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PERSPECTIVE OF COACHES ON LTAD OF ELITE JUDO ATHLETES: A COMPARATIVE ANALYSIS

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ABSTRACT

Plans for Long-Term Athlete Development (LTAD) can only have effect by way of optimal management of resources. The Sports Policy Factors Leading to International Sporting Success (SPLISS) provides a theoretical model for policy factors that account for the functioning of elite sport systems and ultimately the performance of elite athletes. Underpinned by resource dependence theory, this study reports on the impact of the management of elite sport systems on the career development of elite judo athletes in three countries. A mixed-methods comparative case study between elite judo coaches, defined by their status as national coaches, from South Africa (n=14) and two internationally successful judo countries, the Netherlands (n=6) and England (n=6), was conducted. Data was gathered by means of questionnaires (n=26) and semi-structured interviews (n=6). The results indicate that the optimal management of multiple resources anticipates successful performance pathways in elite sport systems.

***Keywords*:** SPLISS model; Judo; Elite sport; Resource management; Performance pathways.

INTRODUCTION

Globally, an increase in sport mega events at junior and senior level, combined with the commercial success stemming from the 1984 Los Angeles Olympic Games, has culminated in the proliferation of opportunities for professional sports careers (Tomlinson, 2005). Whilst research on athlete performance has traditionally focused on the effect of the coach-athlete relationship, the effect of performance management has been relatively neglected (Fletcher & Wagstaff, 2009; Fletcher & Arnold, 2011). As a result of the significant investment of resources in the provision of elite training facilities, extensive athlete support services and the direct financial support of elite athletes, the systems that manage elite athletes are receiving greater scholarly attention (Andersen *et al*., 2015).

Globalisation, commercialisation and the professionalisation of elite sport systems have resulted in management models becoming more uniform with contextual realities accounting for the differences in implementation (Houlihan & Zheng, 2013; Trenberth & Hassan, 2013). Within this context, a resource-based strategy that seeks to determine what the organisation is capable of based on the resources that are available (the organisation's capability), is most effective (Robinson & Minikin, 2012). A resource dependence model provides a theoretical framework to account for the success of sport organisations based on strategies, social context

and power relations (Davis & Cobb, 2009). In essence, an organisation's survival depends on the ability to secure and capitalise on resources based on state, commercial and private activities (Giannoulakis *et al*., 2017).

Resources that form the building blocks of the competitive position of an elite sport system, relate to human resources (athletes, coaches and managers), physical resources (training infrastructure and medical facilities) and organisational resources (formal organisation of the sport organisation, the national structure and the coordination of the sport) (Barney, 1991; Truyens *et al*., 2016). The use and allocation of these resources are often dictated by policies of government and international sporting agencies (Truyens *et al*., 2016). The Sports Policy Factors Leading to International Sporting Success (SPLISS) model provides an effective representation of related policies in nine pillars (De Bosscher *et al*., 2006).

PURPOSE OF RESEARCH

This research examines the management of key resources within the framework of the SPLISS model, as it relates to the optimal management of elite judo systems. The paper reports on selected results that form part of a comprehensive study, related to aspects of the optimal management of elite judo systems to produce peak international performances. Judo is one of the most widespread Olympic sports (Ohlenkamp, 2006), and a comparative study would reveal optimal management practices and mechanisms as benchmark for elite sport systems.

METHODOLOGY

Methods

Mixed-methods provided in-depth descriptive data for international comparative case studies between three judo federations, the British Judo Association (BJA), the Judo Bond Nederland (JBN) and Judo South Africa (JSA). This nested case study model integrated qualitative and quantitative data in a vertical and horizontal case-by-case analysis between the respective countries (Creswell & Plano-Clark, 2007; Chong & Graham, 2012). The horizontal analysis assisted in seeking similar and distinct trends between the countries.

Participants

The research was conducted in June and July 2016, during which twenty-six elite judo coaches from the JBN (n=6), the BJA (n=6) and JSA (n=14), were recruited to participate in this study. South African coaches were recruited at the 2016 South African Open Judo Championships, whereas Dutch and British coaches were recruited at two national training centres each in their respective countries. The elite level of coaches was defined by their status as national team coaches in the u-18, u-21 and senior (over 21) years age divisions. As JSA does not employ full-time national coaches similar to the BJA and JBN, South African coaches were recruited based on having been selected as a national coach in the respective age categories during their career.

