Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape.

By

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Thesis presented in partial fulfilment of the requirements for the degree of Master of Science (Sport Science) in the Department of Sport Science, Faculty of Medicine and Health Sciences at Stellenbosch University.

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April 2022

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ACKNOWLEDGEMENTS

I would like to start off by thanking my study leaders, Prof Heinrich Grobbelaar and Prof Per Göran Fahlström who have continuously motivated me and provided support whenever needed. Their expertise, ideas and advice helped improve my way of thinking around these concepts and allowed me to produce this thesis. The numerous feedback sessions between the three of us helped push me in the right direction and brought out the best ideas. Doing a Master's degree while simultaneously captaining the SA men's water polo side and competing at the Tokyo 2020 Olympic Games was something that I never thought would be possible. With your help and guidance, I was able to accomplish everything I had set out for myself academically. So once again, thank you so much for everything that the two of you have done and taught me, the completion of this thesis would not have been possible without you.

There were many contributors who assisted me in creating my thesis. Firstly, I would like to thank Prof Martin Kidd for his accessibility, valued feedback and input regarding the statistical analysis. I would also like to thank Mrs Carien Uys for her help with the transcribing of lengthy interviews. I am extremely grateful for your assistance, time and patience throughout the whole process.

I would also like to thank the schools, coaches and learners who participated in this study, without you I would not have been able to answer the questions at hand. Your contribution will hopefully lead to the improvement of water polo in the country.

Thank you to my Maties water polo teammates, friends, coaches and the Department of Sport Science for your encouragement throughout the duration of my thesis.

Lastly, I must express my appreciation towards my family. They have always been an outlet for support and a pillar of strength throughout my academic and sporting career. To my family members from above, thank you for looking over me. You will forever be close to my heart, and I will never forget the life lessons you espoused on me. I would also like to thank my girlfriend Charlotte Vuye, who has been my rock throughout this whole process. You have supported me and been with me every step of the way, which motivated me to complete this study. Thank you for everything that you have all done to help me get to this point. This achievement would not be possible without you.

ABSTRACT

Introduction and aims: Water polo is a fast-growing school sport in South Africa. Swimming South Africa adopted a Long-Term Participant Development (LTPD) model in 2010 to guide the development of players from grassroots to elite level. It appears if the model is implemented ineffectively within the sport and the competitive school sport system in particular. Talent development environments (TDES), team cohesion and organisational culture are popular sport psychology topics, and provide an interesting avenue to explore contributing factors to water polo success and player development approaches within competitive high school sport settings.

The study consisted of two phases, with three distinct aims. Phase one: 1) To compare the talent development environments (TDE) and team cohesion of the leading six water polo high schools' in the Western Cape province, and 2) to determine the correlation between the respective TDE and team cohesion variables. Phase two: To explore the role of organisational culture in creating effective TDEs from the perspectives of coaches and captains of selected schools.

Article 1: A cross-sectional design was used and 146 boys (M (SD) age: 15.51 (1.23) years) completed the TDEQ-5 and YSEQ before the start of the 2020 Mazinter Cup. Successful (top-3) and less successful (bottom-3) teams were compared on various TDE and team cohesion variables, based on the final log position of the Mazinter Cup, a high school's tournament involving six leading schools (independently for the u/15 and u/18 age-groups). Correlations between these variables were also determined. The top-3 u/18 teams had higher TDEQ-5 (Overall), Alignment of Expectations, Support Network, YSEQ (Overall Cohesion), Task Cohesion and Social Cohesion scores than the bottom-3 teams. There were no differences at the u/15 level as the players competed in their first tournament at this level. Moderately strong positive correlations existed between various TDE and cohesion variables for the total sample.

Article 2: The organisational cultures of two purposively selected schools were explored to understand how one school performed consistently better than the other in the tournament utilising a comparative case study design. Semi-structured interviews were conducted with the coaches and captains of both schools (u/15s and u/18s). Using Henriksen et al.'s (2011) Environment Success Factors (ESF) model as the theoretical framework, similarities and differences between the two TDEs were

noted, pertaining to their preconditions, processes and organisational cultures. The consistently performing school maintained strong coach-to-coach relationships, encouraged frequent interaction between the age-group coaches and implemented similar processes, thereby contributing to a stronger organisational culture.

Conclusions: High schools should provide their athletes with a nurturing TDE that incorporates group interventions aimed at fostering team cohesion, as it may enhance team performance and foster long-term player development. Stable TDEs with more robust organisational cultures and well-aligned processes from u/15 to u/18 age-group levels performed consistently better. A positive organisational culture may facilitate the transition and long-term development of players from junior to senior level, which should be a focal point of all high school sport TDEs. Simultaneously, this may explain differences in short to medium term team performance.

Keywords: Long-term athlete development; alignment of expectations; support networks; task cohesion; social cohesion; coach roles and leadership; junior to senior level transitions; holistic ecological approach; team sport.

OPSOMMING

Inleiding en doelstellings: Waterpolo is ’n snelgroeiende skoolsport in Suid-Afrika. Swem Suid-Afrika het in 2010 ’n Langtermyn Deelnemer Ontwikkelingsmodel (LTDO) aanvaar om die ontwikkeling van spelers van voetsoolvlak na elite vlak te lei. Dit blyk dat die model ondoeltreffend binne die sport en veral die mededingende skolesportstelsel geïmplementeer word. Talent ontwikkeling omgewings (TOO), spankohesie en organisasiekultuur is gewilde sportsielkunde onderwerpe en bied ’n interessante invalshoek om bydraende faktore tot waterpolo sukses en speler ontwikkelingsbenaderings binne mededingende hoërskoolsportomgewings te verken.

Die studie het uit twee fases met drie afsonderlike doelwitte bestaan. Fase een: 1) om die TOO en spankohesie van die voorste ses waterpolo hoërskole in die Wes-Kaap Provinsie te vergelyk en 2) om die korrelasie tussen die onderskeie TOO en spankohesie veranderlikes te bepaal. Fase 2: om die rol van die organisasie kultuur in die skep van effektiewe TOOs vanuit die perspektiewe van afrigters en kapteins van die geselekteerde skole te verken.

Artikel 1: ’n Deursnit ontwerp is gebruik en 146 seuns (G (SA) ouderdom: 15.51 (1.23) jaar) het die TDEQ-5 en YSEQ voor die aanvang van die 2020 Mazinter Beker voltooi. Die suksesvolle (top 3) en minder suksesvolle (onderste 3) spanne is op verskeie TOOs en spankohesie veranderlikes vergelyk, wat gebaseer was op die finale rangorde van die Mazinter Beker, ’n hoërskool toernooi wat die ses voorste skole betrek (O/15 en O/18 ouderdomsgroepe). Korrelasies tussen hierdie veranderlikes is bepaal. Die top 3 O/18-spanne het hoër TDEQ-5 (Algeheel), Belyning van Verwagtinge, Ondersteuningsnetwerke, YSEQ (Algehele Kohesie), Taakkohesie en Sosiale Kohesie tellings gehad as die onderste 3 spanne. Daar was geen verskille op die O/15-vlak waargeneem nie, omdat die spelers aan hul eerste toernooi op hierdie vlak deelgeneem het. Matige sterk positiewe korrelasies het tussen verskeie TOOs en kohesie veranderlikes vir die totale steekproef voorgekom.

Artikel 2: Die organisasie kulture (OKe) van twee doelbewus geselekteerde skole is ondersoek om te bepaal hoe een skool konsekwent beter as die ander in die toernooi gevaar het deur van 'n vergelykende gevallestudie ontwerp gebruik te maak. Semi-gestruktureerde onderhoude is met die afrigters en kapteins van beide skole (O/15 en O/18 spanne) gevoer. Deur die Omgewing Sukses Faktore (OSF) model van

Henriksen *et al*. (2011) as die teoretiese raamwerk te gebruik, is ooreenkomste en verskille tussen die twee TOOs, met betrekking tot hul voorwaardes, prosesse en OKe waargeneem. Die skool wat konsekwent presteer het, sterk afrigter-tot-afrigter-verhoudings gehandhaaf, gereelde interaksie tussen die ouderdomsgroep afrigters aangemoedig, soortgelyke prosesse geïmplementeer en daardeur bygedra tot ’n sterker OK.

Gevolgtrekkings: Hoërskole behoort atlete te voorsien van 'n koesterende TOO wat groepsintervensies insluit wat daarop gemik is om spankohesie te bevorder omdat dit spanprestasie kan verbeter en langtermyn spelerontwikkeling kan bevorder. TOOs wat stabiel was en meer robuuste OKe en goed belynde prosesse van O/15 tot O/18 ouderdomsvlakke gehad het, het konsekwent beter presteer. ’n Positiewe OK kan die oorgang en langtermynontwikkeling van spelers van junior tot senior vlak fasiliteer en behoort ’n fokuspunt van alle hoërskoolsport TOOs te wees. Terselfdertyd kan dit verskille in kort- tot mediumtermyn spanprestasie verklaar.

Sleutelwoorde: Langtermyn atleetontwikkeling; belyning van verwagtinge; ondersteuningsnetwerke; taak kohesie; sosiale kohesie; afrigterrolle en leierskap; junior na senior vlak oorgange; holistiese ekologiese benadering; spansport.

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ABBREVIATIONS

ATDE:	Athletic Talent Development Environment
ESF:	Environment Success Factors
FINA:	Fédération Internationale de Natation
LTAD:	Long-Term Athlete Development
LTPD:	Long-Term Participant Development
PYD:	Positive Youth Development
SAASU:	South African Amateur Swimming Union
SASCOC:	South African Sports Confederation and Olympic Committee
SwimSA:	Swimming South Africa
TD:	Talent Development
TI:	Talent Identification
TDE:	Talent Development Environment
TDEQ-5:	Talent Development Environment Questionnaire
USSA:	University Sport South Africa
YSEQ:	Youth Sport Environment Questionnaire

Chapter One

PROBLEM STATEMENT AND AIMS

1.1. Introduction

Water polo is one of the oldest sports to feature in the Olympic programme, making its debut at the 1900 Paris Games (Platanou, 2009). Water polo in South Africa began when the British arrived in the country (Swimhistory, 2019). The South African Amateur Swimming Union (SAASU) was founded in 1899, and primarily focused on water polo at the annual national championships (Swimhistory, 2019). SAASU was the first National Swimming Association in South Africa. The Fédération Internationale de Natation (FINA) was established in 1908, and SAASU became a member of FINA in 1909 (Swimming South Africa, 2019).

Water polo is a team sport with intermittent patterns of high intensity actions (Mujika *et al.,* 2006). The players perform roughly 100 high-intensity sprints during a match and the duration of these sprints usually range from seven to 14 seconds. Smith (1998, p. 320) stated, “The performance of an activity of this intensity and brevity is likely to be highly dependent on anaerobic metabolism and muscular power”. Performing these activities are sequential, ensuing in longer durations, moderate and high intensity periods of effort, which lasts two-thirds of the game (Smith, 1998).

In 1995, a few years after the first democratic elections in post-apartheid South Africa, the government decided to disband SAASU, and to replace it by a government-funded and controlled national governing body known as Swimming South Africa (SwimSA) (Swimhistory, 2019). SwimSA is the only authority in South Africa that has jurisdiction over the administration and control of aquatics and its disciplines of diving, masters, open water swimming, swimming, synchronised swimming and water polo (Swimming South Africa, 2015).

One of the challenges that South African water polo faces is the lack of a proper talent development (TD) programme within the competitive schools’ sport system. Players cannot compete at an international level due to the lack of basic skills, which stems from poor TD structures. A proper TD programme needs to be implemented for the sport to progress in the future. This was made evident by the most recent Long-Term Athlete Development (LTAD)

programme set up by South African Sports Confederation and Olympic Committee (SASCOC) and SSA (2013) respectively. One of the problems with South African water polo is that, “To succeed, it is currently the ‘push’ of an individual athlete that sees him representing South Africa at National Junior Level, and not the ‘pull’ of the system” (SASCOC & Swimming South Africa, 2013, p. 6). It also argues that more emphasis needs to be placed on schools’ water polo as this is the period when players tend to drop out of the sport after finishing grade 12.

Many researchers have investigated the influence an environment has on its athletes and their subsequent performance. Martindale *et al.* (2005) highlighted long-term preparation, clear pathways of communication, fostering a supportive atmosphere, individualised exercise plans and a robust focus on player maturity and growth as key features in athlete TD. The work of Martindale and colleagues highlight four key features of effective TD: 1) long-term goals and approaches; 2) comprehensive, rational messages and encouragement; 3) prioritising development rather than immediate ‘success’; and 4) personalised and continuous development (Martindale *et al.*, 2007; Martindale & Mortimer, 2011). All of these are key features in research on talent development environments (TDEs).

Henriksen *et al.* (2013) reported two leading trends in TD studies: 1) to advance procedures for methodically recognising and choosing gifted players through continuous assessment of the foundations for sporting success; and 2) to evaluate and plan the number and standard of trainings required at various stages of an athlete’s career to attain high-end performance. These two leading trends and the key features listed above are the common factors that can influence the success of a sporting environment.

This is where it appears as if the South African water polo schools’ currently struggle; as there does not seem to be a set programme to guide development. South Africa utilises an organised competitive school sport system, rather than a club system, like for example, most European countries. High school water polo teams are mainly selected through talent identification with very little emphasis on TD or a long-term development strategy. The responsibility of providing players with suitable resources lies with the TDE as a whole, as opposed to one specific person or institution (Larsen *et al.,* 2013).

Henriksen (2010) introduced a comprehensive outlook on athletic talent research that focuses on the holistic developmental setting in which prospective athletes find themselves. TD is important, because talented individuals do not spontaneously turn into world-class performers without sufficient TD experiences (Li *et al.*, 2015). Henriksen developed the athletic talent development environment (ATDE) model. He describes it as a young athlete's societal interactions that occur internally and externally from the realm of sport- societal interactions which have the group as their nucleus but also includes the greater surroundings in which the group is entrenched (Henriksen *et al.,* 2010a). ATDE represents an outline for portraying a particular environment as well as illuminating the tasks and purposes of the various components (microsystem, macro system, athletic domain and non-athletic domain) and relations (factors influencing the environment) within the environment (Henriksen *et al.,* 2010a, 2010b, 2013).

Henriksen *et al.* (2010a, 2010b) also proposed the environment success factors (ESF) model. The ESF model accounts for the environment's success and, therefore, has an illustrative possibility. The preconditions offered by the environment, for example, financial, material and human resources are the starting points of this model (Henriksen *et al.,* 2013). The model further demonstrates how the everyday processes have three outcomes: 1) athletes' individual development and achievements; 2) team achievements (in team sports), and 3) organisational development and culture (Henriksen *et al.,* 2010a, 2010b). These three outcomes are interconnected and enable the environment's efficiency in developing senior elite athletes (Henriksen *et al.,* 2011).

Organisational development and culture is at the centre of the ESF working model and exists on three levels, i.e., cultural artefacts, espoused values and basic assumptions (Henriksen *et al.,* 2013). These are categorised by the incorporation of the important basic assumptions into a cultural model leading to the enculturation of new individuals and bringing steadiness (Schein, 1990; Henriksen *et al.*, 2010a, 2010b). When used together, one can see that the ATDE model and ESF model are complementary in the sense that the ATDE represents an outline for portraying an environment and the ESF models assists with summarising the factors contributing to its effectiveness (Henriksen *et al.,* 2010a, 2010b).

Culture is a key focus in Henriksen's (2010) ESF working model. This appears evident as he mentions that the influence of culture on human behaviour and development can be divided into two main traditions: cross-cultural and cultural perspectives (Henriksen, 2010). These two perspectives contain a common idea that "humans are placed in a cultural context and the acknowledgement that psychological development and experiences are not the same everywhere but that culture accounts for important variations" (Henriksen, 2010, p. 34). High performing cultures has been shown to triumph when the following perceptions and actions are shared by the members of the elite team environment: 1) encourages constant high-level performance; 2) continues in the presence of varying outcomes (e.g., wins, losses, draws); and 3) strives towards consistently high performances (Cruickshank & Collins, 2012; Henriksen, 2015).

It is important to realise the impact culture has on a team as well as on their performance. A culture that makes one team successful may not necessarily make another team successful. Each environment is unique, and the values and beliefs of the individuals within a specific environment will provide insight into success factors of that environment. Cole and Martin (2018) analysed the affect culture had on the success of a New Zealand Rugby team, the Manawatu Turbos, which had little to no success up to 2014. In 2014, the team experienced their best season by winning 10 out of 12 games (83.3%) and winning the ITM Cup Championship. By interviewing the coaches and captains of this team, they were able to identify key features in their culture, which made this environment successful. Cole and Martin (2018) concluded that team culture was one of the most significant factors in the team's success, highlighting that the team "always readily recognised team culture as a very important element of team performance" (p. 1211).

Team cohesion is another important variable when exploring TDEs in team sports. Carron *et al.* (1998) defined cohesion as "a dynamic process that's reflected in the tendency for a group to stick together and remain united in pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (p. 213). High levels of group cohesion are considered advantageous and associated with better team performances in soccer (Asamoah & Grobbelaar, 2017). However, they also discussed situations in which group cohesion is negatively associated with team performance. Bruner *et al.* (2014) examined group cohesion

and the notions of positive youth development (PYD). They concluded that greater senses of task cohesion forecasted higher PYD in the shape of more individual and collective skills, leadership, formulating aims and objectives and a reduced number of negative encounters (Bruner *et al.,* 2014, 2017). Similarly, more positive notions of social cohesion forecasted more PYD as specified by greater degrees of individual and collective skills, mental skills, goal formulation and a reduced number of negative encounters (Bruner *et al.,* 2014, 2017).

Water polo at school level is where the most participation takes place. In 2021, there were 40 tournaments throughout the year across various age groups and sexes (see Western Province Schools Water Polo (WPSWP)). At the end of every year, provinces from around South Africa compete at the national tournament. In 2021, 103 boys' and girls' teams ranging from u/13 to u/18 age groups competed at nationals. More than 1300 players took part, making it the largest age-group tournament in the Southern Hemisphere (see IOL, 2021). One of the main problems is that many players drop out after completing high school. SASCOC and Swimming South Africa (2013) estimate that 90% of players drop out. The LTAD designed by SASCOC and Swimming South Africa in 2010 (the LTAD programme was intended to run from 2010 to 2016), identifies this problem and unfortunately, few measures have been taken to reduce the dropout rate. Of concern is that there is no evidence of any amendments to the LTAD programme. The high dropout rate is problematic for the future of sport as national teams struggle to choose the best players due to a lack of availability.

Although it is not documented, a possible reason for the high dropout rate after school could be that few universities offer water polo as a sporting option. South Africa has 26 public universities (see Universities South Africa, 2021(USAF)), and of those 26 universities, only five participated in the 2021 University Sport South Africa (USSA) competition for men and women respectively. Players still have the option to play club level water polo, however, due to the lack of competitive teams, it is difficult for players out of school to make these teams at that young age, as the more experienced players fill up those positions in the competitive teams. The LTAD programme needs remodelling if South Africa is hoping to become competitive in the sport. The LTAD programme vaguely mentions the goals, objectives and what needs to be done to achieve better performance. As a country, we want to be competitive

on the international stage, therefore, the LTAD programme could benefit from a more holistic approach.

The three topics discussed above - talent development environments, organisational culture and team cohesion will be investigated in this study to obtain a holistic outlook. This study will focus on high school water polo, because this is the level at which the sport is experiencing rapid growth, competition is fierce and it plays a crucial role in the pathway to senior level.

1.2. Aims of the study

1.2.1. Primary aim

The primary aim of this study was to compare the talent development environments and team cohesion of the leading six water polo high schools' in the Western Cape.

1.2.2. Secondary aim

The secondary aim was to determine the correlation between talent development environment and team cohesion variables.

1.2.3. Tertiary aim

The tertiary aim was to explore the role of organisational culture in creating effective talent development environments from the perspectives of coaches and captains of selected schools.

1.3. Objectives

The specific objectives of this study were:

- To determine if various talent development environment factors distinguish between more and less successful teams based on their final ranking in a school's tournament.
- To determine if team cohesion distinguish between more and less successful teams based on their final ranking in a school's tournament.
- To determine the correlation between talent development environment and cohesion variables.

- To explore how the talent development environments and organisational cultures within selected schools were created and how these constructs are inter-related.

1.4. Motivation and potential benefits

Water polo is a fast-growing high school sport in South Africa. Its popularity has increased significantly over the past few years. The sport has grown so much that a u/15 South African age group was recently implemented to help develop and nurture young talent. Despite the growing popularity of the sport, South Africa is struggling to compete internationally and progression has not been evident. This stagnation is possibly due to the outdated LTAD programme, which has not been evaluated since its initial end date in 2016. In order for South Africa to progress and improve internationally, the current LTAD programme needs remodelling and would benefit from a more holistic approach in order to improve performances on the international stage. The Western Cape Province (roughly 400km radius around Cape Town in the South-West corner) is well known for producing some of the best young water polo talent in the country. At the Tokyo 2020 Olympic Games, six of the 13 players were products of Western Cape Schools Water Polo, thus, showing the strength of the Province. This study may potentially highlight the factors that contribute to successful TDE's in South African high schools' water polo.

