer and Salancik, 1978). According to Giannoulakis et al (2017), RDT offers an appropriate framework to understand organisations operating with 'shifting' sources of funds, which partly describes the situation for most National Paralympic Committees (NPCs) and particularly those from less developed nations, where sources of funds may not only be extremely uncertain, but also extremely limited even in the best of times. Moreover, studies such as Vos et al (2011) and Wicker and Breuer (2011) apply RDT to the sporting context, with Walker and Hayton (2017) also applying RDT to the disability sport context. This paper will, therefore, seek to use RDT in order to investigate the success of NPCs at the Paralympic Games and whether there is a link between the Inequality-adjusted Human Development Index (IHDI) ranking of a country and its participation and potential for success at the Games.

People with Disabilities and Restricted Resources

Britain's Department for International Development (DFID) broadly defines social exclusion as a process by which certain groups are systematically disadvantaged because they face discrimination based on their ethnicity, race, religion, sexual orientation, caste, descent, gender, age, disability, HIV status, migrant status, or where they live. Discrimination occurs in public institutions, such as the legal system or education and health services, as well as social institutions like the household (DFID, 2005). Many authors within the field of critical disability studies (e.g. Baffoe,

2013; Sloane & Jones, 2012; Barnes & Mercer, 2005) claim that people with disabilities are systematically and deliberately prevented from accessing the resources that most non-disabled people, particularly in developed countries, take for granted (e.g. education, employment). This occurs through an ideology known as ableism that Wolbring (2012) describes as “prejudicial attitudes and discriminatory behaviours toward persons with a disability. Definitions of ableism hinge on one’s understanding of normal ability and the rights and benefits afforded to persons deemed “normal” (p.78). Ableism devalues people with disabilities and results in segregation, social isolation and social policies that limit opportunities for full societal participation. This restriction from resources in all areas of life makes participation in life in general increasingly difficult, with the vast majority of people with disabilities living at or below the poverty line (Stapleton et al, 2006). There is a strong link between poverty and disability, with both disability leading to poverty and poverty being a cause of disability highlighted by the fact that in Kenya roughly 81% of persons with disabilities have parents or guardians who come from the poorest economic levels (Crawford, 2004; p.12-13) According to Beal and Piron (2005) social exclusion can refer to individuals or groups, is based upon social relations (putting power at the centre of analysis), includes an institutional dimension involving organisations and processes that exclude individuals or groups from the decision making process, has a causal dimension (such as prejudice) and involves a multi-dimensional process highlighting the intersectionality of various aspects of discrimination such as gender and disability. Brittain (2006) states that:

Oliver (1990) claims that since the fifties an upswing in the economy in Britain led to an increasing concern to provide more services for disabled people out of an ever increasing national wealth. That is not to say that social policy with regard to the disabled is purely a matter of economic determinism, although the financial implications of any such policies will play an important regulatory role. Prevalent religious and cultural beliefs within a particular society will also play a part in deciding the impact economics will play in determining whether a particular policy will be implemented or not. It could be argued, therefore, that one possible measure of social and economic success within a particular country is the treatment and social status of minority groups such as the

disabled. Given the costs of taking part in and achieving success in an elite sports event for disabled athletes such as the Paralympic Games it could also be argued that such participation may be an indicator of how well people with disabilities are regarded within the nation that they represent.

(Brittain, 2006; p. 39)

Unfortunately, persons with disabilities are also susceptible to internalising stereotypes and negative beliefs (Campbell, 2008). This process is called internalised ableism and is similar to internalised racism and sexism regarding other devalued groups. Internalised ableism in sport is experienced by athletes with disabilities, coaches and administrators through their acceptance of the status quo and second-class status compared to non-disabled athletes and non-disabled sports (Brittain, Legg & Wolff, 2017). Today's mainstream sports organisations, sports media, sports sponsors and the overall sports industry place an extensive focus on non-disabled athletes and non-disabled sports. While sports opportunities for persons with disabilities continue to emerge in many international communities, athletes with disabilities and disability-specific sports largely remain segregated and invisible from the mainstream sports environment (Brittain, 2016). Historic and current barriers and prejudices have reinforced the marginalisation of persons with disabilities in sports. Building on Brittain's quote (above) it would appear that in countries that are classified as developing, where the economic and social resources for the country as a whole may be restricted, the impact of ableism upon the lives of people with disabilities in terms of their access to resources, and therefore opportunities to take part in sport, are likely to be even more restricted than for those living in a more developed country where there may be more resources to go around.