Data-gathering tools

Quantitative data was gathered with an adapted version of a Commonwealth Games Association questionnaire on governance effectiveness, designed by Hollander (2015). The questionnaire was adapted based on a pilot study and literature, and was refined to measure aspects of elite sport systems based on a five-point Likert scale. Due to the relatively small sample size (n=26), data was analysed using the non-parametric Kruskal-Wallis test to determine statistical significance, and post-hoc comparisons were performed using the Mann-Whitney U-test in order to determine the effect size between the groups (Pallant, 2010; McDonald, 2014). The following table displays the psychometric properties of the scales that were significant to this study.

***Table 1*. PSYCHOMETRIC PROPERTIES OF COACHES' QUESTIONNAIRE**

Resources	Mean	Range	Variance	No. of items	Cronbach's Alpha
Human resources	0.634	0.427	0.022	4	0.874
Financial resources	0.656	0.612	0.050	5	0.905
Physical resources	0.795	0.211	0.009	3	0.921
Organisational resources					
Management	0.783	0.428	0.030	5	0.947
Strategic alliances	0.591	0.169	0.006	3	0.812
Information technology	0.852	0.044	0.000	3	0.945
Capacity-building	0.612	0.758	0.032	9	0.934
Scientific support	0.893	0.096	0.001	5	0.977

Qualitative data was gathered through semi-structured interviews from a purposive sample of eight elite judo coaches from the JBN (n=2), the BJA (n=3) and JSA (n=3). The data gathered from the questionnaires substantiates the experiences of coaches with regard to the most important themes related to the management of elite systems, and the impact on elite athlete performance. The multiple data sets allowed for validation through the triangulation of methods, and coaches representing different age divisions and national judo systems (Hussein, 2009).

Ethical clearance

Ethical clearance for this research was obtained from the Faculty of Health Sciences, University of Johannesburg (Ethical clearance number: REC 01-172-2015).

RESULTS

The results of this study are reported in Table 2 and 3, and discussed according to the themes of management of resources identified in the literature review (human, financial, physical and organisational resources). In order to distinguish between the responses of the respective

coaches, each one was assigned with a number. Dutch coaches are identified as JBN1 and JBN2, British coaches BJA1, BJA2 and BJA3, and South African coaches JSA1, JSA2 and JSA3.

Human resources

This scale measured to what extent human resource capacity building initiatives, policies and procedures, clear job descriptions and full-time employment existed in the JBN, the BJA and JSA, and to what extent. The results reported a statistically significant and a large effect size between the BJA and JBN, in comparison with JSA (see Table 2).

***Table 2*. INTER-COUNTRY COMPARISON OF PHYSICAL, FINANCIAL AND HUMAN RESOURCES**

Variables		M	N	U	Z	r	p
Physical resources	JSA	2.33	14				
	BJA	4.56	6	3.00	-3.24	0.72	0.000
	JBN	4.44	6	1.00	-3.40	0.76	0.001
Financial resources	JSA	2.07	14				
	BJA	3.43	6	16.50	-2.12	0.47	0.034
	JBN	3.70	6	11.50	-2.53	0.57	0.011
Human resources	JSA	2.23	14				
	BJA	3.63	6	12.00	-2.51	0.56	0.012
	JBN	3.81	6	3.00	-3.22	0.72	0.001

JSA=Judo South Africa BJA=British Judo Association; JBN=Judo Bond Nederland

Interviews revealed that investment in elite, full-time coach provision at national training centres in the BJA is a priority as indicated by BJA1: "…coaches are fully employed staff members of the BJA." All the Dutch coaches indicated that national coaches are employed by the JBN, substantiated by JBN1: "…full-time employees, paid by a combination of funding from the NOC*NSF, and the JBN." In South Africa, a volunteer, amateur context exists where judo is often taught at private venues, in comparison to coaching at national training centres in the JBN and BJA. A response from JSA2 provided further insight:

> We have full-time coaches, but for the majority, that's part of their private businesses where they teach judo at schools. There are only a handful of full-time coaches at centres or universities.