This information could potentially be used to help improve training programmes, coach-player relationships, team environments and hopefully, contribute to developing more elite senior water polo players in the Western Cape. The results from this study may also provide insight into the development and improvement of schools' TDE's, which in turn could lead to improvements of South African water polo teams, as well as help young athletes prepare for their transition to senior level.

Chapter Two

LITERATURE REVIEW

2.1. Water polo conditions in South Africa

Water polo players in South Africa face various challenges in order to reach the top level. An estimate of 90% of players drop out of the sport after completing high school (SASCOC & Swimming South Africa, 2013). This situation has persisted for quite some time. In an interview with Waterpolo Development in 2017, the former national head coach highlighted the uphill battle that players face in order to represent their country. Lack of funding coupled with lack of participation after high school, makes it difficult for South Africa to progress. Looking at the LTAD programme that was designed to increase water polo participation and success, tertiary education competitions were one of the many highlighted areas for the sport to grow (SASCOC & Swimming South Africa, 2013). Unfortunately, seven years after implementing the LTAD programme, the former national coach highlighted that only four to five universities compete at the national university's competition at the end of every academic year. Sadly, the situation is the same today, as the 2021 USSA competition only had five men's and five women's teams. Clearly, a remodelled programme is needed for the sport to grow. The next section will explore LTAD frameworks, to get a better understanding of what they entail.

2.2. Long-term athlete development (LTAD) framework

Water polo is recognised as the first Olympic team sport (SASCOC & Swimming South Africa, 2013). South Africa water polo debuted at the Olympics in 1952. Later on, the country reappeared at the 1960 Olympic Games before they were suspended from participating in the Games, due to the country's isolation during the apartheid era (SASCOC & Swimming South Africa, 2013). The sport could subsequently not develop sufficiently due to the lack of international competitions (SASCOC & Swimming South Africa, 2013). This unfortunately, led to a stagnation in the progression of the sport across the country (SASCOC & Swimming South Africa, 2013). The lack of development and progression coupled with challenges of improving diversification (i.e., not enough black players) were worrying signs for South African water polo and ultimately led to the re-structuring of the long-term athlete development (LTAD)

framework (SASCOC & Swimming South Africa, 2013). The newly developed LTAD model, initially scheduled for 2010 to 2016, aimed to increase participation of black people in the sport and to bridge the gap between South Africa and other water polo playing nations.

The LTAD model was rebranded to the long-term participant development (LTPD) model, to encourage and enhance any participant's enjoyment of sport and physical activity (SASCOC & Swimming South Africa, 2013). The LTPD model is founded on the premise that at any particular period, every participant in a sport is at different stages of 1) physiological (bodily), 2) cognitive (mental), and 3) emotional development (SASCOC & Swimming South Africa, 2013). The crux of an LTPD lies within the seven stages of development and the 10 key factors that influence LTPD models. The seven stages are: 1) active start (0-6 years of age); 2) fundamentals (girls: 6-8 years, boys: 6-9 years); 3) learn to train (girls: 8-11 years, boys: 9-12 years); 4) train to train (girls: 11-15 years , boys: 12-16 years); 5) train to compete (girls: 14-16+ years , boys: 16-18+ years); 6) train to win (woman/men); and 7) active for life (enter any time) (see SASCOC and Swimming South Africa, 2013). Furthermore, the 10 key factors that influence LTPD models are: 1) the fundamentals - developing physical literacy; 2) chronological vs. developmental age; 3) mental, cognitive and emotional development; 4) specialisation; 5) trainability; 6) periodisation (annual training, competition and recovery plan); 7) calendar planning for competition; 8) the 10-year rule; 9) system alignment and integration; and 10) continuous improvement (see Ericsson *et al.*,1993; Balyi & Hamilton, 2004; SASCOC & Swimming South Africa, 2013; Hambrick *et al.,* 2014).

However, the concept of the LTPD model has been discussed and criticised (see Bailey *et al.,* 2010; Ford *et al.,* 2011). For example, it has been deemed 'one-dimensional' (Ford *et al.,* 2011), whilst others argued that it lacks empirical evidence (Bailey *et al.,* 2010). Similarly, the stages of development have also been criticised, as researchers have pointed out that the 'windows of opportunity' to accelerate and enhance physical development in these stages are dependent on the individual (Ford *et al.,* 2011). Thus, it is imperative to recognise that the LTAD model is a generic model as opposed to an individualised programme for athletes. Ford *et al.* (2011) suggested that the LTAD model should be looked at as a 'work in progress' and that practitioners should educate themselves better on how to interpret and use the information

within the model. This is particularly important in South Africa as schools provide their pupils with sporting activities and development programmes.

Water polo in high schools are a key focus area as it makes up a large portion of the water polo players in South Africa. SASCOC and Swimming South Africa (2013) acknowledged that water polo at this level is important, because it provides a platform for lifelong participation in the sport. Currently, South African water polo faces a problem, as an estimated 90% of players drop out of the sport once they have completed high school (SASCOC & Swimming South Africa, 2013). It has also been noted that many players opt to play social water polo rather than competitive water polo, which impacts athlete intake after high school (SASCOC & Swimming South Africa, 2013). This problem affects the sport significantly, as this is where the largest deviation from the world standard occurs (SASCOC & Swimming South Africa, 2013).

In order for environments to create effective talent development (TD) programmes, the concepts that are linked to sporting development must be understood. Once these concepts have been clarified and understood, practitioners can move forward and plan their desired programme.

2.3. Defining concepts related to sport development

The notion of sport development originates from a hypothetical framework that delineates, explicates and pertains the heart and soul of sport (Manamela, 2016). Table 2.1 shows the definitions and key characteristics of the notions related to sport development.

Table 2.1. Definitions and key characteristics of the notions related to sport development.

Sport development notions	**Definitions and key characteristics**
Talent	Talent can be referred to as an exceptional performance in a certain activity that can be enhanced through interactions and learning with environmental influences or improved by the enthusiasm and character of the individual (McPherson, 1997).

Talent Identification (TI)	• Talent identification can be defined as the "the long-term prediction of the potential of an individual" (Du Randt *et al.,* as cited by Manamela, 2016, p. 15). • The systematic processes of talent identification include three stages: • Detection (starts from ages 8-10) - exposure to a stable physical and motor development programme to classify talented athletes (see Manamela, 2016). • Identification (starts from ages 11-12) - athletes are chosen through observations, rate of improvement and field tests of performance. The chosen athletes' fundamental skills and general motor and physical development are improved, and the athlete is presented with experience in numerous sports (see Manamela, 2016). • Development (starts from age 14) - environments should supply chances for children to progress based on their physical-motor, psychosocial and cognitive abilities (see Manamela, 2016).
Talent Detection	• Detection encompasses discovery and mass screening of possible future athletes through conducting coaching clinics, programmes and trials with individuals who have an interest in sport (Brown, as cited by Manamela, 2016). • The premise of detection aims to stop coaches and practitioners from choosing their athletes at a young age and to improve mass involvement in sport (Manamela, 2016). • Hoare and Warr (2000), claims that anthropometric, psychological, perceptual, physiological and technical factors contribute to performance.

Talent Selection	Talent selection includes the enduring process of choosing players at numerous phases who show criterion levels of performance for inclusion in each team (Williams & Reilly, 2000).
Talent Retention	Talent retention refers to screening youth players in sport using qualified coaches as well as physical and skill tests to choose those who have a high probability of succeeding in a particular sport (Williams & Reilly, as cited by Manamela, 2016).

TD is a stage that focuses on the athlete acquiring the basic motor and psychological skills and emphasizes the quality and quantity of training required to obtain high-end functioning that is intricate, dynamic and multifaceted (Simonton, 2001; Ollis *et al.*, 2006; Manamela, 2016). TD encompasses athletes who are chosen and required to play at a higher level of competition (e.g., professional sporting clubs/institutes) for additional development.

There are six factors that influence TD and are shared by the various sport development systems. These factors are: 1) the establishment of sports services (i.e., athlete support programmes develop an outstanding culture in which athletes, managers, scientists and coaches can engage with each other formally and informally); 2) the demonstration of well-organised, competitive programmes with constant international exposure; 3) the occurrence of sophisticated and precise amenities with priority access for elite athletes; 4) the creation of all-inclusive planning for every sport; 5) acknowledgement that distinction needs momentous financial funds, with suitable funding for infrastructure and people; and 6) an athletic lifestyle support system and preparation for life once the sporting career has ended (Green & Oakley, 2001).

TD is an important aspect in young prospective athletes' lives as it helps them reach the top level. Therefore, it is vital for practitioners to not only have a basic knowledge and understanding of TD, but to understand the influences of various factors have on the development of athletes.

2.4. Factors contributing to talent development

Martindale is highly recognised for his contributions to the study of TD. Martindale *et al.* (2005) realised that many talent programmes mainly emphasised on early identification of talent. A major concern is that these programmes aim to select the best youth talents and neglect a vital process of nurturing and developing talent (Martindale *et al.,* 2007). The focus of research in this area has been on the identification of talented individuals as opposed to the environment that these players are exposed to (Martindale *et al.,* 2005).

The environment in which the talent needs to develop should be emphasized. According to Martindale *et al.* (2005), one key factor that affects every performer for the duration of their sporting careers, is the standard and propensity of the environment. Five generic features that constantly emerged in the study of effective talent development environments (TDEs), namely: 1) long-term goals and approaches; 2) comprehensive, rational messages and encouragement; 3) prioritising development rather than immediate 'success'; and 4) personalised and continuous development; and 5) coherent, and methodical development (Martindale *et al.,* 2005, 2007, 2010, 2013).

Similarly, Van den Berg and Surujlal (2013) stated that sport organisations encounter stern challenges, particularly, technological, economic, social and organisational adjustment in a fierce environment. These organisations are compelled to address these challenges. One method through which these organisations can accomplish this is by implementing the five factors (i.e., coach guidance; feedback; goal setting; support and long-term focus) that contribute to creating a nurturing TDE (Van den Berg & Surujlal, 2013). Employing these five factors can help retain, support and mould the talent within the environment (Van den Berg & Surujlal, 2013).

2.4.1. Coach guidance

Coaches are accountable for providing well organised and structured environments, managing a team and individuals through a series of methods and techniques to assist them in reaching personalised corresponding goals and development to enhance their sporting performance (Segers *et al.,* 2011; Van den Berg & Surujlal, 2020). The leading role of a coach is to train and prepare athletes physically, psychologically, tactically, and technically (Van den Berg &

Surujlal, 2020). Although there is a positive correlation between strong coach guidance and performance, an absence of perceived guidance and support by coaches can lead to deprived coping mechanisms and stress and can ultimately affect performance negatively (Mills *et al.,* 2014). Coaches plan and apply a large portion of their athletes' training schedule and should manipulate the environment in such a way as to incorporate ideal learning conditions, which ultimately leads to improved performance (Van den Berg & Surujlal, 2013).

Rutt-Leas and Chi (as cited by Van den Berg and Surujlal, 2013, p. 9), conducted a study in which they analysed swimming coaches. They found that, along with the coaches' capability to direct and ideally interact with the athlete whilst training, the coach also obtains domain-specific expertise that is vital for nurturing of skills and TD (Van den Berg & Surujlal, 2013; De Klerk & Surujlal, 2013). The support of the coach in sport is imperative due to the influence of coaching on athletes' functioning and due to the positive subtleties, which affect athletes, coaches and the sporting environment (Jowett and Clark-Carter, as cited by Van den Berg & Surujlal, 2013).

Comprehensive coach-athlete relationships, along with profound and insightful feedback can enhance the impact of coach guidance. Therefore, it should be incorporated into coach education curricula (Jowett & Cockerill, 2003). Alternatively, in order to evade low degrees of coach guidance, coaches must own and install an assortment of management, personal communication and organisational skills, to direct athletes and give effective and directive feedback (Mills *et al.,* 2014).

2.4.2. Feedback

Unity in support, feedback and coach guidance is vital (Martindale *et al.,* 2005, 2007). In addition to giving regular and timely feedback, coaches are obligated to communicate strong and actionable messages of goals, progression and expectations to their athletes (Mills *et al.,* 2014). Coaching behaviour that affects the incentive of athletes via verbal evaluation or behavioural reinforcement is significant to optimise performance (Van den Berg & Surujlal, 2013). Coaching feedback should aim to inspire and support, and that the value of the coach feedback is far more significant than the regularity of feedback (Stein *et al.,* 2012; Van den

Berg & Surujlal, 2013). Feedback that emphasises the players' long-term goals lays the foundation for players to maintain their training and competition load (Martindale *et al.,* 2010).

When coaches emphasize feedback in the form of extrinsic goal achievement, it can have a detrimental impact on the athlete's performance, because the athlete feels judged and stressed to perform favourably. Coaches should focus on long-term development and goal setting rather than on extrinsic goal achievement (Van den Berg & Surujlal, 2020). Therefore, this factor must be incorporated productively and sensibly into the TDE framework as it has the possibility to discourage gifted athletes on their journey towards success (Van den Berg & Surujlal, 2013).

2.4.3. Goal setting

The formulation of goals and the nature in which they are set provide sporting environments with a valuable factor in the growth and progression of their talented athletes. Goal setting works in tandem with cognition and motivational functioning. According to Van den Berg and Surujlal (2013), it is a cognitive function, as athletes are required to formulate and plan their goals, which then motivates them to achieve their goals within their environment. This becomes the foundation for athletes to develop and enhance their performance. Guiding attention, marshalling effort, encouraging perseverance, and contributing to the progression of novel learning approaches, are four ways in which goal setting can impact performance (Latham & Locke, 1991).

In order for coaches to set appropriate goals, they should consider the individual focus, situational limitations and team dynamics, in order to maximise the TDE (Weinberg & Butt, 2011; Van den Berg & Surujlal, 2020). The explicitly sophisticated training and performance environment will dictate the interaction of the athlete with their goal alignment and situational goal environment (Keegan *et al.,* 2010; Weinberg, 2010). Thus, athletes will direct their behaviour towards achieving their specific goals if the environment in which they function has a motivational and positive culture (Van den Berg & Surujlal, 2013).

2.4.4. Support

Support from an environment is crucial in the development of athletes. According to Aalberg and Sæther (2016), if an environment is regarded 'supportive', it indicates a principle that a prolonged and continuous engagement with the environment has an uplifting effect on athlete development. For example, when analysing a student-athlete, if the environment he/she is in is deemed 'unfavourable' or 'unsupportive' (i.e., does not allow for a balance between academics and sport), the athlete may increase his/her chances of falling out of the sport. Thus, it is sensible to assume that the quality of support that the athletes obtain will directly affect their future in the sport (Van den Berg & Surujlal, 2020). Coaches, mental trainers, physiotherapists, friends, physical conditioners and family members all play a crucial role in providing the encouragement needed in the expansion of a supporting TDE (Van den Berg & Surujlal, 2020).

According to Cohen *et al.* (as cited by Van den Berg and Surujlal, 2013), perceived support presents a positive relationship between behavioural, psychological and physiological outcomes. A study conducted by Coutinho *et al.* (2021) found that a modest parental contribution and autonomy-supportive parenting styles were associated with highly talented athletes. Peer involvement is significant for athletes, as players acknowledge that friends were an important supplier of support to remain enthused and maintain interest in the sport (Coutinho *et al.,* 2021). Additionally, the relationships between athletes and their peers can either ratify or dishearten certain achievement motivations (e.g., goal implementation) (Keegan *et al.,* 2010). Highly talented athletes recognise the significance of team members' positive push and during training for elevating their motivation, group cohesion and friendship (Coutinho *et al.,* 2021). Therefore, teammates, friends, coaches and trainers experience an increase in their role of support for the individual. It appears that athletes treasure solid peer relationships as a causal factor to success (Keegan *et al.,* 2010). Providing suitable support and resources to athletes helped them to evaluate their own strengths, values, weaknesses and identities in order to formulate an idea of their capability and progress of their journey towards achieving success.

2.4.5. Long-term focus

The notion of long-term athlete development should be incorporated systematically (Li *et al.,* 2014). In addition to understanding the prerequisites for long-term development in sport, coaches and athletes must also make use of coach guidance, goal setting and systematic feedback (Van den Berg & Surujlal, 2013). This will allow the necessary changes to be accomplished and maintained over an extended period (Martindale *et al.,* 2010). It was revealed that the development of a clear long-term vision should be emphasised more, rather than the fixation of accomplishing short-term goals (Martindale *et al.,* 2005).

Bloom (as cited by Van den Berg & Surujlal, 2013) implied that there is a low prospective validity of youth performance standards for future prosperity. The study revealed that the percentage of accomplished high-level adult athletes that were at a top of their game as a youth athlete between the ages on 11 and 12 years was less than 10%. Van den Berg and Surujlal (2013) agree that the way to progress the growth of sporting talent is by implementing the systematic development of essential movement and physical skills and essential mental skills (i.e., persistence and commitment). Since the quest for short-term goals appears to be harmful to long-term goal accomplishment, athletes should teach themselves to comprehend the challenges as they arise (Abbott *et al.,* 2002; Van den Berg & Surujlal, 2013).

Allowing athletes to participate in the development of long-term aims, in addition to including them in the decision-making process, will positively influence their incentive and their quest for precise skills development (Martindale *et al.,* 2010). Thus, it should be desirable for the athletes to be directly involved in the process of developing their own long-term goal, along with a timeline to make sure that the athlete is reaching his/her goals to achieve peak performance (Smith, 2003; Van den Berg & Surujlal, 2013).

The previous sections defined and explained the concepts and factors related to sports and talent development in line with the recent TD research. The organisational culture and development thereof should be considered. Organisational culture is a factor that is looked at separately from TD, but plays a crucial role in an athlete's development (see Smith *et al.,* 2012; Henriksen, 2015; Cole & Martin, 2018). The All Blacks (New Zealand national rugby team) are a team that utilises organisational culture. 'Leave the jersey in a better place' is a

philosophy that transcends deeply in the history of the national team (Kerr, 2013). This philosophy resonates with the culture that is instilled in the team. This culture has been well documented by author Jason Kerr, who embedded himself in the team for five weeks, attested that it is this factor that puts them above most teams in the world (Kerr, 2013).

2.5. Organisational development and culture

2.5.1. Culture

According to Schein (2004), the concept of culture has been the subject of considerable academic debate since the early 1980s. The discussions around defining culture have proven to be a healthy sign in the sense that it points to its importance as a concept. However, it also creates complications for scholars and practitioners if these concepts are not clearly specified or conceptually defined. Schein (2004) stated that words frequently linking to culture highlights one of its critical aspects, i.e., the impression that certain things in a group are shared or held in common.

Schein (2004) highlights that there are 11 categories that can be used to describe culture. These are: 1) observed behaviour regularities when people interact; 2) group norms; 3) espoused values; 4) formal philosophy; 5) rules of the game; 6) climate; 7) embedded skills; 8) habits of thinking, mental models, and linguistic paradigms; 9) shared meanings; 10) root metaphors or integrating symbols, and; 11) formal rituals and celebrations.

The 11 categories listed above indicates that culture is a collective phenomenon. “It is partly shared with people who live or lived within the same social environment, which is where it was learned” (Hofstede *et al.,* 2010, p. 6). “Culture is a shared programming of the mind that differentiates the members of one cluster or category of individuals from others” (Hofstede *et al.,* 2010, p.6). It is further proposed that culture comes from a person’s social environment as opposed to genetic aspects (Hofstede *et al.,* 2010). Culture can be characterised in the form of material (i.e., factors seen in cultural artefacts such as training facilities, buildings or apparels), and non-material factors (i.e., regimens, beliefs, displays of behaviour and beliefs), shared by a group of individuals (Henriksen, 2010).

Symbols, rituals, values and heroes are four main terms that adds up to the concept of cultural manifestation. Hofstede *et al.* (2010) described these four terms as a skin of an onion; symbols signify the surface of the onion, and values are at the core of cultural manifestation. The terms 'heroes' and 'rituals' lie in-between symbols and values. Symbols are placed in the outer most layer of the onion due to regular changes and lack of stability (Hofstede *et al.,* 1990; 2010). Symbols are the most apparent components of culture, and they are the pictures, gestures, or objects that differentiates one culture from another, and are significant for the individual or team (Sun, 2008). Delving a little deeper into the onion, past the symbols, one will find the next layer labelled heroes. When thinking of heroes, one tends to think of individuals that individuals aspire to. Heroes tend to have highly sought out traits and they provide an example of how group members should behave (Richter, 2016). As we continue to delve closer to the core, we next encounter the rituals. Rituals, represent the last layer that encapsulates the core (i.e., values) of the onion and are known as "the collective activities that are technically superfluous to reach desired ends but that, within a culture- they are therefore carried out for their own sake" (Hofstede *et al.,* 1990, p. 291). Rituals involve discourse, the use of language and the way it is used in conversation during daily interactions (Hofstede *et al.,* 2010). Finally, we reach the core of the 'onion', which is representative of the term values. According to Zulganef (2015), values play a part in a culture evolving, it matures the mind, attitude, and behaviour of individuals and this is largely because values generate a mental programme that creates rituals, and other attitudes or behaviours.