People with Disabilities, Resources and Access to Sport

Farkas Karageorgos and Higgs (2018) claim that there is a link between disability and poverty and that disability is both a cause and consequence of poverty, with the Council of Europe (2014) recognising that people with disabilities are often treated as second class citizens who have to fight for even basic rights. Farkas Karageorgos and Higgs (2019) list a number of challenges that can arise including "poor access to

venues, denial of entry to a mainstream school, or being prevented from participating in sport and recreation alongside peers without disabilities” (p. 275). Devine (1997) claims that society has a prescribed set of standards by which we are all measured and when someone’s biological make-up or function fails to meet these standards, they are ‘assumed to be inferior and are subject to a decrease in inclusion in society’ (p. 4). This inclusion includes access to the available resources within that society. Brittain (2016) claims that ‘this is equally true for many aspects of life, but in the realm of sport, where one of the key aims is to distinguish between different levels of biological make-up and function through tests of physical strength, speed and endurance, this is especially true’ (p. 75). This potential exclusion from sport begins within the wider social structure through the kinds of exclusions outlined above (education, employment), which lead to many people with disabilities living at or below the poverty line (Stapleton et al, 2006) and, therefore, spending what little resources they have fighting to survive rather than involving themselves in sport or any other kind of leisure activity. Indeed, Crawford (2004) highlights inadequate nutrition for athletes with disabilities as a major problem in Kenya with several coaches cited as being fearful of pushing their athletes too hard for fear they had not even eaten that day.

Even if they find they are lucky enough to have the necessary resources and the desire to take part in sport, a number of other issues may prevent them from actually doing so. Firstly, people with disabilities are often socialised into believing that, due to their impairments, they are incapable of participating in sport, which is part of the process of internalised ableism outlined above. Secondly, the environment in which sporting activity takes place (e.g. facilities) has historically been designed for the non-disabled population (based upon the assumption that people with disabilities are incapable of doing sport) and so gaining access to the facilities can often prove extremely difficult, if not impossible (Jaarsma et al, 2014). Thirdly, even if they can gain access to the facilities, there may well be a lack of sporting opportunities for them to participate in or a lack of coaches with the knowledge or inclination to teach them (Dieffenbach & Statler, 2012). On an organisational level, the priority given within society to non-disabled sport also impacts heavily upon resource availability for sport aimed at people with disabilities, especially if the resources available for sport as a whole are already limited. To put this into some kind of perspective,

according to Tony Naar, former Information Manager for the Australian Paralympic Committee (an NPC in the Very High IHDI rank), the funding for the Australian Paralympic team for 2017-2018 amounts to around 13.7% of what the Australian Olympic team will receive for the same period (Naar, 2017). Therefore, in terms of NPCs from less developed countries, on a Paralympic level Dowling et al (2017) point out that 'while each NPC may have formal rights and responsibilities within the Movement, many are under resourced to the point of not being able to provide the most basic of services such as taking athletes to the Paralympic Games'.

Methods

Research Design and Data Collection

The research for this article involved a comparison of NPC participation from countries sorted into their relevant United Nations Inequality-adjusted Human Development Index ranking (United Nations, 2015) and then compared against their respective team size data and medal success as found on the International Paralympic Committee (IPC) results database (IPC website, 2017a). According to the United Nations (2015), the Human Development Index (HDI) is a summary measure of average achievement by countries in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. However, the IHDI takes into account not only the average achievements of a country on health, education and income, but also how those achievements are distributed among its population by "discounting" each dimension's average value according to its level of inequality. Countries are then placed into four categories of development; Very High (lowest inequality), High, Medium and Low (highest inequality).

Data Analysis

Data from the IPC results database, including team sizes (total and by gender) and medal success, was taken for all summer Paralympic Games from Sydney 2000 and all winter Paralympic Games from Nagano 1998 onwards and placed into Excel spreadsheets. Each competing NPC at a particular Games was then assigned with its

corresponding rank (Very High, High, Medium and Low) from the United Nations IHDI ranking list (United Nations, 2015). Each set of data (Team size and Medals won) was then grouped according to this assigned ranking. In terms of medal success data only countries winning at least one medal was included. Once this had been completed, this allowed for the total number of NPCs in each group ranking to be ascertained, including the average team size (as well as average number of men and women) and the total number of medals won by NPCs within each ranking. In addition, the data for the most recent summer Paralympic Games (Rio 2016) was analysed further to identify the number of NPCs within each ranking that had team sizes of only one, three or less, and 5 or less athletes as well as the number of teams with all male or all female athletes. Finally, the medal events in which those NPCs in the Low IHDI ranking won medals at the last three summer Paralympic Games (Beijing 2008, London 2012 and Rio 2016) were analysed further. The results of this data analysis were then examined in terms of the potential impact of resource dependency in order to try and ascertain to what extent resource dependency theory may or may not provide an explanation for the results.