Financial resources

This scale measured the financial position of the organisation and the extent to which the organisation had a dedicated marketing position, a marketing and sponsorship strategy, a main sponsor for high performance programmes, and the availability of financial incentives for internationally successful athletes. The results revealed a significant difference between JSA

in comparison to the BJA and JBN, with a medium and large effect size respectively, indicating that the BJA and JBN were more aligned with the items measured, than JSA (see Table 2).

During interviews, South African coaches agreed that national coaches and managers receive limited financial support for tours, with JSA3 indicating that

> "…judokas are usually expected to pay for their own tours and kit. Basically, they cover all their own costs for international events."

In the Netherlands, elite judokas are provided with substantial financial incentives, as indicated by JBN2, referring to costs at the national training centre:

> "…national players pay for their training, but all their tour costs are covered. Olympic players pay a much-reduced fee".

The JBN's national training centre is in Papendal, East Netherlands, and forms part of the Netherlands Olympic Committee and Sport Federation's (NOC*NSF) centralised programme. Regarding UK Sport and the BJA, all coaches agreed that performance-based elite athlete funding is essential, as captured in the following narrative of BJA3:

> Some athletes don't pay for their training, but have to cover their own tournament costs. It depends on their level of performance. UK Sport provides considerable funding for top-tier athletes.

Physical resources

This scale consisted of three items that measured the extent of access to elite training facilities, and a dedicated office with adequate office resources to perform administrative functions. A statistically significant difference existed with large effect sizes between JSA when compared to the BJA and to the JBN respectively (see Table 2). This implies that elite coaches and athletes of the BJA and the JBN have significantly greater access to physical resources than JSA.

Organisational resources

The questionnaire used in this study measured organisational resources under four scales, namely capacity building initiatives, strategic alliances, sport scientific support and information technology (see Table 3). Items of the *capacity building* scale include the extent to which fully supported and effective long-term athlete development (LTAD) and coaches' development plans were implemented, and how such resources culminated in a high performance programme for senior judokas (practitioners of judo). Statistically significant differences and large effect sizes were revealed between JSA in comparison to the JBN and the BJA.

When measuring the extent of *strategic relationships* with important national governing organisations in government, the national anti-doping agency, and essential funding agencies such as the National Lottery, a statistically significant difference and large effect size was revealed when comparing JSA, with the BJA and the JBN. The *sport scientific support* scale measured the extent of provision of sport sciences such as strength and conditioning, nutrition, psychology, rehabilitation and medicine for elite athletes. A statistically significant difference was reported, with a large effect size when comparing JSA with the BJA and the JBN.

Finally, the information technology scale consisted of three items measuring the extent to which IT resources were used for training and development, a database of talented athletes was maintained, and the level of access to modern IT resources. A statistically significant difference and large effect size existed between JSA in comparison with the BJA and the JBN. This implies that the BJA and the JBN are relatively more effective in the use of information technology and the maintenance of an effective database of talented athletes.

***Table 3*. INTER-COUNTRY COMPARISON OF ORGANISATIONAL RESOURCES**

Variable		Mean	N	U	Z	r	p
Capacity building	JSA	2.27	14				
	BJA	3.81	6	7.50	-2.86	0.63	0.004
	JBN	3.43	6	18.00	-1.99	0.44	0.047
Strategic alliances	JSA	3.43	14				
	BJA	4.56	6	5.50	-3.05	0.68	0.002
	JBN	4.44	6	15.50	-2.22	0.50	0.026
Sport sciences support	JSA	1.87	14				
	BJA	4.20	6	1.00	-3.41	0.76	0.001
	JBN	3.97	6	6.50	-2.97	0.66	0.003
Information technology	JSA	2.21	14				
	BJA	4.39	6	1.00	-3.41	0.56	0.001
	JBN	4.06	6	10.50	-2.62	0.59	0.009

JSA=Judo South Africa BJA=British Judo Association JBN=Judo Bond Nederland

Interviews with the elite judo coaches provided meaningful contextual information. South African coaches agreed that judo is not a priority sport as indicated by JSA2: "The government doesn't recognise judo as a priority sport in South Africa." In contrast, JBN2 indicated that:

> The JBN gets about €1 million per year from the NOC*NSF. We have had some problems in our organisation. Our previous technical director had a very good plan and we would have received up to €2 million per year.

All British coaches agreed that the strategic alliance with UK Sport is significant to secure relatively substantial funding. BJA3 indicated that the investment for the Rio Olympic Games was "…approximately £7 million, which is allocated to judo's athlete performance awards and world class programmes."