Symbols, heroes and rituals can be incorporated under the term practices, because they are noticeable to an outside observer and they are professed by group members (Hofstede *et al.,* 1990). Cultural manifestations occur at these three levels (Zulganef, 2015).

Culture is multidimensional and it is clear why there are many formally recognised definitions of the term. When analysing Schein's (2004) categories for describing culture, it is apparent that a holistic view of culture may be the best way for understanding this concept. Despite this, researchers have taken interest in another aspect of culture. Organisational culture has been a topic of interest since the 1980s. Its versatility is evident, and it has made its way across many fields of research. For a better understanding, we need to ask two questions: 1) what is organisational culture? 2) What are its influences on sport?

2.5.2. Organisational culture

Louis (1980, p. 227) was one of the first theorists to define organisational culture. He defined it as a "set of common understandings for organising actions and language and other symbolic vehicles for expressing common understandings". Jelinek *et al.* (1983, p. 331) emerged later and defined organisational culture as "another word for social reality. It is both product and process, the sharper of human interaction and the outcome of it, continually created and reached by people's ongoing interactions". However, it was not until 1995 when organisational culture, an area of organisational psychology, started to pick up momentum.

The study of organisational culture originated in the fields of anthropology and sociology (Weese, 1995). This term was defined as "the deep-rooted values, norms, and philosophies held and practiced by members of an organisation" (Weese, 1995, p. 120). The previously mentioned features construe meaning, shape behaviour and reflect an identity for organisational members.

Schein (1990), a leading organisational psychologist, stated that the culture of an organisation could help to clarify the reasons why organisations are different from one another, why the codes of behaviour within an organisation are comparable and regularly accepted, and why actions seem to be focused, patterned, and comparatively homogenous. Schein (1990) believes that culture can help or restrict organisational effectiveness. He also believes that leadership is an essential process by which organisational cultures are created and developed. Organisational culture is deemed to influence TD, organisational functioning and performance at the elite sporting level, but has also been identified as a source of strain for athletes (Wagstaff & Burton-Wylie, 2018). Positive organisational cultures have been related to heightened staff alignment, resulting in greater organisational effectiveness, increased agreement relating to strategic direction, increased productivity and progressive levels of commitment (Weese, 1995).

Peters and Waterman (1982) revealed that organisational success is related to the presence of a strong, positive culture. Furthermore, the survival and success of an organisation is correlated with strength and type of culture created within the organisation (Weese, 1995). Alternatively, Deal and Kennedy (1982) suggested that organisations with weak cultures

usually have a vague value system, an ambiguous focus on the organisational mission, poor staff morale, and inconsistent decision-making and behaviour. Glaser and Sashkin (1989) proposed that culture could be characterized by the following functions: a) adapting to change; b) achieving relevant and desired goals and; c) maintaining teamwork.

Leadership is arguably seen as an important aspect of a successful organisation. Two points were discovered when programmes were guided by transformational leaders. Firstly, there was a correlation between employees who shared anecdotes of camaraderie and fostered a closely connected family environment with robust organisational cultures (Wagstaff & Burton-Wylie, 2018). Secondly, leaders in these programmes who instilled values such as openness and shared admiration along with culture-building activities with members (e.g., goal achievement, handling change in the environment), resulted in a stronger organisational culture (Wagstaff & Burton-Wylie, 2018).

The three level framework model of organisational culture, designed by Schein (2010), moulds the present research on organisational culture because it does not aim to categorise an organisation. However, it analyses all characteristics prior to accessing the more profound concepts which can clarify certain organisational functioning (Schein, 2010; Field, 2017). The model takes into consideration the formation of ideas and concepts around culture that underlies the unconscious and cognitive functions of culture (Frontiera, 2009). This would include aspects such as meaning and comprehension, and materialistic expositions that explore perceptible components, such as attire, career description, hierarchy and additional perceptible descriptors (Frontiera, 2009). Simply, culture represents the elements or factors that are outcomes of human desire for consistency, steadiness to alleviate levels of concern around success or survival (Field, 2017).

Artefacts, espoused values and underlying assumptions are three levels where organisational culture is established (Schein, 2010). Mottos, mantras, records, and reports are examples of observable factors of culture that organisations proudly display for the public (also known as artefacts) (Woods & West, 2010). Symbols (e.g., team uniforms, anecdotes about previous achievements and match rituals) represent the way sporting organisations choose to display their artefacts (Johnson *et al.,* 2013; Field, 2017). Artefacts assist outsiders to recognise the

organisation, while corresponding and strengthening cultural standards to the members (Schein, 2004; Field, 2017). It should be noted that the exposition of an organisation's artefacts by individuals outside of the organisation may be incorrect as they are vulnerable to biases (Field, 2017). An example of this would be a company without a dress code might appear to be disorganised or inexperienced compared to a company that does have a dress code.

The artefact opposes the characteristics that the public believe are important for a group to function optimally (Smith *et al.,* 2012). Therefore, it is important to use multiple forms of analysis (e.g., making use of both questionnaire answers provided by group members and observations as opposed to only using one of the methods), when interpreting the meaning behind artefacts (Smith *et al.,* 2012; Field, 2017). Moreover, there could be conflict between artefacts that may arise within an organisation that is created by different sub-groups (Smith *et al.,* 2012).

Ideas that are instated by group leaders that are the most efficient and productive, in terms of solving problems, are known as espoused values (Smith *et al.,* 2012). They are unmistakable from the values that every member possesses, and the values shape the factors that direct group functioning, because other members of the group and the leader enforces it (Smith *et al.,* 2012; Field 2017). These values are usually expressed as mantras, brochures and vision statements that signify the philosophies, plans and aims that are frequently initiated by the leaders and represent the manner in which the organisation wants to be acknowledged (Johnson *et al.,* 2013). A value can only be converted into a communal value when it encounters a communal feeling of accomplishment among group members (Smith *et al.,* 2012; Field, 2017). Once this is evident, the value will have the opportunity to become integrated into a group's culture (Smith *et al.,* 2012; Field, 2017). By embracing a value that group members place on a certain method of functioning, any individual in the group can strive to impact the process of organisational functioning, a process typically employed by leaders to guide the organisation's motivation on certain objectives (Schein, 2010).

If an assumption is triumphant, it will amplify acceptance within the group, especially, when no other alternative is present, thus, legitimacy of the assumption is not argued and it will end up being undeclared and taken for granted (Field, 2017). The implicit assumption that training

increases athletic performance is a good example, because it has advanced from many years of informal and scientific observation that it is directly linked to positive performances. Meanwhile, a small number of players have flourished from alternative processes for positive athletic performance when a lack of training history is met with doubt and disapproval (Field, 2017). Most of the time, new perceptions will be generated and values that appear to disagree with another will develop a level of acceptance, after assumptions have been acknowledged and made aware to members (Schein, 2010).

2.5.3. Organisational culture models

Initially, research into organisational culture mainly looked at analysing profit-generating businesses. There were little interest in the topic within the field of sport (Field, 2017). However, research into organisational culture in sport is growing and can offer new prospects and insights. This is evident in the work of Grabowski *et al.* (2014), who revealed that sport organisations do not usually own tiered structures and their cultures could in fact, reflect the transitory characteristics of coaches and players.

Cameron and Quinn (1999) and Cruickshank *et al.* (2013) conducted studies within a sporting context, which analysed a select number of inimitable features of sport. They uncovered that the culture of a sporting organisation is able to influence the potential to be efficient and excel. Job contentment (Wallace & Weese, 1995; Weese, 1995), achieving positive outcomes in contests and tournaments (Smith & Stewart, 1995; Smith & Shilbury, 2004), and enhancing coach and athlete bonds (Maitland *et al.,* 2015), are influenced by the culture of a sporting organisation.

Martin (1992) designed three perspectives that investigate organisational cultures. These perspectives aimed to present an all-surrounding analytical framework highlighting three significant aspects of research into cultural phenomenon. Firstly, integration perspective, which focuses on the process through which researchers seek and classify shared components that describes numerous factors and events (e.g., demonstrating the drive of mangers to establish, convey and employ beliefs and philosophies that transparently moulds group consensus). Secondly, differentiation perspective looks at exploring the differences and conflicts within an organisation. Thirdly, the fragmentation perspective is very important as it

looks at organisations as being in a continuous state of flux. Studies that focus on this perspective are fixated with understanding the processes for building and re-building the reality of the organisation (Harris & Ogbonna, 1998). This study signified that a key weakness in organisational culture research is the propensity to only execute one conceptual point of view (Martin, 1992).

One of the benefits of these three perspectives is that there is analytical depth provided by the framework (Harris & Ogbonna, 1998). The framework highlights the crucial matter of multiple interpretation as a vital component of organisational analysis and by doing so, concedes to the existence of cultural clarification and diversity. However, concerns over Martin's three perspectives model began to emerge. Firstly, Schein (1994) highlighted that the focus on interviews and the lack of systematic observation prevented Martin (1992) from conductive a deeper analysis on the apparent discrepancies. Additionally, it assumes that all groups have cultures and can be placed into one of the three perspectives, and this is problematic, as certain groups may not have had enough time to create a culture. Therefore, they do not belong to either perspective (Field, 2017).

Smith *et al.* (2012) postulated a method that explores organisational culture and reflects the control or the nurturing of culture as a manner of organisational identity. This is done when an organisation plans to reduce its scattered identity by reviewing the mental hurdles, which inhibits the members from excelling in their environment (Field, 2017). Cultural leaders are able to alter and/or change assumptions and rituals that hinder performance with new ones that elevate productivity and performance (Field, 2017).

As stated earlier, in order to develop a better understanding of organisational culture, it is essential to investigate the phenomenon at hand. Research regarding the origins of organisational culture, Schein's (2010) framework model, the role of leadership, and organisational success (strong vs. weak cultures), has helped mould the understanding of the concept. However, to be able to comprehend its value, the influence it has on sporting success, needs to be evaluated.

2.5.4. Influence of organisational culture on team success

Culture is a key focus in Henriksen's (2010) ESF working model. This appears evident as he mentions that the influence of culture on human behaviour and development can be divided into two main traditions: 1) cross-cultural; and 2) cultural perspectives. These two perspectives share a common notion that humans are placed in a cultural context and the recognition that psychological growth and experiences are not the same universally. Culture could explain significant variations between environments and may influence the performance of a team (Henriksen, 2010). High performing cultures triumph when the following perceptions and actions are shared by the elite team environment members: 1) encourages constant high-level performance; 2) continues in the presence of varying outcomes (e.g., wins, losses, draws); and 3) strives towards consistently high performances (Cruickshank & Collins, 2012; Henriksen, 2015).

Smith and Shilbury (2004) identified that rituals, symbols, size, history and traditions were indeed unique cultural dimensions. It is important to realise the impact culture has on a team. A culture that makes one team successful may not make another team successful. Each environment is unique, and the values and beliefs of the individuals will provide insight into success factors of that environment. Cole and Martin (2018) analysed the affect organisational culture had on the success of a New Zealand Rugby team, the Manawatu Turbos, which had little to no success until 2014. In 2014, the team experienced their best season by winning 10 out of 12 games (83.3%) and winning the ITM Cup Championship. By interviewing the coaches and captains of this team, researchers were able to identify key features in culture, which made these environments successful. Cole and Martin (2018) identified that team culture was one of the most significant factors in the team's success, highlighting that the players continually acknowledged team culture as a significant component of the team's performance.

Frontiera (2009) analysed the impact that leadership can have on organisational transformation in professional sport. Data was collected from owners of several sporting codes across the United States. Namely, the National Basketball Association (NBA), Major League Baseball (MLB) and National Football League (NFL). These owners were familiar with guiding a sporting organisation during a successful cultural transformation (Frontiera, 2009; Wagstaff

& Burton-Wylie, 2018). Through the study, five themes emerged which led to the development of a model that explained the stages of organisational culture change in professional sport. These themes were: 1) indications of an undesirable culture (e.g., a new leader enters and evaluates the affects from previous leadership); 2) my way (e.g., a new leader espouses a novel approach of doing things and begins to transfer their values, ideas and strategies); 3) walk the talk (e.g., through both day-to-day and important organisational choices, the leader frequently accentuates the novel values); 4) entrenching the new culture (e.g., an organisation has to encounter success for members to welcome new principles without reluctance) and; 5) our way (e.g., a new culture, ensconced with new principles and ameliorated decisions are completed) (Wagstaff & Burton-Wylie, 2018). The above themes signify the importance of leaders creating a straightforward vision, accompanied by a strategy to see that visions can be comprehended (Wagstaff & Burton-Wylie, 2018).

Organisational culture has been viewed as an important aspect of performance, not only in sport. Kotter and Heskett (1992) tried to show the relationship between a strong culture and strong performance in the business sector and attempted to discover how the culture of corporations affect the organisation's economic performance. According to Kotter and Heskett (1992), the investigation observed three different theories on the effect of corporate culture.

The first theory is known as *strong culture*. This theory focuses on the premise that a strong culture leads to excellent performance. They concluded that strong cultures could include flawed elements, not to mention vital and practical elements (Kotter & Heskett, 1992). Therefore, when looking at strong culture, it may not have the positive influence that people may expect. Having a strong culture does not seem to have a direct influence on performance.

The second theory is known as *strategically appropriate culture*. The theory suggests that firms with a better culture or environmental fit would be the best performers economically. In many cases, the arrival of stronger competition, which affected the environment without an accompanying organisational culture response, seems to have been accountable for the deprivation of the culture/ environmental fit (Kotter & Heskett, 1992). This theory appears to have some validity in illustrating short-to-medium term performance, but it does seem to lack long-term explanatory power.

The third theory is known as *adaptive culture*. This theory demonstrates that cultures that can aid firms to anticipate and adjust to environmental changes will be linked with long-term excellent performance (Kotter & Heskett, 1992). Firms that performed well economically in this study all placed a high value on excellent leadership from the managers as well as their communities (i.e., firms' customers, employees and stakeholders) (Kotter & Heskett, 1992). On the other side of the coin, managers of lower performing firms were viewed as firms that only cared about themselves and their wellbeing (Kotter & Heskett, 1992).

Based on the presented literature, the impact culture can have on teams are evident. While culture is important, it is not the only driving factor in the athlete's environment. We cannot say that one factor is more dominant than the other in development. In fact, a multitude of factors needs to work harmoniously to ensure successful development. This is evident, as research is moving towards analysing environments that implement a more holistic approach.

2.6. Environment in which talent is developed

Previous literature largely focused on talent identification, rather than on the development of talent. This was problematic as many talented athletes were overlooked or dropped out of their respective sports. However, this trend started to change as researchers began investigating different factors that may influence the way TD is viewed.

Bronfenbrenner is famous for his work in the field of developmental psychology and his ecological model added key notions for studies on cultural features of human development (Bronfenbrenner, 1977). This model considers cultural and individual processes as separate entities (Domingues & Goncalves, 2014). This theory is relevant to sport, as an athlete in a positive and nurturing environment will thrive more than an athlete in a negative environment.

Henriksen developed a sport-orientated version of Bronfenbrenner's ecological model of development, which involved looking at various aspects that influences an athlete's development. An athlete's environment should focus on long-term preparation, clear pathways of communication, fostering a supportive atmosphere, individualised exercise plans and a robust focus on the players' maturity and growth rather than short-term success (Henriksen *et al.,* 2010a; 2010b).

Henriksen (2015) took a step towards readdressing the focus in TD by directing the research towards the environment in which talent is developed as opposed to the individual athlete. His work allowed him to create two models that help researchers look at an environment more holistically. Henriksen created holistic working models known as the athletic talent development environment (ATDE) and the environment success factors (ESF) models.

He concluded by stating that successful TDEs consisted of 1) chances for inclusion in a supportive training group and access to supportive role models; 2) reinforcement of aims and objectives by the broader environment; 3) emphasizing long-term progression as opposed to extrinsic motives; 4) incorporation of aspects beyond the boundaries of sport (i.e., school, family and additional mechanisms of the environment; and 5) a comprehensible organisational culture (Henriksen, 2015; Wagstaff & Burton-Wylie, 2018).

He also revealed that struggling environments displayed opposite features to that of successful environments, namely: 1) a shortage of encouraging training groups, mentors and motivators within the environment; 2) modest appreciation from non-sport environments; 3) no coalescence of features among other areas of the environment; and 4) disjointed organisational culture (Henriksen *et al.,* 2013; Henriksen, 2015).

The participation in water polo in South Africa is predominantly by high school pupils. Since this is the case, there may be pressure for students to balance the workload of school and sport. Pressures of balancing school and sport demands can have negative ramifications on an athlete's mental well-being (Ivarsson *et al.,* 2014). During transition periods (e.g., junior to senior sport), the pressure of balancing the two demands increases, potentially leading to drop out and stagnation in development (Henriksen, 2010; Larsen *et al.,* 2013). Since children spend large portions of their week at school, it is important that schools evaluate and review their environments on a regular basis. By doing this, it will help strengthen their environment and enhance the potential for student development.

2.6.1. Athletic Talent Development Environment (ATDE)

Henriksen (2010) introduced a comprehensive outlook on athletic talent research that focuses on the holistic developmental setting in which prospective athletes find themselves. TD is

important, because talented individuals do not spontaneously turn into world-class performers without enough TD experiences (Li *et al.*, 2015).

The ATDE is described as a young athlete's societal interactions that occur internally and externally from the realm of sport - societal interactions which have the group as their nucleus but also includes the greater surroundings in which the group is entrenched (Henriksen *et al.,* 2010a). ATDE represents an outline for portraying a particular environment as well as illuminating the tasks and purposes of the various components (microsystem, macro system, athletic domain and non-athletic domain) and relations (factors influencing the environment) within the environment (Henriksen *et al.,* 2010a, 2013). The environment is portrayed as a sequence of embedded systems (Henriksen, 2010; Henriksen *et al.,* 2010a). The athletes are located in middle of the model and other mechanisms of the ATDE are organised into two systems (the microsystem and the macrosystem) as well as two domains (athletic and non-athletic) (Henriksen *et al.,* 2010a; 2013). Figure 2.1 depicts the ATDE working model.

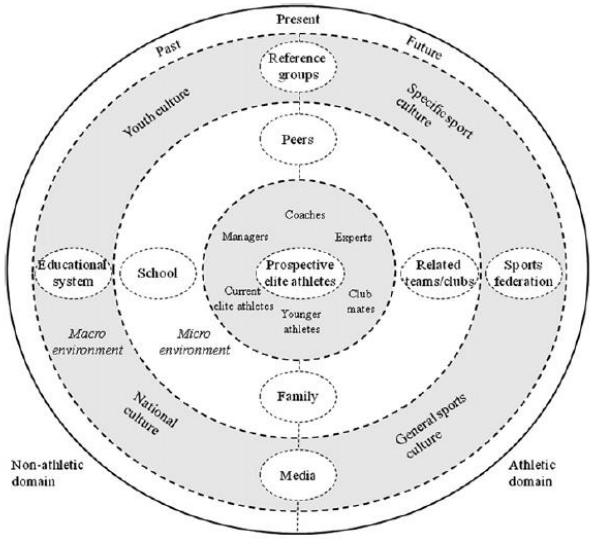

Figure 2.1: Athletic Talent Development Environment (ATDE) working model (Henriksen, 2010)

At the microsystem level, the club environment directly encircles the youth athletes (Henriksen, 2010). Individuals involved in this environment are the coaches, sport

psychologists, physiotherapists, sport physiologists, nutrition experts and role models in the club, i.e., either younger or senior elite athletes. Outside of the club environment, family, peers, school as well as other related clubs and teams who could be seen as opponents or who may provide opportunities for heartening interactions, are also involved in the athlete's microsystem (Henriksen, 2010).

The macro system refers to the broader environment and comprises of a series of mechanisms (Henriksen, 2010). Sports federations encompass both those that are more commonly representing national sports or those that are sport specific. The educational system operates as a structure for educational activities and could be seen as a resource or as a problem by the athletes. The macro-environment includes numerous cultural contexts (i.e., all cultural tiers contributing to the specific sport [e.g., youthful culture, national culture, general sporting culture]) (Henriksen, 2010; Henriksen *et al.,* 2010a).