Results

The Summer Paralympic Games

Participation

An analysis of the participation of NPCs by IHDI ranking in terms of team size at the last three summer Paralympic Games highlights several distinct patterns. As can be seen in table 3, the number of participating NPCs from countries in the low IHDI ranking has risen nearly fifty percent in the last decade alone. However, the average team size is massively skewed towards those NPCs from countries in the Very High and High IHDI rankings, where the average team size is approximately seventeen times and eleven times (respectively) bigger than that for the NPCs from the Low IHDI ranking. With the one exception of the Low ranked countries in Rio 2016, the average number of women as a percentage of the overall average team size also decreases consistently from NPCs in the highest IHDI ranking to the lowest. However, the result for the women from Low IHDI teams in Rio is possibly just a

result of the very small overall team sizes for these NPCs.

Table 3. Average NPC team size by IHDI and gender at the last three summer Paralympic Games (2008-2016)

Country IHDI Band	Average Number in Team (Beijing 2008)				Average Number in Team (London 2012)				Average Number in Team (Rio 2016)			
	NPCs	Men	Women	Total	NPCs	Men	Women	Total	NPCs	Men	Women	Total
Very High	51	31.71	17.49	49.20	53	31.02	17.66	48.68	51	30.41	19.76	50.17
High	41	20.22	10.02	30.24	45	19.53	10.96	30.49	43	20.04	12.74	32.78
Medium	30	4.27	1.97	6.24	30	5.83	2.17	8.00	29	6.17	2.34	8.52
Low	24	2.29	0.83	3.12	36	2.25	0.81	3.06	34	1.59	1.32	2.91

As can be seen in table 4 the number of NPCs with only one athlete also increases greatly from the highest IHDI ranking to the lowest, with 52.9% of countries in the Low IHDI ranking having only one athlete in the team. It can also be seen from table 4 that 50% of all NPCs in the lowest and 44.8% of NPCs in the medium IHDI rank had no women at all in their team. None of the NPCs without a male athlete had more than two women in their team and both of the teams in the Low IHDI ranking with no men only had a single female athlete in their team.

Table 4. Number of NPCs by IHDI group with only one, three or less and 5 or less athletes and no men or no women at the Rio 2016 summer Paralympic Games

	NPCs	1	3 or <	5 or <	No Men	No Women
Very High	51	3	9	11	3	4
High	43	4	18	21	1	5
Medium	29	10	18	19	0	13
Low	34	18	27	31	2	17
Total	157*	35	72	82	6	39

*Does not include the two male Independent Paralympic Athletes

Medal success

As can be seen in table 5 NPCs from the Very High and High IHDI rankings have won over 92.9% of all available medals at the last five summer Paralympic Games. The percentage of medals won by NPCs from the Low IHDI ranking has remained

relatively static at around 1.5% over the same period, although the number of NPCs from this rank winning medals in Rio 2016 did increase to a new high of seven. However, this could conceivably be down to the absence of Russia, who finished second in the medal table at London 2012, but were banned from participating in Rio by the IPC due to allegations of state sponsored doping offences (IPC, 2016b).

Table 5. Percentage of all available medals won by IHDI group at the last five summer Paralympic Games.

	1. Very High	2. High	1 + 2	3. Medium	4. Low	3 + 4
Sydney 2000	77.6 (41)	17.1 (19)	94.7 (60)	4.1 (4)	1.2 (4)	5.3 (8)
Athens 2004	67.1 (43)	26.8 (20)	93.9 (63)	4.5 (7)	1.5 (5)	6.0 (12)
Beijing 2008	58.0 (41)	36.6 (23)	94.6 (64)	3.8 (9)	1.6 (5)	5.4 (14)
London 2012	55.1 (40)	39.7 (23)	94.8 (63)	3.8 (8)	1.4 (4)	5.2 (12)
Rio 2016	55.4 (41)	37.5 (23)	92.9 (64)	5.6 (12)	1.5 (7)	7.1 (19)

Numbers in brackets are the number of NPCs from that IHDI ranking winning medals

Statistical analysis of the participation and medal success data from the Rio 2016 Paralympic Games

Statistical analysis of four key variables (1. IHDI rank (1 = Very High, 4 = Low); 2. Total team size; 3. Total number of women in the team and 4. Total number of medals won) from the participation and medal success data for the Rio 2016 Paralympic Games delivered statistically significant correlations (at the 0.01 level) between all variables (see table 6). The implications of this analysis appear to be:

- The higher the IHDI rank of a country i. the bigger its team is likely to be; ii. the more women are likely to be in that team, and iii. the more medals it is likely to win.
- The bigger the team i. the more women are likely to be in that team and ii. the more medals it is likely to win.
- The more women they have in a team the more medals they are likely to win.