A narrative from JSA1 indicates a less favourable financial position and is explained as follows:

> The clubs can follow the programme, but there is no substantial national system for LTAD. JSA's system offers five national tournaments, and a yearly training camp. Other than that, there are very few nationally coordinated training programmes.

In contrast, the following response from BJA1 indicated that a system of development for elite judokas is essential:

> …LTAD system can only be effective if the system allows players to progress. The players must be in a full-time programme with high quality scientific support.

Similarly, the Dutch system provides performance pathways that incorporate talent hubs as is indicated by JBN2:

> Four regional training centres at present for our seniors throughout the country. In future, we will centralise for seniors in Papendal, and the four centres will be for u-18 and especially u-21 players. The four centres will be mainly for the final preparation to go to the senior training centre.

Similarities regarding career support exist in the BJA and JBN. JBN1 indicated that "…the centre is linked to a university, so players have the option to study as well." BJA3 indicated that "The centre is linked to the University of Wolverhampton…" Similar initiatives are not offered by Judo South Africa, although several South African universities have high performance centres supporting elite student activities in multiple priority sports (Burnett, 2010).

DISCUSSION

Organisational resources contribute to the management of an elite sport system in order to produce successful elite athletes. Holistic policy development and alignment, effective planning, optimal implementation and delivery to take advantage of the resources that are available, are essential (De Bosscher *et al*., 2006; Houlihan & Green, 2008; Böhlke & Robinson, 2009; Mele *et al*., 2010). The professionalisation of sport organisations through full-time staff influences the performance culture, which allows staff the opportunity to achieve their goals and objectives in a professional environment. This is significant in producing successful elite performances by athletes (Bayle & Robinson, 2007; Fletcher & Wagstaff, 2009; Sam, 2009; Girginov, 2010; Northouse, 2010; Fletcher & Arnold, 2011; Aćimović *et al*., 2013).

Financial resources play a significant role in ensuring the success of elite athletes. One of the principles is the establishment of optimal strategic alliances with relevant agencies locally, nationally and globally (Bayle & Robinson, 2007; Fletcher & Wagstaff, 2009; O'Boyle & Bradbury, 2013). Marketing and commercialisation, as well as securing sponsorships contribute to shaping the success of elite sport organisations. Such initiatives generate finances that provide direct and indirect financial support to elite athletes (Carenys & Sales, 2012). The extent of access to physical resources also significantly impacts on the performance of elite athletes. Elite athletes require priority access to high quality training facilities in order to ensure high quality training and extended hours of training (De Bosscher *et al*., 2006; Canadian Sports Institute, 2014).

PRACTICAL APPLICATION AND CONCLUSIONS

This comparative case study related to the management of elite judo systems between South Africa, England and the Netherlands, produced results that have significant implications for the management of elite sport systems from a resource dependence perspective. In the context of a country with a developing economy, such as that of South Africa, relatively limited access to funding creates a fiscal reality and associated complexities for sport organisations with multiple resource dependencies (Giannoulakis *et al*., 2017).

The findings indicate that the alignment of access to strategic resources should create an optimally enabling environment for the establishment and maintenance of performance pathways. The professionalisation of elite sport systems should be a priority in order to stimulate athlete success. Employing full-time staff (human resources), in particular national coaches, with priority access to high quality training facilities (physical resources), creates an optimal environment for elite athletes to engage in full-time training.

This study proposes that the utilisation of existing high performance facilities at universities is insufficient, and organisations such as Judo South Africa should explore such options. Organisational resources that contribute to a system of talent identification, talent development, coaches' development and scientific support should be optimally managed in order to provide contextualised performance pathways that culminate in the production of elite athletes at national training centres. Finally, the results indicate that an elite sport system requires access to adequate financial resources to support overall performance pathways. Engaging in marketing and commercial activities that promote the sport and elite athletes, as well as cultivating strategic alliances with essential funding agencies, such as the National Lottery, should contribute to accessing financial resources. Furthermore, establishing effective alliances with the relevant government departments should create economic opportunities and contribute to access to physical resources. The success of elite athletes is therefore determined by the extent of access to, and effective management of resources. The resource management strategies adopted in each country clearly requires strategic alignment to the context of the country, in order to provide for optimal access to the available resources.

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