The coach is a very important component in ATDE research. Henriksen identified that a few components (e.g., the coach) fits into one level and one domain. The coach fits into the athlete's microsystem as well as the athletic domain (Henriksen, 2010). However, other components (e.g., the family) could potentially exceed domains and levels as well. The family, for example, fits into the non-athletic domain. However, the family could potentially make a strong contribution to the sport as well. In Figure 1, the dotted lines represent the pervious and symbiotic nature of the various mechanisms (Henriksen, 2010).

A closer look at Figure 2.1's outer layer, reveal the terms past, present and future at the top. According to Henriksen (2010), this signifies the timeline, demonstrating that one's environment is dynamic and can spontaneously change over time. The environment must adapt to change and progress to preserve a fit within the wider context (Henriksen, 2010). When talented athletes make choices regarding their future, this represents the acuities of the past, present and future. These acuities are simultaneously represented when clubs initiate and implement TD programmes and when sport organisations dispense resources (Henriksen, 2010).

In addition, Henriksen (2010) suggests that the ATDE model is ecological as it contests that the progression of a player is impacted by the setting in which this progression occurs.

Henriksen *et al.* (2010a) stated that the model is rounded in three ways: 1) it consists of both the athletic and the non-athletic domain; 2) it contains both the micro-system and macro-system; and 3) it involves the time (i.e., past, present and future) of the environment.

2.6.2. Environment Success Factors (ESF)

The ESF model accounts for the elements that enable a successful environment and, therefore, has an illustrative possibility (Henriksen *et al.,* 2013). The preconditions given by the environment, for example, financial, human and material resources are the starting point of this model. The model demonstrates how the everyday processes (e.g., training, competitions etc.) have three outcomes: 1) athletes' individual development and achievements, 2) team achievements (e.g. tournament results), and 3) organisational development and culture. (Henriksen *et al.,* 2013). These outcomes are closely interconnected and influence the success or effectiveness of the environment in producing elite athletes. Figure 2.2 depicts the ESF working model.

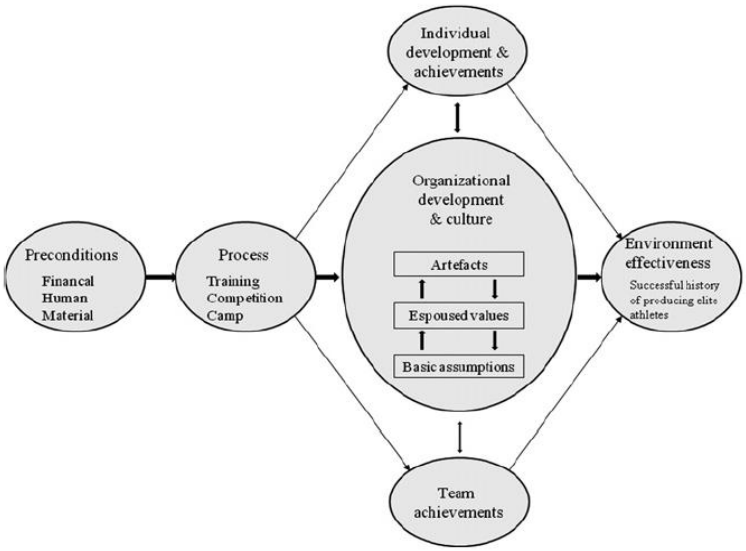

Figure 2.2: Environment Success Factors (ESF) working model (Henriksen, 2010).

Preconditions include the resources readily available within the environment. This comes in the form of human, material and financial resources. According to Henriksen (2010), human resources are noted as the number and expertise of role-players, such as coaches and managers, whereas material resources refer to facilities for training, accommodation and

testing and the condition and accessibility of these facilities. Process entails everyday activities within the specific environment (Henriksen, 2010).

Individual development and achievements entails the player gaining athletic skills and psychosocial capabilities, as well as the manner in which these factors contribute to positive outcome in a sport setting when working in tandem with each other (Henriksen, 2010). 'Team achievements' discusses the group's athletic accomplishments and is, therefore, largely pertinent to one of the goals of team sports. According to Henriksen (2010), individual and team achievements are created through the 'process' aspect of the ESF model, and through organisational culture and development.

Centrally to the ESF model is organisational development and culture and it focuses on three levels. These levels are known as cultural artefacts (i.e., numerous displays of culture articulated through words, behaviours and objects), espoused values (i.e., communal values, aspirations, standards and norms that the organisation demonstrates to the public), and basic underlying assumptions (i.e., fundamental motives for and the eventual source of actions, consisting of assumptions and beliefs that have stopped being questioned, but are taken lightly) (Henriksen, 2010).

Organisational culture is categorised by incorporating primary basic assumptions into a cultural model that leads the enculturation of new individuals, gives constancy and acclimatises the organisation to a consistently adapting environment (Henriksen, 2010). The ESF working model consequently forecasts that the success of the environment in which talent is developed is a direct outcome of the athletic interaction amongst preconditions, process, individual and team development and team achievements, and organisational development and culture is helping to assimilate the diverse elements (Henriksen, 2010).

It is apparent that the type of environment in which talent is developed is important. However, if several athletes from successful TDEs were grouped together into one team, it remains unclear whether or not this team would succeed. Teams and individuals can develop into the most supportive and nurturing environment, but this does not guarantee success. Despite developing from high quality TDEs, players still have to work together in order to achieve

success. This is where cohesion comes in as a factor that could potentially differentiate between more successful and less successful teams.

2.7. Cohesion in team sport

2.7.1. Background and overview of early research

Lewin (1935) researched the fundamental aspects of groups and their behaviours and categorized the study of groups within the category of ‘group dynamics’. This term signifies two primary processes that happen within groups: 1) ‘cohesion’ that focuses on the development and maintenance of the group, and 2) ‘locomotion’, i.e., the action whereby a group looks to achieve its objectives.

Cattell (1948) proposed that these two primary processes of a group are stochastic; meaning that without group maintenance there will be no group locomotion. Cattell (1948) also investigated the concepts and methods in the measurement of group syntality (i.e., the personality traits of a group). He stated that syntalities are the best indicators of ‘togetherness’ in a group. Syntality analyses the dynamic, erratic and capacity characteristics of the group. He further suggested that three aspects should be taken into account when defining a group. The first aspect is ‘syntality traits’ and this is referred to as the behaviour of the group as a whole. According to Cattell (1948), the group behaviour cited at this point looks at any influence the group has on other groups or its physical environment as a whole.

When analysing the behaviour of an individual, he/she may demonstrate more willed (conscious), and less organised (neurotic symptom temperament) behaviours. Therefore, a group’s behaviour may vary from a) whatever organised will and executive agencies the group processes, to b) less organised, uncontrolled elements, and to c) unorganised mass action (Cattell, 1948). The second aspect is ‘characteristics of internal structure’ and this looks at the relationships between the members of the group. The third aspect is ‘population traits’ and this aspect is merely the collective values-definitions of the personality of the average member of the group (Cattell, 1948).

There are four identified interacting variables when it comes to exploring the attractiveness of a group to the group members, as a measure of cohesion: 1) the reason for this attractiveness

(e.g., the desire for association and acknowledgement); 2) group ambitions concerning respect and encouraging features of the group which are indirectly shared by every member of the group, 3) the notion that involvement in a group can provide benefits, and 4) advantageous evaluation with alternative groups concerning membership (Cartwright, 1968; Asamoah, 2013).

Goodman *et al.* (1987) concentrated on the commitment level of a group when working on a task. They noted that numerous advantages were linked to employing work teams in organisations, including increased innovation, employee satisfaction, flexibility and productivity, along with decreased turnover and absenteeism (Goodman *et al.,* 1987; Aubé & Rousseau, 2005).

The early perspectives have been characterised by misapprehension and unsustainable organising of the idea of cohesion (Mudrack, 1989). During the 1980s, this view of cohesion appeared to shift from a static, simplistic concept to a multifaceted outlook. It was revealed that this innovative multifaceted outlook was restricted to individual and group attraction without a detailed allusion to the task and social aspects of cohesion (Boone *et al.,* 1997).

2.7.2. Definitions of cohesion

The attraction, commitment and contribution of group members to the group is known as ‘cohesiveness’ and it has been defined as “the total field of forces which act on members to remain in the group” (Festinger *et al.,* 1950, p. 52). This incorporates two features: 1) attraction among the members, and 2) forms of control. An essential trait of a group or a team, which differentiates it from merely being a causal gathering of people, is the level of appeal, dedication and/or contribution of every person to the group (Carron & Chelladurai, 1981).

Defining cohesion has proven to be difficult with many researchers providing their own views on the term. On the one hand, cohesion was previously defined as “an individual’s sense of belonging to a particular group and his or her feelings of morale associated with membership in groups” (Bollen & Hoyle, 1990, p. 482). On the other hand, cohesion was later defined as “the dynamic process which is reflected in the tendency of a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of the member

affective needs" (Carron *et al.,* 1998, p. 213). This definition is one that is most commonly used today.

2.7.3. Development of cohesion research

Carron *et al.* (1985) proposed that cohesion comprise task and social alignments. This implies that teammates interpret the team as being unified with regards to social (e.g., friendship) and tasked affiliated (e.g., performance) results (Martin *et al.,* 2011). Teammates interpret cohesion from the position of the team as a whole (i.e., team incorporation) and through personal perspectives (i.e., attractions to the group) (Carron *et al.,* 1985). They also suggested that every team member matures and holds insights regarding the group that is connected to the entirety of the group and the way in which the team gratifies personalised needs and goals (Carron *et al.,* 2007).

Group integration (GI) is a perception that signifies the individual's awareness of the intimacy, bond, and relationship within the entirety of the group, along with the level of integration of the group and individual attractions to the group (ATG). ATG is a perception that highlights the individual's insights about personal incentives attempting to lure and to retain the individual in the group in addition to the individual's personal feelings about the group (Carron *et al.,* 2007).

Carron *et al.* (2007) stated that there are two essential focus points to a group member's perceptions. The first perception is task orientation (T), or general alignment concerning the accomplishment of the group's goals and tasks (task cohesion). The second perception is social orientation (S), or general alignment concerning the development and preservation of social rapports and activities amongst the group (social cohesion). This leads to four dimensions that consists in the conceptual model of cohesion: 1) group integration-task (GI-T), i.e., the degree to which a group is motivated towards accomplishing its leading aims, 2) group integration-social (GI-S) i.e., the level that a group is unified in creating communal bonds and activities amongst the group, 3) attractions to the group- task (ATG-T) i.e., personal incentives regarding the group's leading aims, and 4) attractions to the group-social (ATG-S) i.e., personal incentives regarding communal bonds and activities amongst the group (Martin, 2011). Figure 2.3 depicts Carron *et al.'s* (2007) model of cohesion visually.

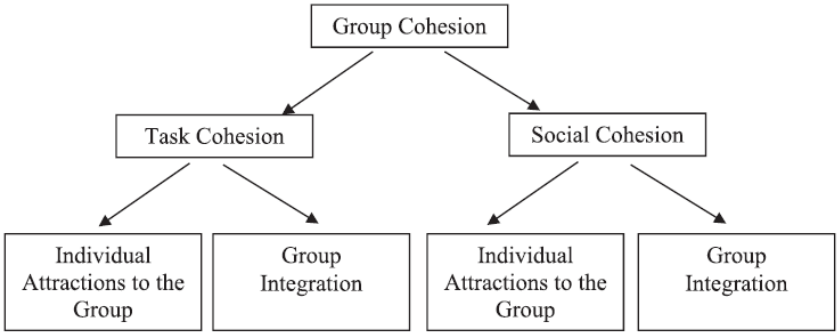

Figure 2.3. Conceptual Model of Group Cohesion (Carron *et al.,* 1985).

Task cohesion evaluates the level of impact that contributes to group members to reach a shared objective or goal (Asamoah, 2013). The task encompasses the purpose of the establishment of the group, and thus, the essence of the group task is a robust arbitrator of cohesion within a group (Carron *et al.,* 1998). When looking at an interactive sport such as water polo and comparing it to a coactive sport such as tennis, we can see that the interactive sport requires more coherence, commitment, and sacrifice of personal promotion. This in turn, creates more cohesion than the coactive sport, because the coactive sport requires personal mastery of skills rather than cohesion (Asamoah, 2013).

Teams with a high cohesion level establish robust levels of group efficiency and such observations are more robust for task cohesion than for social cohesion (Kozub & McDonnell, 2000; Asamoah, 2013). Task cohesion is viewed as a catalyst agent in enhancing mental drive (Eisler & Spink, 1998). The enhancement of task cohesion is imperative for triumphing in interactive sports such as water polo.

Social cohesion analyses group members and their view of association, personal involvement and the cooperative ability to shape amicable interactive relationships (Carron *et al.,* 1998). A player's bond with their team members and notions of comradery were features that Smith *et al.* (2001) found to be constantly recognised with the notion of association in sport. The coaches' ability to engage with group members with open communication is an important factor in influencing team cohesion as it reassures the team members that their thoughts and opinions are being considered during the process of creating team goals.

By doing this, it creates an atmosphere that makes the team members feel like they belong in this group, and it increases the fulfilment and obligation of group members to complete group tasks and objectives (Asamoah, 2013). Negative behaviour in groups such as members being late for meetings or being absent can be limited through strengthening social cohesion amongst the group members (Carron *et al.,* 1998).

Carron and his colleagues (year?) suggested that there are four important characteristics cohesion. Firstly, cohesion is multidimensional and is not a singular concept. Secondly, cohesion is dynamic. It varies over time in terms of intensity and is present in many different forms (e.g., social cohesiveness, task cohesiveness) during the entire process of group formation, growth and closure (Carron *et al.,* 2007). Thirdly, cohesion is instrumental. When groups are formed, they stick together for reason. This includes groups that are mainly social in nature (i.e., have high social cohesion), possess an instrumental (i.e., task) foundation for their creation. Fourthly, cohesion is affective (i.e., community-based friendship and task agreement that progresses in teams that are satisfying to individual teammates) (Carron *et al.,* 2007). When groups lose their affective characteristics, lack of synchronization and conflict may result and in extreme cases, may lead to the demise of the group (Carron *et al.,* 2007).

2.8. Cohesion's relationship with other group-dynamic factors

A number of other significant group-dynamics concepts relate to team task and social cohesion (Carron *et al.,* 2007). Firstly, numerous environmental factors (e.g., group size, level of competition, geographical considerations, and physical and functional proximity) play a role (see Carron *et al.,* 2009; Weinberg & Gould, 2019). Secondly, personal factors such as state anxiety, individual satisfaction, individual effort, sacrifices and adherence behaviour are related to cohesion (see Carron & Dennis, 2001; Papanikolaou *et al.,* 2003; Asamoah, 2013).

Thirdly, group roles, norms, group position, team stability, group productivity, group task characteristics, group dynamics and team stability are all team factors that are linked to cohesion (see Brawley *et al.,* 1987; Carron *et al.,* 2009; Asamoah, 2013). Fourthly, leadership factors such as the leader's decision style and the leader's behaviour are two aspects that relate to the development of group cohesion (see Carron *et al.,* 1998; Carron *et al.,* 2009; Asamoah, 2013).

The relationships amongst cohesion and these variables could potentially be reciprocal in nature (Carron *et al.,* 2009). For instance, cohesion is linked with collective efficacy, which is the collective acceptance concerning the group's capability to thrive at a given task. There is a possibility that cohesion heightens group effectiveness and group effectiveness heightens cohesiveness (Carron *et al.,* 2009).

2.9. Cohesion and team sport performance

The level of performance is another factor that can be influenced by cohesion. Mach *et al.* (2010) posed the question: are teams performing well due to the strength of their cohesion or is cohesion the reason for their performances. A meta-analysis by Mullen and Copper (1994) uncovered that performance leads to cohesion and that cohesion leads to performance, thus the relationship is bi-directional. They found that cohesiveness could trigger the group to perform better, however, the propensity for the group to encounter greater cohesiveness following a successful performance could be more robust (Mullen and Copper, 1994). The relationship between cohesion and performance is circular or reciprocal (Peterson & Martens, 1972; Beauchamp *et al.,* 2020). Beauchamp *et al.* (2020) reiterated the findings of Muller and Copper (1994), that when teams succeed, their success usually brings them closer together, and that this correlation is more robust than the outcomes of cohesion on team success. This means that, sequentially, performance impacts cohesion and the subsequent alterations in cohesion thereby, influences performance (Asamoah, 2013).

Mullen and Copper's (1994) meta-analysis uncovered that: 1) the task interplay demand (i.e., team vs. individual sports) does not affect the relationship between cohesion and performance, 2) greater cohesion-performance outcomes are apparent in authentic groups than in contrived groups, 3) amid authentic groups, sport teams display the most robust cohesion-performance outcomes, 4) the performance to cohesion correlation is greater than the cohesion to performance correlation, and 5) when the operational definition of cohesion is the dedication to the task (i.e., corresponding to task cohesion), a cohesion-performance correlation is apparent. However, the correlation is not evident when the operational definition of cohesion is either relational appeal (i.e., corresponding to social cohesion) or group contentment (Carron *et al.,* 2002; Mullen & Copper, 1994).

The link between high group cohesion and enhanced performance is not always evident. In fact, Paskevich *et al.* (2001) mentioned that cohesion could be linked with pressure to conform, groupthink and deindividuation. Cohesion can be both helpful and harmful for a team, as players in the team may feel accountable for their performance, disappointing their group members, and subsequently increasing their excuses for failure (Rovio *et al.,* 2009). Several studies looked at the harmfulness of group cohesion in sport (Carron *et al.,* 1994; Carron & Hausenblas, 1998; Rovio *et al.,* 2009). One reason for the seemingly limited amount of academic literature related to the adverse effects of cohesion, is because academics and stakeholders (i.e., coaches and athletes) may perceive cohesion as self-evident in the sense that it is consistently advantageous and, therefore, should be urged as much as possible (Paskevich *et al.,* 2001; Rovio *et al.,* 2009).

When a team is highly unified, the members in that group may feel pressurised not to censure social loafers (Carron & Hausenblas, 1998). By simply disregarding social loafing in the team, it would aid in maintaining team harmony and togetherness. In highly cohesive groups, athletes will most likely give in to group pressure (Rovio *et al.,* 2009). A notable discovery from Carron *et al.* (1994) uncovered that keeping a harmonious balance in the team may not be desirable, as the study found signs of players feeling pressure to behave in a way that the other team members wanted.

Carron *et al.* (1994) studied the correlation amongst cohesion and self-handicapping behaviour. They discovered that when the social dimension was high, the athletes with robust self-handicapping qualities created more excuses (i.e., moderating and self-protective commentaries in which the person would classify aspects that has the potential to hamper or obstruct performance) prior to important competitions (Carron *et al.,* 1994; Rovio *et al.,* 2009).

2.10. Underlying connection between the three constructs

So far, the literature has focused on three areas, namely, TDEs, cohesion and organisational culture. The remaining question is how this all ties together. Figure 2.4 depicts the two models that form the basis of this study and a possible factor that links these, i.e., group cohesion.

The diagram is colour co-ordinated, and each colour represents a specific focus area of this study. The perforated arrows indicate the interactions between these focus areas and their

influence on each other. A legend is provided to better understand and interpret the diagram, with each relationship also explained. Chapter three and four will elaborate on how each of these relationships were established or how this relationship affects performance.

The inner circle of the ATDE model is highlighted in green (including the school and educational system) and links with group cohesion. Literature indicates that the individual factors included in this particular area, influence group cohesion. Cohesion is developed through the interaction of the group members within this micro-system. The prospective athlete is influenced by the key role players detailed in this area. The link between group cohesion and TDE is evident, as group cohesion is developed between individuals involved at the micro-environment level. Cohesion and performance have a reciprocal relationship and there is a link between strong performance and strong cohesion (e.g., Mullen & Cooper, 1994; Asamoah, 2013; Beauchamp *et al.,* 2020). Hence, there is a possible link between group cohesion and team achievements contained in the ESF model.

Because of these possible links, the TDE and team cohesion of the leading six water polo high schools' in the Western Cape is compared in chapter 3. Furthermore, the correlation between the various TDE and team cohesion variables will be determined. There is a plethora of information about the cohesion-performance relationship and how these factors influence each other. However, since cohesion is found/created in the microenvironment of the athletes, group cohesion will be influenced by the interactions of the individuals within the microenvironment.

This adds a new dimension to the cohesion-performance relationship discussion, as the role of environment has not been considered or explored by previous researchers. The Talent Development Environment Questionnaire (TDEQ-5) will be used to analyse the environment in which talent is developed. The Youth Sport Environment Questionnaire (YSEQ) will be used to compare the group cohesion of more and less successful teams.