Some of these correlations would appear to be self-evident as having a larger team will mean that more events and sports can be entered, thus increasing the opportunities to win medals. However, the correlation between IHDI rank and team size would appear to highlight a strong link between resource availability and opportunities by people with disabilities to participate in sport, as well as resource

availability and the possibility to win medals at the Paralympic Games.

Table 6. Pearson Correlations for NPCs participating at the Rio 2016 summer Paralympic Games (N=157)

	IHDI Rank	Team Size	Women	Medals
IHDI Rank 1= V. High, 4= Low	1	-.352**	-.330**	-.245**
Team Size	-.352**	1	.983**	.895**
Women	-.330**	.983**	1	.923**
Medals	-.245**	.895**	.923**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Analysis of the medals won by NPCs in the Low IHDI rank at the Rio 2016 summer Paralympic Games

When the medals won at the last three summer Paralympic Games by NPCs in the Low IHDI rank were investigated and analysed further some interesting results emerged. Table 7 lists each of the NPCs from the Low IHDI ranking who won medals at the last three summer Paralympic Games along with the number of medals won.

Table 7. Medals won by NPCs in the Low IHDI Group at the last three summer Paralympic Games (2008-2016).

Beijing 2008					London 2012					Rio 2016				
NPC	G	S	B	T	NPC	G	S	B	T	NPC	G	S	B	T
Kenya	5	3	1	9	Nigeria	6	5	2	13	Nigeria	8	2	2	12
Nigeria	4	4	1	9	Kenya	2	2	2	6	Kenya	3	1	2	6
Angola	0	3	0	3	Angola	1	0	1	2	Ethiopia	0	1	0	1
Pakistan	0	1	0	1	Ethiopia	0	1	0	1	Ivory Coast	0	1	0	1
Papua New Guinea	0	1	0	1						Uganda	0	1	0	1
										Mozambique	0	0	1	1
										Pakistan	0	0	1	1

The first point of interest to emerge was that the medals have only come from two sports (Athletics (Track and Field) and Powerlifting) despite there being at least twenty sports on the programme at each of the three Games. In addition, all of the powerlifting medals (27 of 68) were won by one nation – Nigeria. According to Mark (2012) the Nigerian powerlifters have been successful ‘despite disorganisation and

inadequate funding'. Both Mark (ibid) and the BBC (2016) claim that the success of the Nigerian powerlifters is down largely to the passion and drive of one man, Aare Feyisetan, himself a wheelchair user and former powerlifting champion at the All Africa Games, who coaches and advocates for the Nigerian powerlifting team. Despite their success at the Paralympic Games, Feyisetan claims that his team leave their homes at 5.00am three times a week and push themselves along roads that non-disabled people find difficult to traverse, to start training at 6.00am using 'broken benches, inside the dark and dilapidated National Stadium in Lagos' (BBC, 2016). However, Feyisetan still fears that some of his gold medal winning athletes still face a life of begging on the streets once they retire, such is the situation for people with disabilities in Nigeria. The success of the Nigerian Paralympic powerlifting athletes appeared to have not gone completely unnoticed by the Nigerian government, with their Sports Minister claiming 'The lesson for us is that rather than spread our resources thin, we focus on areas where we can win. We're going to put more money into the sports where we have a comparative advantage' (Mark, 2012). This comment highlights a view that it is only success that is important, with little thought given to the potential social benefits that might be gained from a nation's participation in the Paralympic Games and although this comment may have given some hope for current Nigerian powerlifters, and maybe a few track and field athletes, it would appear to offer little for the development of other Paralympic sports, nor the plight of people with disabilities more generally within Nigerian society. However, given that the comments by Feyisetan reported by the BBC (2016) came four years after the Sports Minister's comment, it would appear that little has actually changed. In fact the powerlifters actually won three less medals at the Rio 2016 Games than in London four years earlier. It is clear that the Nigerian team is successful, despite and not because of the resources provided to them in terms of facilities, equipment and government support, and that the key resource that has made them successful are the passion and dedication of the national coach and his athletes for their sport.

A description of the types of athletics (track and field) events that the remaining 41 medals were won in is shown in table 8 (below).

Table 8. Classification of events where countries with a Low IHDI ranking have been successful at the last three summer Paralympic Games.