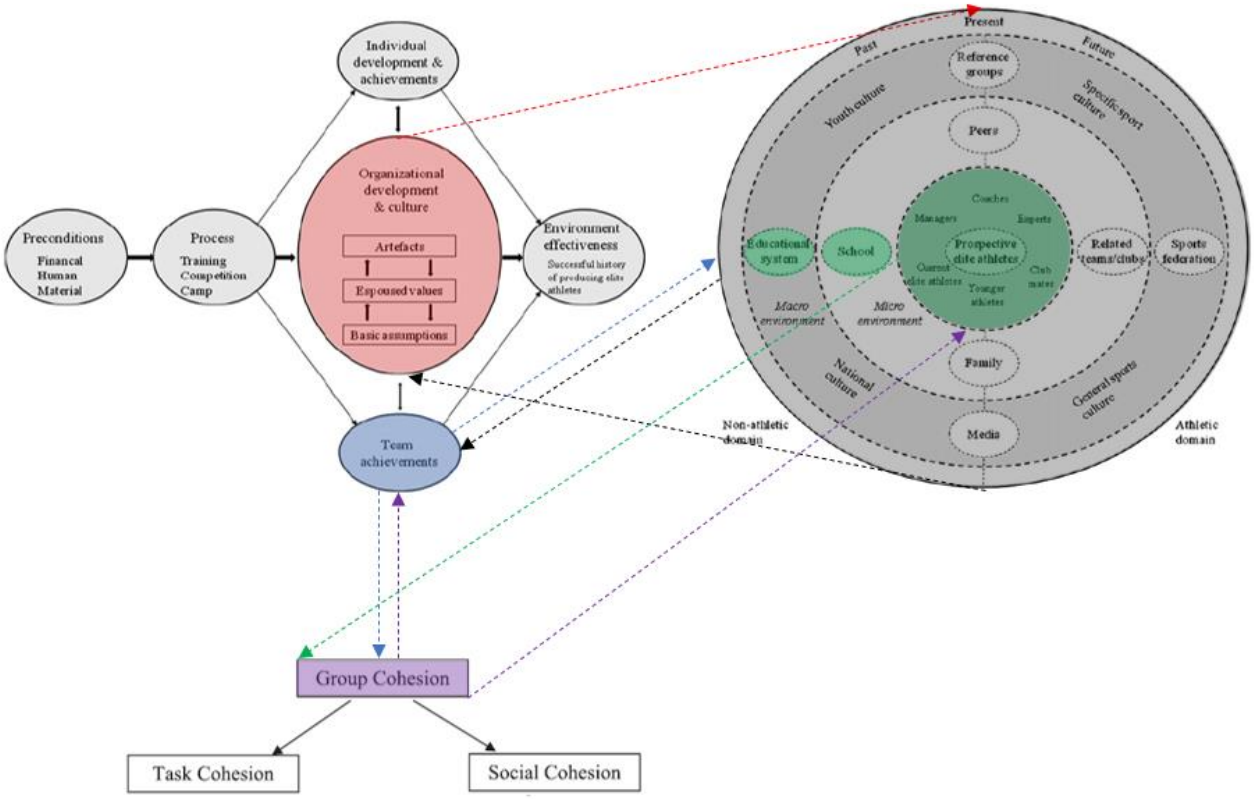

Figure 2.4. Group cohesion as a possible link between the ATDE and ESF models

Legend

- Microenvironment (including school and educational system).
- Team achievements.
- Organisational development and culture.
- The environment in which talent is developed.
- Group cohesion.
- Microenvironment (including school and educational system) influencing…
- Team achievements influencing…
- Organisational development and culture influencing…
- The environment in which talent is developed influencing…
- Group cohesion influencing…

Henriksen provided a new way of looking at TD. His work focused on a holistic approach to analysing TD by taking into account the athlete's whole environment, not just the sporting context. The ATDE and ESF models signifies the holistic ecological perception in TD and complement each other in that the ATDE model provides a framework to describe the environment, and the ESF model encapsulates aspects that impacts its efficacy (Henriksen,

2010; Henriksen *et al.,* 2010a). Therefore, the aim of this study was to explore how these two models work together. Interestingly, the three levels of organisational development and culture within the ESF model, are all cultivated in the athlete's environment.

Every group are presented with two tasks. Firstly, they must be able to persevere and develop by means of adapting to an ever-changing environment (Schein 2010; Henriksen, 2010; 2015). Secondly, the group should hold onto group purpose through internal interaction and unification (Schein, 2010; Henriksen, 2010; 2015). Based on this, organisational culture can be characterised by the incorporation of the key basic assumptions (i.e., the principles and philosophies that have stopped being questioned by its members) into a cultural model that directs the enculturation of new individuals, offers constancy, and acclimatises the organisation to a regularly evolving environment (Henriksen, 2010; Henriksen *et al.,* 2010a; 2010b; 2013). In other words, culture becomes a stabilising force in a group as it directs its members in relation to how they should feel, think and act (Henriksen, 2010). Therefore, the role of organisational culture on the creation of effective TDEs will be explored in chapter four. Up to now, the three focus areas of this study have been discussed in isolation since literature tends to describe and explore these three focus areas separately. Much like the mechanisms of a bicycle, all parts need to be working together to move forward, and an integrated approach is needed to analyse these three focus areas in combination. It seems fitting that Figure 4 resembles that of a bicycles' chain mechanism. By removing one of these factors in the bicycle chain mechanism, we have no movement, but only stagnation.

The purpose of this study was to incorporate a new way of thinking in TD research. Henriksen put us on the right track by taking a holistic approach to TD, however, one thing that is currently missing in research, is the influence that these focus areas have on each other and how they can work together in better understanding the environment in which talent is developed.

As a current national water polo player (I was fortunate to captain Team South Africa at the Tokyo 2020 Olympic Games) and researcher, I am hoping that this study will reveal which factors are crucial for an environment to thrive for high school water polo players. The information from this study may enable schools and the water polo federation to re-evaluate the current TDEs and invest in the areas that is necessary for enhanced talent development.

If schools can use the information from this study to re-evaluate the talent development environment, it could help create a more conducive environment where athletes can grow and mature within the specific water polo sport. This study can also help schools identify features in their environment that are hindering the growth of their athletes. The possible benefits of this study is that it could help struggling environments improve, which will ultimately increase competitiveness amongst schools and hopefully help produce more elite prospective athletes which will feed into the senior men's' system.

Chapter Three

Article One: South African high school water polo talent development environments and team cohesion: Performance comparisons and correlations

This article was first submitted for publication in the International Journal of Sport Science and Coaching. It was rejected, because the editor felt that the article did not fall within the journal's scope. Next, we submitted it to the Journal of Sports Sciences, and again it was rejected. The editor stated that the journal were receiving large numbers of submissions, and that after screening the paper for originality, rigour and contribution, it was subsequently rejected. The article is herewith included according to the guidelines for authors of this esteemed journal. To provide a neat and well-rounded final product for this thesis, the article has been edited to represent a published article, as it would appear in this particular journal. This does not imply that the article has been accepted or will be accepted for publication. Subsequently, the referencing style, font, figures and tables used in this chapter may differ from that used in the rest of the chapters of this thesis.

South African high school water polo talent development environments and team cohesion: Performance comparisons and correlations

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Abstract

Organised school sport forms an integral part of long-term player development pathways in most South African sports. The highly competitive nature of these school leagues often emphasise short-term success over long-term player development. The study aimed to compare successful and less successful high school water polo teams on various talent development environment (TDE) and team cohesion variables, based on the final log position of a Western Cape high school's tournament involving the six leading schools (u/15 & u/18 age-group tournaments) and to establish correlations between these variables. A cross-sectional design was used and 146 boys (average age (M): 15.51 years; standard deviation (SD): 1.23 years) completed the Talent Development Environment Questionnaire (TDEQ-5) and the Youth Sport Environment Questionnaire (YSEQ) before the start of the 2020 Mazinter Cup. The top three u/18 teams had higher TDEQ-5 (Overall), Alignment of Expectations, Support Network, YSEQ (Overall Cohesion), Task Cohesion and Social Cohesion scores compared to the bottom three teams. The results underscore the well-established cohesion-performance relationship. There were no differences at the u/15 level. The u/15 players were competing in their first tournament at this age group, suggesting that between-group differences may only become apparent over a longer timeframe. Moderately strong positive correlations existed between various TDE and cohesion variables. Fostering team cohesion is, therefore, integral to a successful TDE. High school sporting environments should focus on long-term player development, whilst group interventions aimed at fostering team cohesion may enhance team performance.

Keywords

Long-term player development, alignment of expectations, support networks, task cohesion, social cohesion

Introduction

Water polo is a team sport with intermittent patterns of high intensity actions.[1] The sport is taxing as the players perform about 100 high-intensity sprints during a match, typically lasting seven to 14 seconds each. Activities of this intensity and duration is highly dependent on anaerobic metabolism and muscular power.[2] Schools and clubs need to invest in their coaching structures to create environments that will ensure proper pathways for player development.

Providing players with suitable resources is the responsibility of the talent development environment (TDE) as a whole, as opposed to one specific person or entity.[3] There is an extensive body of literature on sport TDEs.[3-7] The work of Henriksen[8] and Martindale[9] dominate the current discourse. The former introduced a holistic ecological approach to analysing

athletic talent and the latter focused on features that make TDEs effective.

South Africa has a strong school-sport culture with schools providing coaching in most sporting codes and inter-schools competitions the norm. Organised school sport play an integral part in developing high school pupils, as most individuals aged 14 to 18 years compete at this level, rather than within club structures. High schools are a key focus of water polo in the country and makes up a large proportion of the player pool. The South African Sports Confederation and Olympic Committee (SASCOC) and Swimming South Africa emphasised the importance of the sport at this level, because it provides a platform for lifelong participation.[10] South African water polo face a problem as an estimated 90% of players drop out of the sport once they complete high school. Many players opt to play socially, rather than competitively, which negatively affects athlete intake after high school. This problem is significant and deviates from global trends.[10]

Creating a school environment that enables children to develop psychosocially, and in terms of their physical skills and fitness levels is desirable.[11] A major benefit that high schools hold is that they can guide their scholars over a five-year period. However, it appears as if the highly competitive school sport programmes in South Africa tend to focus on short-term performance as opposed to concentrating on the optimum long-term development of the young athlete's overall athletic capabilities.[12] A shift is required in that TDEs should incorporate coach guidance, feedback, goal setting, support, and adopt a long-term player development focus.[13]

Five key features embody the essence of effective TDEs,[5] including: 1) long-term goals and approaches; 2) comprehensive, rational messages and encouragement; 3) prioritising development rather than immediate 'success'; and 4) personalised and continuous development; and 5) integrated, coherent, and methodical development. Effective TDEs possess characteristics that foster self-growth, promote responsibility, and encourage intrinsic motivation.[9,14]

Martindale et al. developed the Talent Development Environment Questionnaire (TDEQ).[9] This instrument can be used to monitor TDEs,[14] to identify strengths and weaknesses in environments, and changes in these over time.[7,14] Schools in South Africa could benefit from using this instrument to obtain feedback that can optimise the environment they create for the players, since most of the elite youth water polo is played at this level.

School sport is growing in popularity, evident by the increase of competitions and festivals on the local calendar. School sport has become more professionalised and competitive, along with better television coverage and prizemoney.[12] South Africa went from competing in one international u/18 water polo tournament in 2012 to competing in four international competitions and sending four different age groups to those competitions in 2019.[16] The past decade has seen an increase in pressure for coaches and schools to perform well and to win as their results are publicised regularly.[12] Likewise, athletes are under pressure to perform to be selected by provincial teams or to earn university bursaries. Performance subsequently plays an important role in high school sports as it helps schools to recruit future athletic stars.

Every school or environment has their own definition of success.[17] Some may focus on achieving a specific win-loss percentage or on improving the previous season's final log standing. Although this may differ from one school or environment

to another, at the end of the season, these institutions reflect on whether or not they achieved their performance goals. Performance is so highly sought-out in the sporting world and is an important topic in research (e.g., [18-20]). Surprisingly, there appears to be a paucity of TDE research in relation to performance outcomes.

The cohesion-performance relationship has been explored extensively. The most widely used definition of cohesion states that it is "a dynamic process that's reflected in the tendency of a group to stick together and remain united in pursuit of its instrumental objectives and/or for the satisfaction of member affective needs".[21] A meta-analysis uncovered that performance leads to cohesion and that cohesion leads to performance.[22] The relationship is bi-directional or reciprocal.[23-24] Cohesiveness may contribute to better performances, but the tendency for the group to experience greater cohesiveness after successful performance may be even stronger.[22]

Teams that were more successful at the Olympic Games level attributed part of their success to team cohesion, with these athletes stating that they respected and encouraged their teammates to perform at a higher level. Teams that were less successful mentioned that a lack of team cohesion contributed to their failures. They also attributed the lack of role clarity and inadequate preparation for competitions as factors that impaired their performance.[25]

Cohesion is a multidimensional construct that differentiate between individuals and the group they belong to.[26] A variety of group-dynamic concepts are related to a team's task and social cohesion,[27] including leadership,[21,28] environmental,[28,29] personal,[28,30,31] and team[21,32] factors. Team cohesiveness fosters a communal responsibility in the presence of difficulty and permits members to endure the negative consequences of unsettling events.[32] More favourable comprehensions of task cohesion forecasted considerable positive youth development (PYD), through individual and communal skills, resourcefulness, and objective setting, with fewer adverse encounters. Similarly, stronger comprehensions of social cohesion forecasted more PYD as specified by greater degrees of individual and communal skills, psychological skills, objective setting, and reduced levels of adverse encounters.[33]

The primary aim of the study was to compare TDE and team cohesion of the leading six water polo high schools in the Western Cape. The secondary aim was to establish correlations between these variables.

Methods

Research design

The study utilised a cross-sectional descriptive research design. Demographic information and quantitative data (through two questionnaires) were collected and enabled between-group comparisons (more versus less successful teams) across two age-group samples. Correlation coefficients between TDE and cohesion variables were determined for the total sample.

Participants

High school boys' water polo players (N = 146) aged 13 to 18 years, who competed in the 2020 Western Cape Summer league and Mazinter Cup water polo tournaments, participated in the study. There were six u/15 teams (n = 72) and six u/18 or first teams (n = 74). Player age and the number of seasons played for their respective age group teams are reported in Table 1.

Table 1. Age and playing history of the participants.

	All participants (N = 146)	U/15 players (n = 72)	U/18 players (n = 74)
Age (Years): M (SD)	15.51 (1.23)	14.53 (0.56)	16.46 (0.89)
Number of Seasons: M (SD)	1.77 (1.37)	1.0 (0.0)	2.53 (1.60)
1st season at this age group level*	100 (68.49%)	72 (100%) $	28 (37.84%) #
2nd season at this age group level*	10 (6.85%)	-	10 (13.51%) #
3rd season at this age group level*	22 (15.07%)	-	22 (29.73%) #
4th season at this age group level*	5 (3.42%)	-	5 (6.76%) #
5th season at this age group level*	1 (0.68%)	-	1 (1.35%) #
6th season at this age group level*	8 (5.48%)	-	8 (10.81%) #

* The South African academic year starts in January. The December (summer) holiday split the water polo season in two; one season spans the last quarter and the next season the first quarter of the calendar year.

$ U/15 players have already completed a full year of water polo at the u/14 level when they enter high school in grade 8, however, this was their first season at u/15 level.

Most of the u/18 players would have played up to a maximum of two seasons at the u/14 and two seasons at the u/15 age groups.

Procedures

Ethical clearance was obtained from the Stellenbosch University Research Ethics Committee for Social, Behavioural and Educational Research (REC: SBE, project ID: 13117), the Western Cape Education Department, Western Cape Schools Water Polo and South Africa Water Polo. The coaches and managers of each school provided institutional permission. The study was explained to all participants at the respective schools and their voluntary participation requested. Informed consent was needed from the parents/guardians of the child participants, as the study involved participants who were 18 years old and younger. Information sheets, informed consent and assent forms were distributed and the signed forms were returned via email. Confidentiality and anonymity of the individual results were ensured.

Instruments

Talent Development Environment

The Talent Development Environment Questionnaire (TDEQ-5) was used to measure the encounters of the players in connection with the important attributes of efficient TDEs.[9] The instrument consists of 25 items that measures five subscales: 1) Long-Term Development (5 items) -The degree to which the programmes are particularly intended to promote athletes' long-term prosperity (foundational training and holistic development, consistent opportunities, and reduced notion around extrinsic rewards). 2) Alignment of Expectations (5 items) - The degree to which goals are methodically arranged and organised (establishing goals, goal assessment, and personalised goals). 3) Communication (4 items) - The degree to which the coach speaks constructively with the player in both conventional and relaxed surroundings (developmental path, motive for training, and evaluation). 4) Holistic

Quality Preparation (7 items) - The degree to which intervention programmes both internal and external of a sport setting are put together (compassionate coaching, intelligible guidance, psychological preparation, and a well-rounded lifestyle). 5) Support Networks (4 items) - The degree to which rational, friendly, and comprehensive support networks are accessible to the player in every domain (professionals, coaches, families and schools).[34]

The TDEQ-5 utilised a 6-point Likert scale (1 = “strongly disagree”, 6 = “strongly agree”). Internal reliability for the subscales ranged from .79 to .86.[34] The current dataset yielded the following inter-reliability indices: TDEQ-5 Overall (α = .80), Long-term Development Focus (α = .53), Alignment of Expectations (α = .62), Communication (α = .67), Holistic Quality Preparation (α = .73), and Support Networks (α = .69). The alphas for the Long-term Development Focus subscale is low, requiring cautious interpretation.

Cohesion

The Youth Sport Environment Questionnaire (YSEQ) asked participants to indicate their agreement to 18 items on a 9-point Likert scale (1 = “strongly disagree”, 9 = “Strongly agree”).[35] The questionnaire is a more suitable measure of cohesion among junior athletes (13 to18 years of age) than other popularly used cohesion scales. Sixteen items contributed to two subscales, Task Cohesion and Social Cohesion. Task Cohesion (8 items) - Individuals’ understanding of the amount of unification acquired by the group surrounding task characteristics (group aims and ambitions), and Social Cohesion (8 items) - Individuals’ understanding of the amount of unification of the group surrounding social characteristics (social bonds and camaraderie).[35] Two negative spurious items were not used to calculate subscale scores.

Content, factorial and predictive validity were shown.[35] Acceptable inter-item reliability was reported by two studies for Task (α = .89, .91) and Social Cohesion (α = .93, .94).[35-36] The current dataset yielded acceptable alphas: YESQ (Overall Cohesion) (α = .71), Task Cohesion (α = .90), and Social Cohesion (α = .93).

Tournament Performance

The Water Polo Summer league consisted of a round-robin format in which the leading six high schools in the Western Cape played against each other. Separate data for both the u/15 and u/18 tournaments were captured. The top four teams from the summer league qualified for the Mazinter Cup, a knockout tournament in which the top ranked team from the summer league faced the fourth ranked team and the second placed team faced the team ending third in the semi-finals. The winners from those two matches played against each other to determine the overall winner, whilst the losers played against each other for third and fourth place. This resulted in a final log standing, with teams in each age group tournament ranked from one to six. Teams in both age categories were divided into two subgroups, namely the top three (i.e., more successful), and bottom three (i.e., less successful) teams.

Statistical analysis

Descriptive statistics (*M (SD)*) were calculated. Comparisons between the top three and bottom three teams in each age category were done through a One-way Analysis of Variance (ANOVA), with a Least-Significant-Difference (LSD) post-hoc procedure. Statistical significance was

set at p <.05. Pearson product moment correlation (r) calculated the correlation coefficients between the respective TDE and cohesion variables.

Table 2 reports the team performance comparisons for the u/15 and u/18 teams. Amongst the u/18 teams, the top three teams had higher TDEQ-5 overall scores than the bottom three teams. Therefore, the top three teams perceived that their school: 1) had the intention to promote their long-term prosperity (long-term development focus); 2) organised goals (alignment of expectation); 3) implemented a more robust programme both internal and external of a sport setting (holistic quality preparation); 4) had a more effective channel whereby the coach could speak constructively with the players in a conventional and relaxed setting (communication); and 5) offered accessibility to a rational, friendly, and comprehensible network (support network), compared to the bottom three schools. There were no between-group differences among the u/15 teams for the TDEQ-5 subscales.

The top three u/18 teams appeared to have a greater unification around task characteristics (task cohesion) and social characteristics (social cohesion) than the bottom three teams. Subsequently, the top three u/18 teams had a greater level of cohesion overall (YSEQ overall). There were no between-group differences among the u/15 teams for the YSEQ subscales.

Results

Table 2. Team performance comparisons for the talent development environment and team cohesion variables for u/15 and u/18 teams

	U/15 Teams			U/18 Teams		
	Top 3 teams	*Bottom 3 teams*		Top 3 teams	Bottom 3 teams	
	M (SD)	*M (SD)*	*p*	*M (SD)*	*M (SD)*	*p*
TDEQ-5 (Overall)	4.31 (0.71)	4.37 (0.60)	.73	4.40 (0.58)	4.02 (0.63)	<.01**
Long-Term Development Focus	4.74 (0.61)	4.94 (0.43)	.19	4.84 (0.71)	4.62 (0.68)	.13
Alignment of Expectations	4.36 (0.88)	4.12 (0.77)	.19	4.11 (0.66)	3.54 (0.74)	<.01**
Communication	4.27 (1.14)	4.09 (1.01)	.42	4.28 (0.80)	4.02 (0.92)	.26
Holistic Quality Preparation	4.11 (0.89)	4.29 (0.90)	.38	4.31 (0.80)	3.96 (0.85)	.08
Support Networks	4.09 (0.99)	4.39 (0.85)	.19	4.46 (0.98)	3.98 (1.11)	.04*
YSEQ (Overall)	7.15 (1.14)	6.84 (1.10)	.28	7.75 (0.82)	5.71 (1.58)	<.01**
Task Cohesion	7.07 (1.20)	6.71 (1.08)	.21	7.98 (0.71)	5.28 (1.72)	<.01**
Social Cohesion	7.23 (1.44)	6.98 (1.50)	.50	7.52 (1.17)	6.14 (1.92)	<.01**

* p <.05, ** p <.01

Table 3 revealed significant relationships between all TDEQ-5 and YSEQ subscales. The strongest relationship was between TDEQ Alignment of Expectations and YSEQ Overall (r = .51). Moderate correlations (r = .40-.49) were observed for: 1) TDEQ Alignment of Expectations and YSEQ Task Cohesion (r = .43), 2) TDEQ Alignment of Expectations and YSEQ Social Cohesion (r = .46), 3) TDEQ (Overall) and YSEQ Social Cohesion (r = .47), and 4) TDEQ (Overall) and YSEQ (Overall) (r = .49). The remaining correlations were significant, but small.

Table 3. Correlation coefficients between the Talent Development Environment Questionnaire (TDEQ-5) and Youth Sport Environment Questionnaire (YSEQ) variables

	YSEQ Overall	Task Cohesion	Social Cohesion
TDEQ Overall	.49 **	.39 **	.47 **
Long-Term Development Focus	.29 **	.23 **	.29 **
Alignment of Expectations	.51 **	.43 **	.46 **
Communication	.38 **	.28 **	.39 **
Holistic Quality Preparation	.35 **	.30 **	.33 **
Support Networks	.30 **	.23 **	.30 **

** p <.01

Discussion

Talent Development Environment (Overall)

The TDE (Overall) scores distinguish between the top three and bottom three u/18 teams. On closer inspection, one could argue that the u/15 players have not been in their new age-group environment long enough for differences to appear. It takes time for athletes to adjust to and develop within an environment. Swimming South Africa's long-term development model consists of seven stages. Athletes in the u/15 age group fall into stage 4 or the "train to train" stage (age group range for boys: 12-16 years). This stage should focus on the process rather than the outcome, with the objectives of laying a solid aerobic base, improving strength and developing sport-specific skills.[37] Stage 5 or the "train to compete" stage consist of athletes between the ages of 16 to 18 year and older. The objectives for this stage is to optimise fitness preparation, individual and position-specific skills as well as team performance.[37] Between-group differences may become apparent.

Youth development can be viewed as a function of interactions amongst various stakeholders and different aspects of each individual's social and contextual environment.[38] The top three u/18 teams seemingly had more favourable interactions with others in their environments than the bottom three teams. These findings contribute to the existing literature (see [3,39-42]), on the role of the environment in the development of young, prospective athletes.

Alignment of Expectations

Coherent and aligned team goals are important as it increases talent processes and productivity, influences performance through concentration and focus, tactical development, strategic motivation, and by amplifying perseverance.[43] Goal setting is a frequently used and effective tool to enhance sport performance.[44,45] Team members should take ownership of their personal development and performance by setting their own goals. Furthermore, team effectiveness is enhanced when the goals are reviewed and modified frequently.[46]

These findings lend support to the positive relationship between the alignment of expectations and performance. Despite this, coaches and athletes need to realise that the goal setting process is complex and that expectations should be managed sensitively.[47,48] The pursuit of realistic goals and aligning the expectations held by various stakeholders is imperative. The potential risks of goal setting could be explored further.

Support Networks

A broad range of support from various resources is critical in the development of athletes. If an environment is deemed supportive and constant, continuous positive social experiences within this environment will inevitably positively impact athlete's growth and maturation.[49] Coaches, managers, sport scientists, mental skills trainers, sports medicine personnel, friends, and family members provide the support and expands the environment in which talent can be nurtured and developed. Likewise, one should not ignore the influence team members exert on each other. Athlete peer relationships can enhance or discourage their achievement motivation (e.g., goal implementation).[50] Athletes are able to evaluate their own strengths, weaknesses, values and identities within an environment with suitable support and adequate resources. This allows them to assess and enhance their perceived competency, which is critical in achieving and sustaining long-term success.[51]

These results support the notion that supportive networks and performance are related. Furthermore, athletes who perceive their environment as unfavourable or unsupportive may be more prone to dropping out of sport.[49] Schools should subsequently encourage and enable the different stakeholders to provide the necessary support.

Group Cohesion

Group Cohesion (Overall)

The results show that group cohesion is an important team performance factor and concurs with existing literature (see [52-54]). Based on these results, it was deduced that the top three teams were more likely to stick together as a group and remain united in their pursuit of shared objectives, and that the needs of the individuals may subsequently be satisfied.[21] The findings on task and social cohesion in relation to performance will be discussed separately.

Task Cohesion

Team performance depends on the level of incorporation and commitment by group members concerning the task at hand.[26,55-57] To this effect, group members will apply greater effort and derive more intrinsic pleasure from pursuing tasks that they find enjoyable.[22] Coaching programmes should encourage enjoyment, as it may enhance team performance.[22] The current results show that the top performing teams were more cohesive around the task at hand

than the bottom teams, supporting the well-established positive relationship between task cohesion and performance (see [11,22,52,53,58]).

Social Cohesion

High levels of social cohesion are associated with team performance,[26,59,60] however, high social cohesion may not always be desirable. In highly cohesive groups, athletes show signs of succumbing to pressure and may behave in a manner that pleases the group. Risk factors associated with strong social cohesion include, pressure to conform, groupthink, and a decrease in individuality.[60-62] Our findings support the positive relationship between social cohesion and performance, whereas the potential risk of overly high social cohesion scores requires further exploration and preventive/corrective efforts at the individual and team level.

Relationship between talent development environments and cohesion variables

TDE - cohesion relationship

The second strongest correlation existed between TDE (Overall) and YSEQ (Overall). As noted, the measures used in the study is useful to identify specific areas that require intervention, and to monitor change within environments. The observed correlation between the various TDE variables and cohesion, imply that team building, and cohesion activities could foster an environment in which players can develop optimally. Greater group cohesion may contribute to an effective TDE and long-term individual player development, whilst such an environment and enhanced individual competencies may strengthen the overall cohesiveness.

Long-term developmental focus - cohesion relationship

Despite the weak correlation between long-term developmental focus and the three cohesion factors, the relationship was significant. At the start of each year, many boys and girls move from primary to secondary school. Although this is an important milestone, children who participate in sports will have to adjust to a new environment. High school sport environments should implement the four stages of team development; 1) forming, 2) storming, 3) norming, and 4) performing. Incorporating a long-term development programme may reduce structural issues within the group and lead to positive task performance (task cohesion).[63]

Practically, coaches who know that new individuals will be coming through the following year, could benefit from designing his/her own four stages of team development programme in advance and should include team bonding activities in order to maximise future commitment to the tasks at hand (task cohesion) whilst maintaining/ fostering relationships with others in the group.[63]

Alignment of expectations - cohesion relationship

Moderately significant correlations exist between TDE and cohesion, more specifically, between the TDEQ Alignment of Expectations subscale and Cohesion (YSEQ Overall). Team goal setting directly affects performance by providing a group emphasis, which encourages inter-group communication and enables all round satisfaction and commitment.[64] Having a clearly stated team goal is the most prominent contributor to task and social cohesion.[65] High levels of trust between teammates,[66] commitment, feeling part of a

team, working together to achieve team goals and group satisfaction contribute to high levels of cohesion.[67] These factors are all related to the environment.

Communication - cohesion relationship

Weak, but significant correlations exist between communication and cohesion (YSEQ overall; task cohesion and social cohesion). Communication and cohesion influence an athlete's development and environment. Communication is a two-way process (i.e., coach-to-athletes and athletes-to-athletes) and all members need to share the responsibility of enhancing this pathway of communication in order to be an effective group.[68] Cohesion functions in a similar manner, as members share the responsibility of maintaining cohesion levels amongst the group in order to achieve communal objectives.[21] High levels of cohesiveness contribute to superior group performance, enhanced task and social interactions and communications, group stability, role acceptance and conformity to group norms.[69] In order for a group to function effectively, members need to have a strong communication channels and high cohesion levels as both are mediators of team performance.[70]

Team building activities allow teams to re-establish high levels of cohesion through an ongoing, multifaceted process where group members learn how to work together for a common goal (task cohesion)[71] and develop a friendlier, more co-operative atmosphere to improve co-ordination amongst team members (social cohesion).[72] Coaches of teams with low cohesion should implement team-building activities that focus on communication to strengthen relationships, as open and honest communication is a key factor in building successful teams.[71]

Holistic quality preparation - cohesion relationship

The relationship between holistic quality preparation and cohesion was weak. Implementing a psychological intervention programme could help increase levels of cohesion.[69] Intervention programmes can help teams improve on their current situation as programmes that focused on goal setting,[56] social support,[73] and communication[70] had positive influences on team cohesion and was effective in bringing players together. Practitioners should proceed with caution before employing team-building programmes, as they may not necessarily enhance perceptions of cohesiveness.[74]

Support networks - cohesion relationship

Athletes experience many emotions and personal issues throughout a season. If there is no support during times of hardship, it can influence team functionality as self-efficacy levels may decrease and frustration over team roles may increase.[75] Teams may benefit from fostering a more supportive team environment, as athletes may feel more comfortable around the group and strengthen the sense of well-being amongst other team members.[76]

Social support in sport is associated with lower rates of burnout,[77] enhanced performance,[78] heightened confidence levels and self-determined motivation.[77] TDEs should implement team-building interventions that focus on strategies to enhance social support, as these strategies may enhance an organisation's functioning through operational communication and a shared dedication to team goals (task cohesion).[75]

Conclusions

Cohesion distinguished between more and less successful u/18 teams. Although cause-and-effect was not established, it supports the notion that task and social cohesion is important for performance. The more and less successful u/18 teams also differed with regard to the Talent Development Environment Overall score, Alignment of Expectations and Support Networks subscale scores. These findings extend previous literature on TDEs, by showing that certain TDE variables differentiate between teams as a function of their tournament performance.

There were no between-group differences among the u/15 players. Considering that all these players were competing in their first u/15 tournament, it is plausible that between-group differences may only become evident once teams have been together for longer. This supports the guideline that TDEs such as high schools should emphasis long-term nurturing and talent development (TD), rather than achieving short-term goals and success. Significant, moderately strong correlations between various TDEQ-5 and YSEQ subscales, suggest that efforts aimed at establishing environments in which talent can be effectively developed may foster team cohesion and vice versa.

Limitations

The TDEQ-5 and YSEQ has not been validated for use among the South African population. To the best of our knowledge, only one local study utilised the TDEQ-5 to date.[13] The reliability indices of the current sample were acceptable, apart from the TDEQ-5's Long-term Development Focus subscale, which warrants cautious interpretation of those results. The use of athletes from the Western Cape Province limits the generalisability of these results to other regions of the country. Directionality of the relationship between group cohesion and performance was also not determined. Players' perceptions about the team's cohesion levels may have fluctuated during the course of the tournament and depending on their match results.

Recommendations

Nurturing environments that adopt a long-term player development focus with an emphasis on strong team cohesion bodes well for team performance, even more so, because of the association between these variables. Coaches should enhance both the social and task dimensions of cohesion in order to increase team effectiveness and performance. However, overly high social cohesion may have potential negative effects. Coaches and managers should emphasize long-term progression as opposed to short-term immediate success. Individualised and ongoing player development as well as coherent messages and support from various stakeholders may further enhance these outcomes. More research is required to explore and guide the development of effective TDEs in African contexts as most of the studies to date was conducted in European contexts.

Acknowledgements

Thank you to Prof Martin Kidd from the Statistical Consultation Services at Stellenbosch University for his assistance. Gratitude must be expressed to the Western Cape Education Department, Water Polo South Africa, Western Cape Schools Water Polo and the participating schools for granting permission to conduct this study. Thank you to the participants for their time.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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Chapter Four

Article Two: A comparative case study of organisational culture in two South African high school water polo talent development environments

This article will be submitted for publication in the *Sports Coaching Review Journal.* The article is herewith included according to the guidelines for authors of this esteemed journal. However, to provide a neat and well-rounded final product for this thesis, the article was edited to represent a published article, as it would appear in this particular journal. This does not imply that the article has been accepted or will be accepted for publication. Subsequently, the referencing style, font, figures and tables used in this chapter may differ from that used in the rest of the chapters of this thesis.

A comparative case study of organisational culture in two South African high school water polo talent development environments

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ABSTRACT

This comparative case study explored the organisational cultures of two purposively selected South African high schools to understand how one school performed consistently better compared to another in a high school's water polo tournament. Semi-structured interviews were conducted with the coaches and captains of both schools' water polo teams (u/15 and u/18 age groups). Using Henriksen et al.'s (2011) Environment Success Factors (ESF) model as the theoretical framework, similarities and differences were identified between the two schools' talent development environments (TDEs) pertaining to their preconditions, processes and organisational cultures. The environment with a more robust organisation culture, and well-aligned processes from the u/15 to u/18 age-group levels performed consistently better. Strong coach-to-coach relationships with more frequent interaction between the age-group coaches contributed to strong organisational culture through shared processes. Coach continuity seemingly facilitated the already embedded organisational culture within this TDE. Teams with highly involved coaches who promoted long-term player development, team unity and progression over short-term results had a strong coach-player relationship, which may have improved player motivation and drive. A positive organisational culture may enhance the transition and long-term development of players from junior to senior level, which should be a focal point of all high school sport TDEs. Simultaneously, this may partially explain the observed differences in short to medium-term team performance.

ARTICLE HISTORY

To be submitted

KEYWORDS

Long-term athlete development; junior to senior level transitions; coach roles and leadership; performance; holistic ecological approach; team sport

Introduction

South African high schools have deeply entrenched traditions, with the oldest school founded in September 1829. There are many top schools in the country, which make it difficult for parents to decide which is the best option for their child as they could go to either private or public high schools. The differences between these types of schools are mainly financial and academic, as private schools tend to be very expensive and provide a different curriculum compared to public schools. Vigar-Ellis (2013) revealed that the top two criteria that parents look for in schools are: 1) a safe environment, and 2) competent staff. The bedrock of the South African sport system is organised school sport. High schools have a five-year period to mould their pupils, not only

academically, but in terms of their sporting development as well. Schools should provide pupils with human and material resources to accomplish these goals.

There is an extensive body of literature on talent development environments (TDE) in sport (e.g., Martindale *et al.,* 2005, 2007; Martindale & Mortimer, 2011; Larsen *et al.,* 2013; Mills *et al.,* 2014). Martindale *et al.* (2007) revealed five key features of effective TDEs; 1) long-term goals and approaches; 2) comprehensive, rational messages and encouragement; 3) prioritising development over immediate 'success'; 4) personalised and continuous development; and 5) integrated, coherent, methodical development. Effective TDEs should foster self-growth, promote responsibility, and encourage intrinsic motivation (Martindale *et al.,* 2010; Wang *et al.,* 2011).

Boys' schools in particular, display evidence of such features on their websites and brochures. Parents may still ask the question: "how can I differentiate between the schools and make the right decision for my child?" The culture of an organisation may provide insight into why organisations differ from one another (Schein, 1990).

Organisational culture consists of three levels (Schein, 2004; Henriksen, 2010). Firstly, cultural artefacts (i.e., observable appearances such as clothes, stories, buildings etc.) (Schein, 2004; Henriksen, 2010). Secondly, espoused values, which is what the members say they do (i.e., social principles, goals, norms and standards) (Schein, 2004; Henriksen, 2010). Thirdly, basic assumptions (i.e., underlying reasons for actions that influence what the members do) (Henriksen *et al.,* 2011). Organisational culture incorporates the basic assumptions within a cultural model, directs the socialisation of new members, provide stability and adjust the organisation to continuously changing environments (Henriksen *et al.,* 2011).

The influence of organisational culture on sporting environments was revolutionised by Henriksen (2010) who developed a different outlook to TDE research by introducing a holistic ecological approach to analysing athletic talent. Henriksen *et al*. (2010a; 2010b) proposed the Environment Success Factors (ESF) model, which demonstrates how everyday processes (e.g., training, competitions) have three outcomes: 1) athletes' individual development and achievements, 2) team achievements (e.g. tournament results), and 3) organisational development and culture (Henriksen *et al.*, 2010a). These outcomes are interconnected and may influence the effectiveness of the environment in producing elite athletes and contributing to sporting success.

Organisational culture is the central component of the ESF model. It becomes the stabilising force in a group as it directs its members in relation to how they should feel,

think and act (Henriksen, 2010). Therefore, it comprises of a series of actions, values and solutions that, in contributing to the group's capability to adapt to an ever-changing environment and retain group functionality, becomes incorporated to an extent where it is no longer doubted (Schein, 2004; Henriksen, 2010).

Organisational culture's influence on performance (Kotter & Heskett, 1992; Cruickshank & Collins, 2012; Maitland *et al.,* 2015), its role in successful TDEs (Henriksen, 2010; Henriksen *et al.,* 2010a, 2010b, 2013; Storm *et al.,* 2021) and the effect of leadership on organisational culture (Wallace & Weese, 1995; Weese, 1996; Frontiera, 2009; Wagstaff & Burton-Wyle, 2018) has received extensive attention.

This study aimed to compare two cases by exploring how organisational culture factors were embedded within the respective TDEs through the perspectives of coaches and captains.

Conceptual framework

Culture is multidimensional and, therefore, difficult to define. Adopting a holistic approach allows for a better description and understanding of culture as a concept (Schein, 2004). Weese (1995: 120) defined organisational culture as "the deep-rooted values, norms, and philosophies held and practiced by members of an organisation". Culture refers to the "shared programming of the mind that differentiates the members of one cluster or category of individuals from others" (Hofstede *et al.,* 2010, p. 6). Henriksen *et al.* (2010a) proposed that organisational culture could be analysed at three interrelated areas. These are: 1) artefacts (observable factors of a culture that the organisation wants people to see); 2) espoused beliefs and values (philosophies, strategies, goals and aspirations of the organisation); and 3) basic underlying assumptions (the beliefs and values that are no longer questioned, but are usually taken-for-granted by its members). These underlying assumptions are observed through the behaviours, perceptions, thoughts and feelings of the athletes and coaches within an environment and are encompassed by sustained interpretations of the artefacts and espoused beliefs and values (Storm *et al.,* 2021).

Method

To gain a better understanding of the organisational culture embedded within these TDEs, one needs to explore the effectiveness of these environments (see Henriksen *et al.,* 2010a, 2010b). Some factors like artefacts are easily observable; however, it

may lead to incorrect assumptions, as they are vulnerable to biases (Field, 2017). Therefore, conclusions cannot be made about an environment's organisational culture through mere observations. Hence, there is a need for a deeper analysis to truly understand the culture in an environment (Smith *et al.,* 2012). This study was positioned within critical realism, a branch of philosophy that discriminates between the 'real' world and the 'observable' world. The 'real' cannot be observed and exists independent from human perception, theories and constructions. The world is viewed and understood as it is constructed from the perspectives of people and experiences, through what is 'observable' (Warwick University, 2021). The critical realism approach is useful for studying complex facets such as organisational culture, since it directs the researcher to explore continuing social relations that create real-world problems (Nkander *et al.,* as cited by Storm *et al.,* 2021).

A comparative study design was adopted (see Stake, 2006; Gerring, 2007; Gingrich, 2012; Gangsø *et al.,* 2017; Storm *et al.,* 2021). The culture of an environment is more prominent when compared to another culture (Gingrich, 2012). Ultimately, this approach aids in the process of discovery as much can be revealed through comparison (Barlett & Varvus, 2017). Through a comparative case study design, nuances of two environments were identified from which conclusions were drawn.

Case selection

Water polo is one of the most popular and fastest growing high school sports in South Africa, especially in the Western Cape. Since 2015, the Western Cape Province has won four of the five overall points' trophies at the annual SA schools water polo tournament, awarded to the province who won the most medals across the various age groups (SWPSA, 2021). The recent dominance has led to the province gaining a reputation for having an effective water polo TDE. A distinct advantage in this province is that a number of the top water polo schools lie with a 20km radius of each other.