Type of Event	Number of Medals
Blind and visually impaired track races (T11-13)	25
Upper limb deficiency e.g. missing hand (T46)	7
Seated throw (minimal disability i.e. F57/58)	5
Mild cerebral palsy (F37/38)	2
Seated throw (F54)	1
Short stature (F40)	1

What table 8 clearly highlights is a total lack of any event requiring either a racing wheelchair or prosthetic lower limb, both of which can be prohibitively expensive for either the NPC or the individual athlete from a country in the Low IHDI rank. The implications of this will be investigated further in the discussion section below. In addition, 25 of the 41 medals (61%) were won by visually impaired track athletes of which 16 (64%) were from Kenyan distance runners with a visual impairment. Kenya has a world renowned tradition in distance running for non-disabled athletes and, therefore, a plentiful supply of training partners and guide runners of sufficient calibre to provide athletes with a visual impairment with an excellent training environment, providing they can overcome other social issues that may arise as a result of their impairment.

The Winter Paralympic Games

Participation

The link between the IHDI rank of a country and their NPC's participation at the Paralympic Games appears even more apparent when considering the winter Games. NPCs in the Very High and High IHDI rank have consistently made up over 90% of all of the competing NPCs at the last three winter Paralympic Games. Up until PyeongChang 2018 no athlete from a country in the Low IHDI rank has competed at a winter Paralympic Games since Tofiri Kibuuka who competed for Uganda in 1976 and 1980, although it should be noted he was living in Norway throughout this period (Brittain, 2016). PyeongChang 2018 saw the participation of two male athletes from

North Korea, although this was possibly all part of the sports diplomacy efforts being brokered by the IOC between the two Koreas at the time. It will be interesting to see if the participation of North Korea continues at Beijing 2022. The analysis also shows almost exactly the same patterns as for the summer Games with average team size and average number of women in a team decreasing as you move down the IHDI ranks. The result for the men from Low IHDI teams in PyeongChang is likely just a result of there only being the one team from this ranking in PyeongChang (North Korea). Only four NPCs from the Medium IHDI rank have competed since Torino 2006. Mongolia has participated at all three with a maximum team size of 2 men. South Africa competed in Torino 2006 and Vancouver 2010, having previously also competed in the two winter Games before that. However, this was actually just one man, Bruce Warner, who competed in alpine skiing events from 1998 to 2010. Warner lost a leg in a car crash and having previously intended to make a career in hockey, he subsequently embarked on a career in skiing (Brittain, 2016). That a country as successful as South Africa in sport generally and at the summer Paralympic Games is unable to compete at the winter Paralympic Games highlights the impact of many of the issues regarding participation at the winter Paralympic Games. Tajikistan competed in their first winter Paralympic Games in PyeongChang with a male visually impaired cross country skier and their guide. The final participating NPC from the Medium IHDI rank was Uzbekistan with two male athletes in Sochi, although it should be noted that in the latest UN IHDI rankings that came out after this research had been completed, Uzbekistan have been upgraded to the High IHDI rank (UN, 2017). In the case of all four NPCs, all of the participating athletes at the four Games were in standing classifications, which includes visual impairment, amputees, co-ordination problems and muscle weakness in legs and/ or arms (IPC, 2017c).

Table 9. Average NPC team size by IHDI and gender at the last three winter Paralympic Games (2010-2018)

Country IHDI Band	Average Number in Team (Vancouver 2010)				Average Number in Team (Sochi 2014)				Average Number in Team (PyeongChang 2018)			
	NPCs	Men	Women	Total	NPCs	Men	Women	Total	NPCs	Men	Women	Total
Very High	30	10.93	3.1	14.03	29	10.83	3.14	13.97	30	11.87	3	14.87
High	12	4.17	2.33	6.5	14	6.64	2.64	9.28	15	4.73	2.8	7.53
Medium	2	1.5	0	1.5	2	1.5	0	1.5	3	0.67	0.33	1
Low	0	0	0	0	0	0	0	0	1	2	0	2

The major difference between the participation rates at the summer and winter Paralympic Games is likely to be access to ice facilities, and geographical i.e. access to the necessary topographical (e.g. mountains) and climatic conditions (e.g. snow) needed for the regular practice of winter sports. Those countries lacking these conditions would need to be able to afford to send athletes to train in areas of the world where these conditions can be found, which, along with the cost of the necessary adapted equipment, makes participation in winter sports for these nations a very expensive proposition indeed.

In addition, as table 10 highlights, lower ranked countries are also less likely to bring competition partners such as guides for visually impaired athletes, as with limited budgets, bringing a competition partner would probably mean bringing one less athlete.

Table 10. Number of competition partners by NPC and IHDI ranking at PyeongChang 2018.