Likewise, certain schools within the province consistently performed well at various annual inter-schools tournaments, whereas others were struggling. We hope to unearth the reasons for this. This study follows an earlier one, in which comparisons between the more successful (top-3) and less successful (bottom-3) schools (u/15 and u/18 level) were made based on the final log standing of the 2020 Mazinter Cup (see Madi et al., unpublished). Statistically significant differences existed regarding the Overall TDEQ-5 score, Alignment of Expectations, and Support Networks subscales

among the u/18 teams. The tournament results allowed the researchers to identify a consistently performing and consistently under-performing school across both age-group categories. Six schools and 12 teams (one u/15 team and one u/18 team per school) took part in the earlier study. One of the schools had both their u/15 and u/18 teams in the top half of the tournament log (consistently performing), and one school had both teams in the bottom half (consistently underperforming). The remaining schools had either their u/15 team or u/18 team in the top three placings, whilst the other age group team placed in the bottom three. Based on this, one school represented the consistently performing school, and the other school represented the consistently underperforming school. To ensure that these two schools were accurately categorised, webpages and archived documents of recent Mazinter Cup tournament results were also analysed.

To gain a comprehensive understanding of the two TDEs, it is important to add an organisational culture aspect as it influences the success of an environment (see Henriksen, 2015). The adoption of a comparative study design is appropriate to explore how one school performed consistently better than the other did. Agergaard and Ronglan (2015), Gangsø *et al.* (2017), and Storm *et al.* (2021) employed a similar design as it provides unique insight into each TDE, and allows one to elicit rich information from contrasting environments.

Case descriptions

Case 1 is a highly respected school filled with history, culture and traditions. Founded in the 1800s, the school has produced a long list of high-profile alumni. From 2015 to 2020, the school has consistently placed in the top three schools in the u/18 Mazinter Cup. Over the same period, the u/15 age group had a top three finish four out of six times. The water polo culture in this school is strong. They have a formidable alumni team, consisting of experienced players, some of whom have competed at the international level. The school have a legacy of good coaches, most of whom coached and/or played for the national age-group teams.

Case 2 bares the same humble beginnings as Case 1, having cultivated its share of history since the 1800s. Looking back at the Mazinter Cup over the last six years, the school has struggled for results. From 2015 to 2020, they finished in the bottom three at both u/15 and u/18 level. Although they have not quite hit their stride in this competition, they possess a strong alumni following, who regularly offer their services,

whether financially or through coaching. They endeavour to make the changes that the school rightfully deserves. Despite recent tough times, the school was one of the strongest water polo schools in the country in the early 2000s, with alumni speaking fondly of their experiences and close bonds. This school has produced some excellent players over the years, with a few of them competing at an international level.

Data collection and ethics

The researchers aimed to explore the TDEs holistically. Therefore, it was necessary to focus on a junior team (u/15) and senior team (u/18) from each school, to gain a more comprehensive understanding of each environment. It is important to note that Case 1 had two coaches and one captain at u/18 level as well as one coach and two captains at u/15 level whereas Case 2 had a setup of one coach and one captain for each age group. Eight semi-structured interviews (four per case) were conducted to elicit rich information from different stakeholders (e.g., coaches and team captains). Each interview lasted between 60 and 140 minutes. The use of open questions enabled us to gain in-depth perspectives of the interviewees. Initial questions were broad and general, but progressively became more specific.

The researchers adapted Henriksen's (2010) interview guides, with his permission. This comprised of: 1) preconditions (e.g., how would you describe the human, financial and material resources?), 2) everyday processes (e.g., what does the training schedule look like?), 3) the culture of the environment and their beliefs (e.g., how would you characterise the team values in your environment?), and 4) individual and team development (e.g., how does being in this environment affect the athletes?).

The data collection consisted of two phases. Phase 1 involved the principal researcher conducting the first round of interviews with the captains of the four teams (Case 1 had u/15 co-captains who interviewed together). The interviews were transcribed and through re-reading them, emerging codes and themes were highlighted. The coaches were interviewed during the second phase of the study. The u/18 team from Case 1 had two head coaches, who were interviewed together.

Ethical clearance was obtained from the Departmental Ethics Screening Committee (DESC) and the Stellenbosch University Research Ethics Committee for Social, Behavioural and Educational Research (REC: SBE project ID: 13117), the Western Cape Department of Education as well as from Western Cape Schools Water polo and South Africa Water polo. The schools provided permission to conduct the study. The

parents/guardians of the child participants who were younger than 18 years completed informed consent forms. The study was explained to all participants, after which they provided signed informed consent or assent. There researchers ensured the confidentiality and anonymity of the results. Participants could withdraw from the study at any time. The interviews were conducted using Zoom, due to the COVID-19 pandemic, and an embargo on in-person/contact research.

Data analysis

Thematic analysis was utilised and the interviews were transcribed verbatim. The transcripts were re-read (step 1: familiarisation), and in-vivo quotes provide brief excerpts of their statements (step 2: generation of initial codes). Since the interview script was designed by Henriksen (2010), the questions had headings above them, leading the primary researcher to develop preconceived themes based on existing knowledge (step 3: searching for themes) (Vigar & Varpio, 2020).

The researcher developed a mind map of the key findings, based on the features of the ESF working model (through a deductive approach). Through re-reading and reassessment of the ESF model, the researcher found that the ‘preconditions’ were the starting point of the model and the interaction with the ‘preconditions’ influenced the ‘everyday processes’ of the team (step 4: reviewing themes). Therefore, the link between the ‘preconditions’ and ‘everyday processes’ were evident, which allowed the researchers to integrate the two and create a higher order theme which was named ‘the everyday processes in this environment’ (step 5: defining and naming themes) (Kiger & Varpio, 2020).

Due to the aims of the study, the researchers broke organisational culture down to the three levels where it is established (artefacts, espoused values and basic underlying assumptions). The researchers felt that this approach would allow for a more in-depth and thorough analysis (step 4: reviewing themes) (Kiger & Varpio, 2020). This would also help distinguish between the two cases. Therefore, codes that related to artefacts, espoused values, basic underlying assumptions and organisational culture were integrated to form a new high order theme named ‘the culture that transcends within a team’ (step 5: defining and naming themes) (Kiger & Varpio, 2020).

Finally, through a final round of re-reading and reanalysis of the deductive mind map and the ESF working model, it was apparent that ‘everyday processes’ and

'organisational culture' aspects of the ESF model directly influenced 'individual and team development' as well 'team achievements'. Thus, the researchers felt that the two newly developed higher order themes could assist in determining environmental success and athlete development, which ties in with the study's aims. The higher order theme, 'the roles these themes play in team and individual development and environmental successes' was created (inductively) to form the discussion points for this article (step 6: producing the report/manuscript (Kiger & Varpio, 2020).

Various steps were implemented to enhance trustworthiness. After the interviews were conducted, the principal researcher listened to the interviews before the transcription took place. Once the interviews were transcribed, he re-listened to the interviews whilst simultaneously going over the transcriptions and making edits, thereby contributing to the credibility (Lacey & Luff, 2007). Two methods of triangulation were used. Firstly, data triangulation was utilised as we interviewed different sources (i.e., captains and coaches) to obtain multiple perspectives and validation (Carter *et* al., 2014). Secondly, the principal researcher met with the research team at regular intervals to discuss the analysis and interpretation process. This enabled confirmation of findings and allowed different perspectives for greater depth (investigator triangulation) (Carter *et al*., 2014). Lastly, credibility was enhanced through member checking towards the end (Smith & McGannon, 2017). Participants were asked to validate the credibility of the results, and to correct subjective biases from the researchers. Figure 1 provides insight into how the themes were created and thematised. This provided the necessary structure for the findings section.

Findings

Figure 2 displays the findings from the comparative case study between the two TDEs. The researchers were able to differentiate between the respective environments in terms of their approach to talent development (TD) and contributors thereto. This was illustrated by describing the preconditions; the different everyday processes of each environment and how interactions with these everyday processes helped mould the athletes and shaped the organisational culture. The figure contains a detailed representation of the organisational, structural and cultural backgrounds that either led to the nurturing and/or the hindering of athlete development, depicting how the preconditions, processes and organisational cultures influenced team performance. In-vivo quotes supplement the analysed findings.

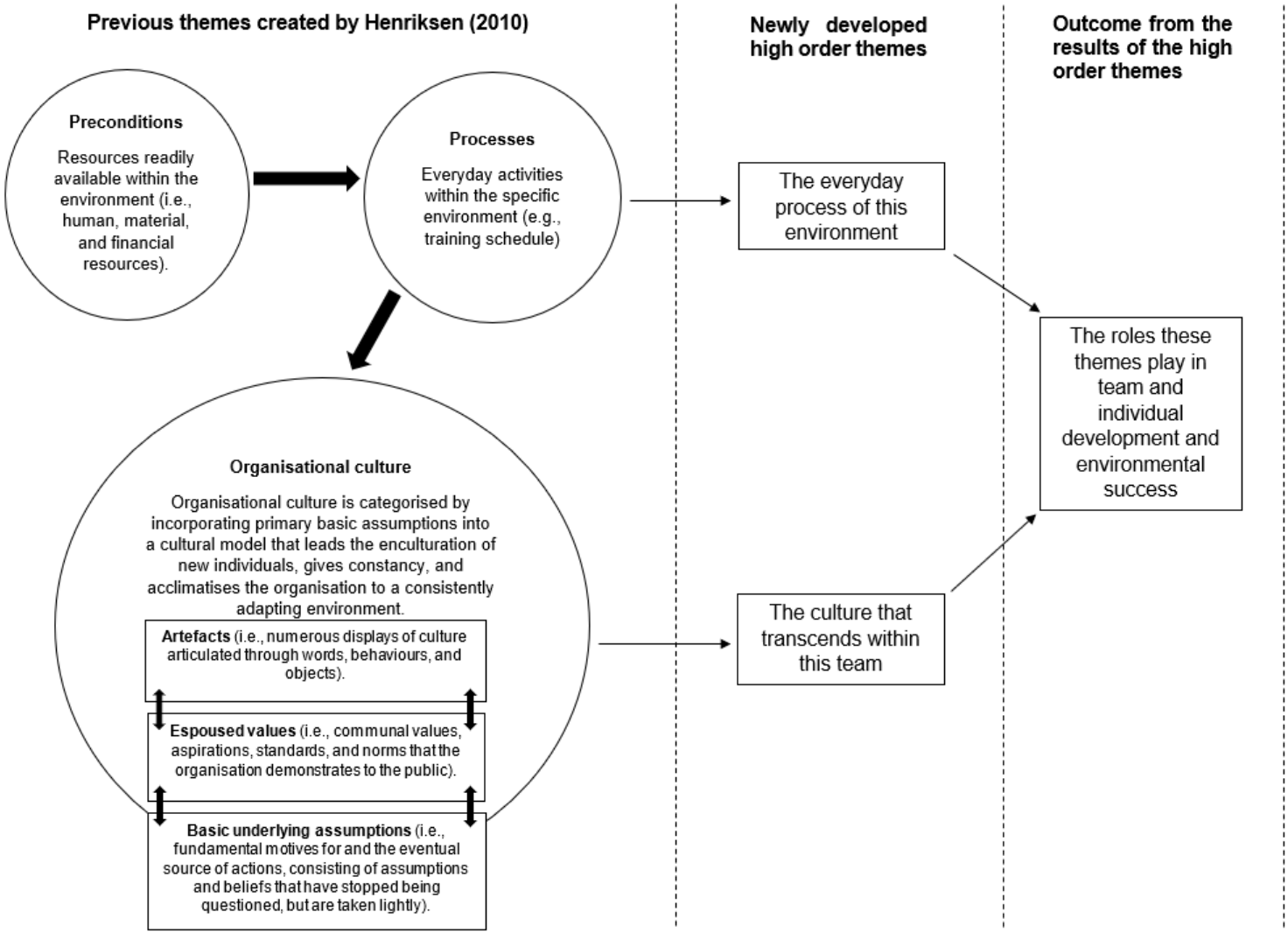

Fig 1. Thematic analysis to develop high order themes

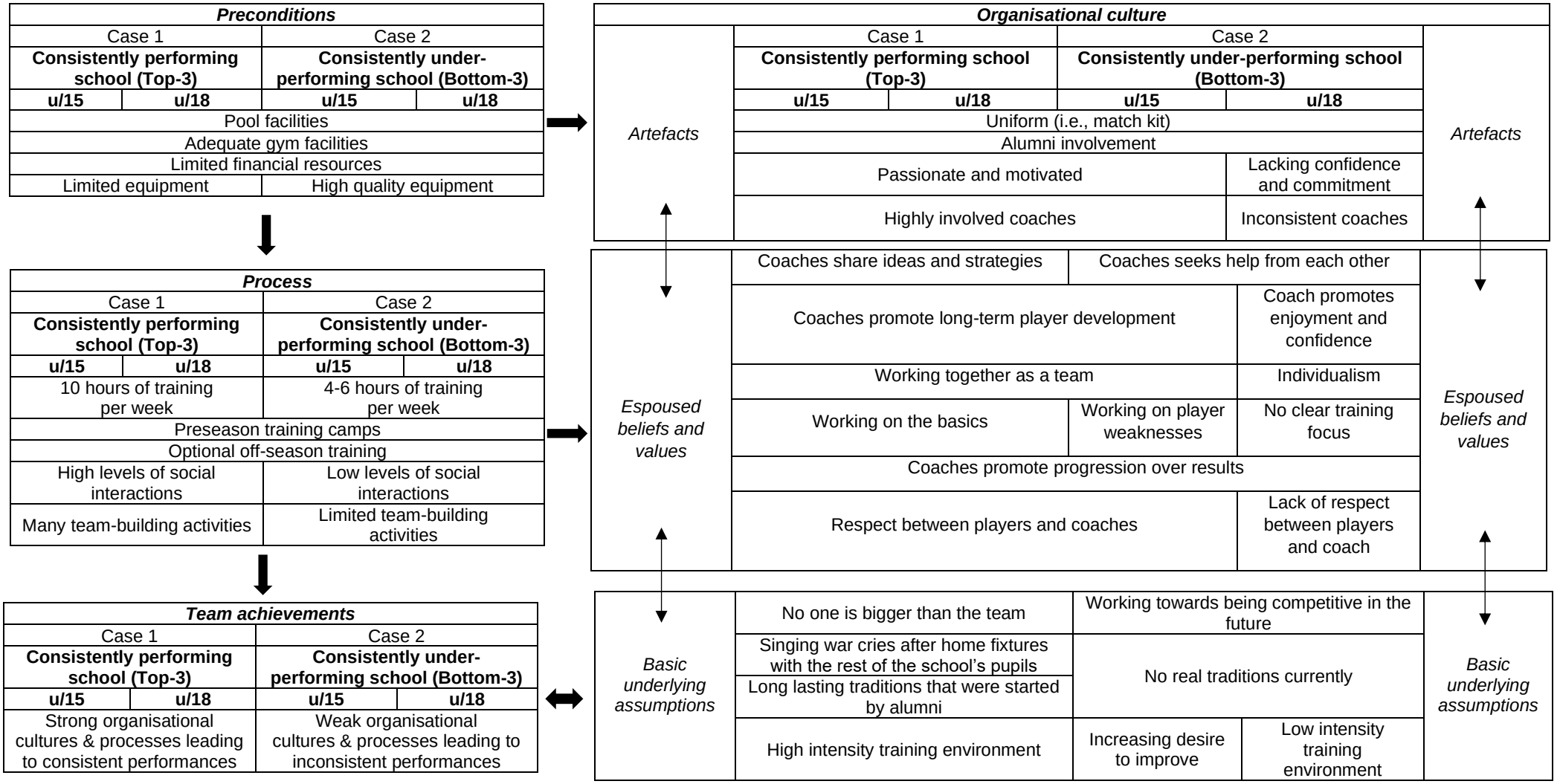

Fig 2. Comparative analysis of the preconditions, processes and organisational cultures of two talent development environments

The everyday process of the environment

Preconditions

Both Case 1 and Case 2 have access to pool facilities. Similarly, both cases have adequate gym facilities for the players to use, however both cases do not make full use of the gym available to them. Case 1 and Case 2 are both restricted financially in terms of their budgets. The u/15 coach of Case 1 admitted that resourcefully, the school is limited in terms of equipment. Contrastingly, the u/18 coach of Case 2 revealed that the school is well equipped with high-end equipment, with the players having access to weighted balls, weighted harnesses and stretch bands. As stated earlier, the preconditions are the starting point and the resources available to the people of a particular environment, influences the factors of everyday processes (e.g., training process, competition processes).

Process

The individuals in Case 1 trained up to 10 hours per week excluding fixtures against other schools. The training styles in this environment varied as the junior coaches opted for a fitness and conditioning (60%): water polo orientated skills (40%) split. The senior coaches chose a water polo orientated skill (75%): fitness and conditioning (25%) split. The u/18 coaches provided extra exposure for their players as they scheduled weekly fixtures against the alumni team. One of the coaches said: *"we will typically play the alumni once a week. We're stopping the game and explaining this and that and saying you need to this better or do that better"*.

The weekly matches against alumni provided unique learning opportunities for the players. All the coaches were employed part time by the school, as the sport is seasonal in South Africa. The coaches could subsequently adopt a flexible training schedule and train on weekends. The players highly regard the coaches, and had the following to say:

> He's the best coach I've had. (U/15 co-captains).
>
> Yeah, pretty much two of the best coaches around. They complement each other brilliantly, jeez, it's quite special. (U/18 captain).

The players valued and enjoyed social interactions with each other. The coaches mentioned that not all the players were friends, but that most of them were. Nonetheless, they appreciated each other, and the coaches and players immersed

themselves in various team-building activities such as braais (South African term for barbeques), dinners, lunches and paintball games. This aimed to enhance team cohesion.

Players of Case 2 only completed four to six hours of training per week, excluding match fixtures. This was due to overcrowding of the pool at the time, forcing them to stick to a rigid training schedule. These sessions were also restricted as players were prohibited from entering the pool without supervision. The team captains had contrasting opinions about the coaching at the school. The u/18 captain felt that the level of coaching could be better, whereas the u/15 captain had this to say:

> He knows how it is to play for (name of school) …The team bonds with him well. Especially, like on a personal level outside of water polo.

Case 2 had limited team-building activities during the season. The coaches blamed this on COVID-19, but the captains noted that these activities should have been planned better. The players in this environment appeared to have fewer social interactions. The u/15 coach explained that the players lived in different parts of the city; this hindered their interaction with each other outside of sport. Limited time in the water and less team-bonding activities could have led to a lack of familiarity amongst the players.

Both cases incorporated preseason training-camps into their respective programmes. These camps took place before the start of the academic year. Players from Case 1 trained twice a day, every day for seven days, and focused mostly on fitness and gameplay opportunities. The preseason camp for Case 2 lasted only three days, with the purpose of selecting teams and squads for the season. The players valued the training camp and used it as a team-building opportunity as everyone stayed over at the school to interact with each other. Both cases opted for an optional offseason training, because the pupils were encouraged to take up a winter sport when the water polo season ends.

The culture that transcends within the team

Artefacts

Players from Case 1 and 2 were required to wear school uniforms, as this is a prerequisite set out by the schools. In South Africa, a school uniform symbolises uniformity and equality. Each school had their own match kit, which distinguishes them

from other schools. The u/18 players received a match kit uniform, which was uniquely different to the other age groups in the school. Uniforms and strong alumni involvement are two artefacts that were similar in these TDEs. Alumni offered their coaching services and helped financially to grow the sport at the school. This included subsidising costs for tours. Both cases had access to gym facilities and equipment, however, Case 2 had access to additional apparatus. It is from this point onwards, that the differences between the two cases became more evident.

In Case 1, the players appeared motivated to improve and were passionate about the sport. This was mainly due to the level of involvement of the coaches and the messages they delivered to the players. Interestingly, the u/15 coach from Case 2 shared similar sentiments, as the players were motivated and passionate about improving. He said: *"We ask for extra training on weekends… So we really wanting to change results".*

The u/18 team from Case 2, showed a lack of commitment and confidence. Their environment seemed less stable, as they had two different coaches in the space of one year. This was not the first time this had happened, as the captain noted *"I have had a different coach every year, so I haven't had one coach for more than a year"*. One captain elaborated on the team's commitment:

> There's no drive, like no one wants to just go out and play. There's probably like four players out of like eleven. We don't even have a full 13, we have eleven players and it's really bad.

Despite being frustrated by the situation, the captain mentioned that the team was still young and needed time to grow and mature. The u/18 coach from Case 2 shed light on the level of commitment. He said:

> And the boys, we get the feeling that the boys aren't 100% committed. I don't think you find that at other schools, but I definitely feel it comes from a background of not winning.