Country IHDI Band	NPCs	Number of Competition Partners PyeongChang 2014		
		Men	Women	Total
Very High	30	38	11	49
High	15	21	2	23
Medium	3	1	0	1
Low	1	0	0	0
Total	49	60	13	73

Medal success

An analysis of medal success at the last six winter Paralympic Games (see table 11) shows that one hundred percent of all medals have been won by countries in the Very High or High IHDI rank. It would also appear to show that an increasing number of medals have been won by a very small number of NPCs from countries in the High IHDI rank. At the four winter Games prior to PyeongChang 2018 this has been down to the same three NPCs (Belarus, Russia and Ukraine), with Russia in particular winning increasing numbers of medals culminating in them topping the medal table in Sochi with 80 medals, which amounts to 37% of all available medals. However, like Uzbekistan mentioned above, Russia have also been ‘promoted’ in the latest IHDI rankings from High to Very High, and so it is highly likely that this trend will be reversed in the future. This will either be because Russian medals from future winter Games will count towards the Very High rank or, in the case of PyeongChang 2018, that the Russian ban from Paralympic sport for state sponsored doping means that the medals they might have won were picked up by other countries in the Very High rank. Indeed the results from PyeongChang clearly highlight the absence of the Russian team and the impact their absence had upon the medal table. Even if the Neutral Paralympic Team medals are included, given that Russia (where the neutral athletes came from) is now ranked in the Very High IHDI ranking, this would mean that 94.2 percent of all medals in PyeongChang were won by countries in the Very High ranking.

Table 11. Percentage of all available medals won by IHDI group at the last five winter Paralympic Games

	1. Very High	2. High	1 + 2	3. Medium	4. Low	3 + 4
Nagano 1998	89.1 (19)	10.9 (2)	100.0 (21)	0	0	0
Salt Lake 2002	87.3 (19)	12.7 (3)	100.0 (22)	0	0	0
Torino 2006	61.5 (16)	38.5 (3)	100.0 (19)	0	0	0
Vancouver 2010	65.5 (18)	34.4 (3)	100.0 (21)	0	0	0
Sochi 2014	50.0 (16)	50.0 (3)	100.0 (19)	0	0	0
PyeongChang**	93.5 (22)	6.5 (3)	100.0 (25)	0	0	0

Numbers in brackets are the number of NPCs from that IHDI ranking winning medals

**Excludes Neutral Athletes Team medals

Discussion

Technology

Howe (2011; p. 872) claims that 'medal tables at the Paralympic Games have been traditionally dominated by Western nations in part because they are at the forefront of the technological advancements in mobility apparatus'. According to Zettler (2009) the more specialised a piece of equipment becomes, its cost increases greatly due to the smaller pool of potential purchasers. A single racing prosthetic for a below the knee amputee with fitting can cost up to \$20,000 (Runners World, 2015), and a top of the range Invacare Top End Eliminator OSR Racing Chair with carbon fibre wheels costs just over £6,200 (Invacare website, 2017). Novak (2014) claims that the existence of technology has brought those with the economic means to access it closer together, whilst those that do not have access become even more isolated, leading to a 'disability divide'. The implications of this divide have clearly been seen in the results of this research and Novak cites a number of examples of how this impacts upon access to sport for people with disabilities on the wrong side of this divide. He cites Noutcha (2008) who claimed that in Cameroon, only twenty-five competition wheelchairs existed for 500 athletes, with the remaining athletes having to use their own wheelchairs to compete in a range of sports from basketball to athletics. Novak also cites Crawford and Stodolska (2008) who stated that in Kenya 'the high cost of equipment forced athletes to use whatever was readily available, even though it was not proper equipment to be used during international competitions' (p. 141). However, as pointed out earlier in the quote from Naar (2017), it is not only those countries who are in the Low IHDI rank that struggle to access the necessary financial resources, with the Australian NPC apparently only receiving 13.7% the budget of the Australian Olympic Committee. If a country in the Very High IHDI rank like Australia receives such a small fraction of their Olympic counterparts it is highly conceivable that in countries in the Low IHDI ranking, where Olympic budgets are likely to be much smaller by comparison, the budgets for the NPCs are likely to be very small indeed.

Controlling the resources

The resources required by individuals and organisations wishing to take part in sport for people with disabilities and ultimately to participate at the Paralympic Games appear to be controlled and or restricted in a number of ways. Firstly, on an ideological level, the concept of ableism is used to both exclude (to varying degrees depending upon the country and the situation) people with disabilities from the wider society and to restrict their access to the resources necessary to take a full and active role within society. On a national level, this means that access to key resources necessary for life such as education and employment may be restricted, making it extremely difficult for people with disabilities to even consider getting involved in sport. Ableism within the organisational structures of sport and its supporting apparatus (e.g. government, sports federations, sponsors etc.) often mean that resources are prioritised for non-disabled sport. The scarcer the resources and the greater the inequalities within a country, the more likely athletes with disabilities and the organisations that support them are to struggle to gain access to the resources necessary to survive let alone succeed at the highest levels. Finally, control over the resources is also maintained through the power held by those already in control. Novak (2014) claims disability sport at the elite level requires expensive technological inputs in the form of sport prostheses, adapted equipment, and trained coaching, regulated by European and American institutions in the form of the Paralympic Games and the sport federations that lay the ground rules for competition (p. 44). This appears to imply that the more developed nations maintain their power and control over the less developed nations through a monopoly on resources necessary to achieve success at the highest levels. When you put all of these factors together, it is clear to see why there are such disparities in the participation rates and success at the Paralympic Games of those countries in the Low IHDI rank compared to nations ranked above them.

The Agitos Foundation and the development of Parasport

It is clear that IPC has its work cut out if it is to fulfil its proclaimed role as an international advocate of disability rights, rather than just as the organiser of a major sports event. It needs to try and overcome the huge gulf in resources that are apparent from the analysis of results in this paper. According to former IPC

Development Manager Amy Farkas Karageorgos, the IPC has been carrying out development work in Africa since at least 2003 (Farkas Karageorgos, 2015; personal communication) and works closely with the African Sports Confederation of Disabled (ASCOD), which is described in the IPC newsletter 'The Paralympian' of 2003 as the IPC's African regional committee (The Paralympian, 2003; p. 10). The IPC has certainly been running workshops in Africa covering various topics such as classification seminars for doctors and physiotherapists since around the year 2000 (The Paralympian, 2000; p.8). However, more recently, as the IPC has grown in stature and relative financial security, this has allowed them to set up an embryonic version of the IOC's Olympic Solidarity in order to try and promote the development of sport for people with disabilities around the world. The Agitos Foundation, which takes its name from the Paralympic Symbol, the Agitos, was launched by the IPC on Tuesday September 4th, 2012 in order to fulfil its strategic goal in terms of development and education, with the aim of supporting the implementation of the United Nations Convention on the Rights of Persons with Disabilities (2006) and sustaining and delivering on the Paralympic Movement's global objective of helping to create a more inclusive society. It aims to do this by increasing awareness, forming partnerships and securing the necessary resources to implement programmes covering four key areas: i. Sports development; ii. Awareness and education; iii. Advocacy and inclusion and iv. Knowledge and research (IPC Website, 2017d).

In 2016, in the fourth year of their grant support programme (GSP), the Agitos Foundation put out a call for proposals from IPC member organisations to access €650,000 of funding to instigate partnerships in order to implement development projects that support the IPC strategic priorities. The 2016 GSP received a total of 66 applications of which 33 received funding, bringing the total number of projects funded over the four iterations of the programme to 126 (Winters, 2016). In the first three years of the grant support programme the awards were split as follows (see table 12) :

Table 12: Agitos Foundation Grant awards by region (2012-2015)

Region	Africa	Americas	Asia	Europe	Oceania	Partnership between Regions
Number of Projects	21	16	9	16	4	27

Source: Agitos Foundation (2016)

In addition, the Agitos Foundation also runs a number of other programmes aimed at increasing awareness, knowledge and capacity of and within the Paralympic Movement.

- The *Organisational Capacity Programme* aimed at empowering NPCs with the knowledge, support and motivation to spread the Paralympic Movement across their countries.
- The *Road to the Games* programmes that aim to develop additional organisational capacity in countries and sub-regions where a Paralympic Games or major event is due to be held.
- The *Proud Paralympian* programme provides education about Paralympic values and practical support throughout an athlete's career.
- The *I'm possible* programme is an education toolkit aimed at young children and aspires to change perceptions and bring about social inclusion through Parasport experiences, including the accomplishments, stories and experiences of Para-athletes.
- The *WoMentoring* programme is part of the IPC's goal to see many more women in positions of influence within the Paralympic Movement.

(IPC Website, 2017e)

In comparison to the IOC's Olympic Solidarity, the Agitos Foundation is certainly a (financially) poor relation, but it is clear that it is doing its best with limited resources to increase the capacity of the human resources available to national organisations to maximise awareness of the Paralympic Movement, and in doing so increase the resources of the parent organisation (the IPC) in its goal to grow and develop. Only by growing interest and opportunity at the national level can the IPC hope to continue to develop interest from sponsors and spectators in Parasport at the international level, as without the necessary resources at the national level (e.g. athletes, spectators, awareness and interest) they cannot hope to develop their own

resources and grow further as an international organisation. In order to further this goal, the Agitos Foundation signed a five year contract in 2016 with the Foundation for Global Sport Development in order to 'raise awareness and knowledge of Parasport across the world' (Pavitt, 2016). By raising awareness and changing attitudes towards sport for people with disabilities, it would appear that IPC is attempting to lessen the prejudice borne of ableism in order that ultimately this may lead to a fairer distribution of resources and, therefore, provide greater resources for sport for people with disabilities, particularly in less developed countries. In addition, this decrease in inequality at the national level may go some way to increase both participation and eventually success at the Paralympic Games by countries in the Medium and Low IHDI ranks. Finally, this in turn may lead to increased resources for the IPC itself from sources such as sponsorship, enabling IPC to then feed more resources into promoting Parasport worldwide.

Conclusion

The results of this research have clearly highlighted the impact of a number of factors that impact upon the participation and success of nations at the Paralympic Games. Prejudice borne out of an ableist ideology that sees people with disabilities and sport for people with disabilities as something less worthy than non-disabled individuals and non-disabled sport, leads to a restriction of resources in nearly all areas of the lives of people with disabilities that greatly restrict their opportunities for participation in sport. This is particularly the case in less developed nations such as those in the Low IHDI rank, where the United Nations deem inequalities between those who have access to resources and those that do not to be greater. This is likely exacerbated by there being less resources to go around, which leads to the prioritisation of those resources for non-disabled society and non-disabled sport, as it is generally the non-disabled who are the gatekeepers of such resources. This is highlighted by the fact that team sizes from these countries are significantly smaller and they have far less success in terms of medals. This in itself is likely exacerbated as a result of the very nature of Parasport, in that many of the sports require highly expensive technology in order to compete. This again is highlighted by the fact that countries from the Low IHDI rank have only won medals in two sports at the last

three summer Paralympic Games and have not even competed at the last three winter Paralympic Games. In addition, the only events that they have won medals in at the last three summer Games are those that do not require access to expensive technology such as racing wheelchairs or lower limb prostheses, or to major facilities such as swimming pools. Beacom and Brittain (2016) claim that the most visible challenge faced by the IPC is the gulf in resourcing for Paraspport between high- and low-resource nations and regions that remains significant enough to challenge the very notion of the Paralympic Movement as truly international. This gulf in resources is potentially damaging in the longer term to a movement predicated on international representation and, therefore, promoting the rights of people with disabilities in resource-poor regions is critical to the longer-term development of Paralympic sport by countries within these regions. It has clearly made a start in this direction through the work of the Agitos Foundation, but there is still a mountain to climb in order to achieve their aims.

Finally, it should be noted that similar patterns are likely to be found if Olympic participation and success data were to be analysed in comparison to IHDI data. The aim of this paper was to highlight the role of resource accessibility in terms of technology and also the role of ableism in determining participation and success at the Paralympic Games. It would, however, be interesting to carry out further research that compared the results of the Olympic and Paralympic Games.

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リソースの不平等がパラリンピック夏季・冬季大会への参加と成功に与える影響

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本研究では、リソースの格差がパラリンピック競技大会における各国パラリンピック委員会（NPC）（とりわけ発展途上国の NPC）の参加およびメダル獲得力に与える影響について検証した。国連の不平等調整済み人間開発指数（IHDI）のランキングと、国際パラリンピック委員会の成績データベースを用い、夏季および冬季両パラリンピック大会における各国パラリンピック委員会の参加に関して、チームの規模と獲得メダル数で見た成果という2つの観点から分析した。また、IHDIのランキングが最下位層であった諸国の NPC が夏季パラリンピック大会の直近の3大会においてメダルを獲得した種目の種類についても分析を行った。

分析の結果明らかになったのは、次の点である。IHDIのランキングが下位の国ほど、派遣するチームの規模は極めて小さい傾向にあるとともに、女子選手が一人もいない可能性が高く、またメダル獲得の可能性も著しく低かった。加えて、IHDIのランキングが最下位層の国々が獲得したメダルはいずれも、競技用車椅子や下肢義肢などの高価な用具あるいはスイミングプールなど主要スポーツ施設の利用が必要とされない個人種目においてである。

結論として、とりわけ多くのパラスポーツにおいて求められる技術的要件を踏まえると、IHDIのランキングの最上位層と最下位層の国々の間に存在するリソースの不均衡が、機会の平等を基盤にパラリンピック競技大会の発展・推進を目指す国際パラリンピック委員会の取り組みを阻害する大きな要因となっていることが指摘できる。

キーワード：リソース依存、エイブリズム、パラリンピック大会、参加、成功