Espoused beliefs and values

The coaches in Case 1 placed importance on espoused values such as working on the basics. They believed in a minimalistic approach to training by focusing on the basics of the sport. One of the u/18 coaches explained why they did this:

> When we say we were basic focused, we did a lot of basics, but the tactics in terms of man up, man down and all of that, we get pretty nuanced. We don't have like moves, but it is a more situational type of stuff, which I personally only started learning when I was out of school. I don't think most schoolboys are leaving with that knowledge. I think the boys are in a good place to fit into other teams.

The coaches in Case 1 also promoted teamwork and working together. One of the two u/18 coaches said that the players' understood that you win together, and you lose

together. They preached this philosophy to their players, but they also demonstrated this by working together with other coaches. The coaches have established a support group among themselves, which they call 'the brain trust'. Thy shared ideas and strategies to help with various match scenarios. All the coaches in Case 1 prioritised progression over results. The coaches in Case 2, shared the same belief that progress mattered more than the results. This was the only espoused value and belief that was shared by coaches across both case studies. The coaches in Case 1 promoted long-term player development, but in uniquely different ways. The u/18 coaches did this by remaining process focused and never deviating from this philosophy:

> We have a process. We wanted to develop a way and style in which we played and how we played the games and the results inadvertently take care of themselves. We haven't changed, it's always been the same for us.

The u/15 coach in Case 1, indicated that he focused on long-term player development through player feedback and video analysis that improved the player's understanding of the game. Most noticeably, he said, *"I put myself on their level"*. He created an environment, which allowed players to be open and give their input. He also attended a few rugby and hockey fixtures during the water polo offseason to support his players. This helped established trust between the players and the coach and led to the players buying into his coaching philosophy and beliefs. One of the captains of the u/15 team in Case 1 had this to say about him:

> One of the nicest things about him is like, he's kind of your friend outside of the pool as well, so you can ask him anything not related to water polo as well. So, like, he helps a lot.

Furthermore, all players and coaches in Case 1 placed emphasis on respect, not only with each other, but also with the coaches and officials. Noticeably, in Case 2, the u/15 environment instilled values and beliefs that were similar to that of Case 1. In fact, the u/15 team had more similarities with the teams from Case 1 than it did with the u/18 team from the same school. This hinted that the coaches of Case 2 deployed different beliefs and values onto their players. Interestingly, both coaches from Case 2 believed that it was important to help each other as much as possible, especially during training sessions. Much like Case 1, the u/15 coach from Case 2 firmly believed in promoting long-term player development. He said that *"they have to know the fundamentals of being a team, like teamwork, being responsible, being able to hold yourself accountable and others accountable".* He held the players accountable by making them write down individual goals and constantly pushed them at practices to help them reach their targets. To help boost this message of accountability, he felt that

it would be beneficial to incorporate discipline. He would arrive at practices with a stopwatch and when the clock struck three and players were late, he would add an extra set to the fitness sessions and make the whole team participate in it. This led to a strong coach-player relationship, which instilled mutual respect in this environment.

The u/18 coach in Case 2, took a different approach compared to the other coaches. Unlike the other coaches, he opted not to focus on long-term development, but rather chose to instil the values of enjoyment and confidence into this environment. He explained that he was focused on the preservation of players after school. He went on to say:

> That value of I'm going to have fun, it's not a do or die kind of situation. And having that kind of value instilled, helps them grow and what I find is that it builds confidence. And as soon as they are having fun in the water, the confidence comes.

The u/18 coach was an advocate for learning from one's own mistakes. He did not appreciate seeing coaches shout at their players for making the wrong decisions despite no repercussions resulting from that mistake. He encouraged players to take opportunities and if it did not work out, then try something else. Despite his positive approach, the team had already espoused some negative values amongst themselves, which hindered their progression. These values could have begun when the coach first started, or they could have developed during his term. Nonetheless, the coach explained that, because of the poor results throughout the season, players would argue with each other and question the actions of their team members during matches. This diminished player confidence and players would rather pass the ball to other teammates than take the shot, as they feared making mistakes.

The lack of confidence caused a snowball effect, as players lost their enthusiasm for the sport. This was evident by their behaviour and attitude towards the sport. The u/18 captain in Case 2 opened up about the lack of confidence and spirit in his team. He spoked candidly about the situation and said the following:

> It's literally so bad. Like people will fake being sick to avoid going to training, because they don't want to play for the 1st team (u/18). Like, we were saying earlier about the want to play 1st team (u/18). It's just not there.

Finally, it would appear that these negatively espoused values have resulted in players promoting individualistic behaviour and having little respect for each other and the coach. The u/18 captain, who revealed that some players discussed dropping down to a lower team to avoid playing for the team, confirmed this. However, not all is lost; the school realised that something needed to change. At the beginning of 2021,

the u/15 coach was promoted to the u/18 team. This promotion was long overdue, and he wasted no time in managing a process of change, espousing new values and beliefs, and implementing a new system. New artefacts have replaced the old ones and the school aims to revive its water polo status.

Basic underlying assumptions

Both teams from Case 1 adopted the notion that of 'no one is bigger than the team'. This assumption is almost expected, and new members discover this very quickly. The environment does not endorse individuality. The u/18 co-coaches revealed that hierarchies in the team facilitated this. The hierarchy was not established by the coaches, but by the players themselves. One of the two coaches had this to say about the hierarchy:

> It works quite well, because guys almost feel that when they join the team that they need to earn their place. The team ends up getting more disciplined, because the seniors lead by example and the juniors are trying to prove themselves.

Singing war cries are ways in which fellow pupils show support and comradery towards each other. These war cries date back many years, some of them can be traced back as early as the schools' inception. Traditions such as these and many more give you a real insight into the culture of these environments. In the instance of Case 1, it is customary for the u/18 team to sing war cries with the school after home fixtures. It is expected of junior players to stay behind and support their senior team. This tradition influenced the u/15 team as they became more inspired. This is where the effects of the hierarchy is evident again, as players in the younger age groups want to work hard so that they can eventually end up in the position of the seniors they admire. The u/15 captain had this to say about his environment and the u/18 team:

> I feel like if the 1st team (u/18 team) is inspirational they have good coaches, and they have good players that you can look up to and stuff, then that will hopefully push the players and the team to want to get to that level and work their ass off.

Players immersed within this environment accept that it is a high-intensity training environment filled with passionate coaches. The coaches believed in hard work over talent. Faced with this classic dilemma in the beginning of the season, the u/18 coaches opted to select the player with less talent, but a stronger work ethic. The u/15 coach was also a firm believer in this, as he rewarded a player from the lower team with an opportunity to play in his side. What made this unique was the fact that the u/15 captains accompanied the coach to the practice to help him make his decision.

Ultimately, the coach and the captains decided to select this player based on merit and they felt that this player would add a new dimension and style of play to their team.

Much like Case 1, Case 2 had many traditions that helped shape the water polo culture of the school. However, water polo did not receive the same support shown for rugby and hockey. When asked to elaborate on this matter, the u/18 captain said that if a new player were to join their team, one of the first things they would notice is the lack of support at fixtures. Unlike Case 1, there was no hierarchy system as the seniors did not take charge and had lost their spirit and passion. The u/18 captain mentioned that the juniors at the school were also the cause of the decrease in passion. Perhaps, this was due to the seniors not taking charge and reinforcing the traditions they once knew. The u/18 captain reminisced dearly about 'the good old days' and the brotherhood that transcended through the school. Admittedly, he noticed that his team struggled to find that brotherhood. Players in the u/18 team were not exposed to any real traditions. Nor did they partake in any, apart from a few idiosyncratic traditions such as small chants amongst themselves arbitrarily. When asked to comment on the lack of traditions, the u/18 coach had this to say:

> We are not too focused on that (creating new traditions) at the moment. Like I said, us as coaches and managers and staff, we try and get that competitive level of water polo back. Once that's back, and if the team's got a good energy going and a good vibe, they will create that extra culture.

Despite the lack of traditions, the juniors in the team know that they are working towards being competitive in the future. They appeared motivated and hungry to make a change. The u/15 captain stated that they had been focusing on progression, because they realised early on that they were not at the level of some of the best schools yet. The u/15 coach also realised that it is important to start the process of development at a young age. He did this by immersing himself in the u/14 team and invited the talented athletes to his u/15 training sessions, which helped their development further. The desire of the juniors to improve is strong and hopefully, one should start to see a change in the overall environment soon.

The roles these themes play in environment success

Ultimately, there were clear differences between the two cases. Case 1 had uniformity, fluidity and well-rounded values and beliefs. It is testimonial that members of the u/15 and u/18 teams shared every factor discussed in this regard. This showed a clear vision set up by the respective stakeholders that provided stability for its members.

Their strong organisational culture and processes led them to consistency and success. Unfortunately, Case 2 provided its members with an unstable culture and a lack of foundation on which to build on. However, with new systems and structures in place, positive signs of change are present. Despite this, the instability, along with weak organisational culture and processes, led to consistent under-performance.

Discussion

The results reveal that strong and well-established processes led to the formation of robust organisational cultures, which influenced the success of the team. Our findings contribute to the notion that performance can be influenced by organisational culture (see Schein, 1990, 2004, 2010; Kotter & Heskett, 1992; Weese, 1995; Gould *et al.,* 1999; Balthazard *et al.,* 2006; Henriksen *et al.,* 2010a, 2010b, 2011, 2013; Henriksen, 2015; Wagstaff & Burton-Wylie, 2018). The unique contribution to the research area is showing the role that coaches play in embedding organisational culture within a TDE in the context of competitive high school sport.

South African high schools are responsible for more than just academic education. Organised school sport plays an integral part in developing scholars. Most individuals between the ages of 14 and 18 years participate in organised school sport. Due to the nature of the sport in the country, most water polo coaches are employed part-time. Coaches have short window periods to instil their beliefs onto their players to help mould and shape the culture in the team. By analysing our comparative results, the researchers note the importance of leadership, as coaches from Case 1 were able to implement their values and beliefs. The group accepted the coach's shared values of success, which eventually contributed to the team's culture (Smith *et al.,* 2012; Johnson *et al.,* 2013). Our results revealed that coach-to-coach relationships and interactions helped create strong organisational cultures through shared processes.

"Culture is characterised by stability over time, the integration of the key basic assumptions into a cultural paradigm, and by the socialisation of new members" (Henriksen, 2010: 36). Based on this, our study shows that athletes can benefit from environments that foster and nurture the same processes and organisational culture from junior to senior level. There will be greater stability over time; the players will not have to learn new underlying assumptions, and socialisation of new members becomes easier, especially during the transition from junior to senior level. Staying in an environment such as this, leads to consistency between the players and coaches,

espoused and enacted values, which in turn, provides psychological safety, steadiness, and transparency. Additionally, these are all-essential in creating a high-quality learning environment and reduces the possibility of misunderstanding between coaches, athletes and staff members. These factors are linked to a high-quality organisational culture (Henriksen *et al.,* 2013; Storm *et al.,* 2021).

Our study showed that if environments have a robust organisational culture, described by values of individual responsibility and a focus on performance process, it could help counteract inhibiting factors such as lack of resources. This finding contributes to that of other studies (e.g., Henriksen *et al.,* 2010a; 2010b); however, it is highly significant in a South African context where public schools typically have fewer resources compared to private schools. Furthermore, socio-economic inequalities persist across the entire schooling and sporting system, with regard to infrastructure and human resources (Burnett, 2019).

Perhaps the coaches should get more credit as they play an important role in developing an athlete's career. Van Den Berg and Surujlal (2013) revealed that guidance, feedback, goal setting, support and long-term focus were the five factors indicative of a supportive TDE. Similarly, Martindale *et al.* (2005) revealed that long-term approach and strategy, comprehensive communication and encouragement, individualised exercise plans and a focus on player maturation and progression were key features in athlete TD. When analysing these factors that set up an effective TDE, it is evident that the coaches' play a major role, as they are the ones who are responsible for providing these factors to the athletes. Our study adds another layer to the current thinking of TDE research, as it indicates that the coach is the biggest link between TDE and organisational culture.

Firstly, coaches are responsible for creating a strong organisational culture based on the values and beliefs that they believe in. If the group does not accept the coaches' values and beliefs, then it will not have the opportunity to develop into the group's culture. The researchers witnessed this in Case 1 in particular, as the players had clearly accepted the espoused values and beliefs instilled upon them by their coaches. Secondly, once a strong organisational culture is created, the coach is responsible for developing an effective TDE based on the values and beliefs he/she wants to instil. Our findings also contributed to studies that focused on the role leadership has on transforming a culture (e.g., Frontiera, 2009; Wagstaff & & Burton-Wylie, 2018).

Conclusion

The researchers were able to deduce that environments that adopt the same processes and establish a robust organisational culture (from junior to senior level) performed consistently. Our findings extend previous organisational culture research, by revealing that organisational culture can influence performance. This is important, especially in South Africa, as schools that do not have the same resources as other schools can still counteract this imbalance by developing a strong organisational culture. Coaches are integral to athlete development, as they are the strongest link between organisational culture and TDE.

When analysing TDE, one can think of a house. In order for a house (TDE) to be strong and sturdy, it needs a strong foundation (everyday processes). Having such a strong foundation can prevent the house from deteriorating from the bottom-up. By choosing the correct materials (organisational culture), it will ensure the longevity of the house against potential weathering harm (negativity and toxic belief systems). Once all these have been ensured, the homeowner (athlete) will have an environment in which he/she finds comfort. It provides him/her with stability, and people (e.g., other athletes) cannot appreciate the quality of the house unless, they spend time inside the house (socialisation of new members) and interact with the furniture (artefacts) in it.

Limitations

Data collection and analysis was not performed until data saturation was obtained. Although two age groups (u/15 and u/18) were studied, interviews were only conducted with the captains and coaches of these age-group teams, hence our findings are limited to their perspectives. Interviews with administrators, managers and more players could have provided a more comprehensive picture. Due to the COVID-19 pandemic, participant observation was not possible as certain schools withdrew from sporting commitments, and there was an embargo on contact research. Therefore, our findings are based on interviews, tournament results and document analyses that does not capture the full environment. The use of high school athletes from the Western Cape limits the generalisability of these results to other regions.

Acknowledgements

Gratitude must be expressed to Mrs Carien Uys for the help with transcribing a few of the interviews. Thank you to the Western Cape Education Department, Western Cape

Schools Water Polo and Water Polo South Africa, and the participating schools for granting permission to conduct this study and to the participants for their time.

Disclosure statement

No potential conflict of was reported by the authors.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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Chapter Five

CONCLUSIONS AND RECOMMENDATIONS

5.1. Brief overview of the study

I completed the B.A. degree in Sport Science (2015-2017) and the B.Sc. Honours degree in High Performance Sport Science (2018). I enrolled for the M.Sc. degree in Sport Science in January 2019. The study took three years to complete as planned from the outset. I have been heavily involved in water polo before and throughout my studies at Stellenbosch University. I grew up in the Gauteng Province and took up the sport whilst in high school. I only moved to the Western Cape in 2015, and, therefore, did not attend any of the schools included in this study. I captained the South African men's water polo team during the Tokyo 2020 Olympic Games in July/August 2021 and aim to do so again in Paris 2024. I recently received the award as Maties Sport's best male student-athlete of 2021, a proud and humbling experience. My personal investment in water polo inspired me to pursue and to complete this study.

As a national water polo player my general knowledge and personal experiences in the sport was already cultivated when I was in high school. Since I grew up in a different province, it was imperative to gain a better understanding about the history and traditions of water polo in the Western Cape. Swimming South Africa adopted and implemented a Long-Term Player Development (LTPD) model for the sport. However, this organisation seemingly does not implement the LTPD model very effectively. Many schools implement their own talent development (TD) programmes, which exist outside of the one created by Swimming South Africa. Schools are thereby able to differentiate themselves from other schools and could explain in part why some performed consistently better than others did.

In my first year of this degree, I developed the research protocol and presented it to the Departmental Committee for Postgraduate Research in November 2019. Following their approval, I obtained permission from the respective high schools, the Western Cape Education Department, Western Cape Water Polo, and Water Polo South Africa. Next, I submitted an application to the Stellenbosch University Research Ethics Committee for Social, Behavioural and Educational Research (REC: SBE), who granted approval on 3 March 2020 (project ID: 13117). I immediately commenced with the data collection for the two-phased study.

I obtained written consent from all the participants. In the case of participants under the age of 18 years, I obtained written consent from the parents/guardians and assent from the participants themselves. I handed out two questionnaires to the participants to capture information about 1) their respective talent development environments (TDEQ-5), and 2) their perceptions about the cohesiveness of their respective teams (YSEQ). I used the Summer League and Mazinter Cup tournament results (final log standings) to conduct between-group comparisons and to establish inter-correlations between the TDEQ-5 and YSEQ variables. Fortunately, I had collected all my data for phase one by the time Stellenbosch University went into early recess (16 March 2020) and placed an embargo on in-person/ contact research due to the outbreak of the Covid-19 pandemic in South Africa. On 27 March 2020, South Africa went into a national level 5 lockdown, and all organised sport effectively stopped for six months. Article 1 comprise the results for phase one (quantitative study).

Due to the in-person/ contact research embargo, I conducted online interviews, first with the captains of all 12 teams included in Article 1. Article 2, however, contains information from the captains and coaches of two schools only, for both the u/15 and u/18 teams. The comparative case study design allowed me to explore each school as a unique talent development environment (TDE), how water polo functions within the school and their organisational culture, through the lens of the ESF working model. These semi-structured interviews elicited information from the captains and coaches separately. My own background as a water polo player helped the captains in particular (who I did not know) to open up about their experiences within their particular environment. I conducted the interviews with the coaches later. During the final write-up phase of the thesis, I met with the participants via an online platform to perform member checking. Article 2 comprise the results for phase two (qualitative study).

The purpose of this chapter was to summarise the key results and findings of the study, against the aims and objectives that were set in Chapter 1. I also pointed out the study's limitations and made recommendations for future research and for applied practitioners. Next, I briefly outlined the literature discussed in Chapter 2.

5.2. Outlining the literature

The reviewed literature on TDEs, cohesion and organisational culture, provided the foundational understanding of these topics. Further analysis on variables related to

TDEs (i.e., factors influencing TD), organisational culture (i.e., leadership influence in setting organisational culture) and team cohesion (i.e., influence of task and social cohesion on team success) unearthed the true significance of the coach's role. The subsequent reappearance of the coach variable in each of these topics showed me how the three topics fit together. The information on TDEs, cohesion and organisational culture, together with a two-phase study design (one quantitative; one qualitative), gave me insight into the effects that different developmental programmes can have on team performance. This enabled me to conduct the study, to obtain interesting results and to discover meaning through my engagement with the literature, the participants (both quantitative data and qualitative information), my supervisors and the research process in general.

5.3. Conclusions

This study had three aims and four specific objectives as outlined in Chapter 1. The primary was to compare the TDE and team cohesion of the leading six water polo high schools in the Western Cape. The secondary aim was to determine the correlation between TDE and team cohesion variables. The tertiary aim was to explore the role of organisational culture in creating effective TDEs from the perspectives of coaches and captains of selected schools. The following conclusions were made against each of these objectives.

5.3.1. Objective one: To determine if various talent development environment factors distinguish between more and less successful teams based on their final ranking in a school's tournament.

The analysis revealed that the overall TDE, alignment of expectation and support network subscale scores were able to distinguish between more and less successful teams at the u/18 level. The more successful teams had significantly better scores than the less successful teams. There were no such differences at the u/15 level, presumably because these players were competing in their first tournament in this age group.

5.3.2. Objective two: To determine if team cohesion distinguish between more and less successful teams based on their final ranking in a school's tournament.

The u/18 teams, who experienced more success in the school's tournament, had significantly higher perceived levels of task cohesion, social cohesion and overall

group cohesion compared to their less successful counterparts. Teams who were more orientated towards achieving the group's objective (task cohesion) and more orientated towards developing and maintaining social relationships and activities within the group (social cohesion) had a greater sense of belonging (overall cohesion), which seemingly led to better performances, even though cause-and-effect was not established. The same could not be said for the u/15 teams as there were no such differences in this age group. The researchers attributed this finding to the fact that the u/15 players were participating in their first tournament in this age group and therefore, they needed more time to develop team cohesion. In addition, more time is needed for between-group differences to become evident.

5.3.3. Objective three: To determine the correlation between talent development environment and cohesion variables.

The correlational analysis revealed that all the TDE subscales (i.e., long-term development focus; alignment of expectations; communication; holistic quality preparation; and support networks) were significantly associated with all the cohesion subscales (i.e., task cohesion and social cohesion) ($p < .01$). The strongest correlation exists between TDEQ (alignment of expectation) and overall cohesion (YSEQ Overall) ($r =. 51$), which indicates that distinctly specified team goals are the strongest contributors to task cohesion. Collectively these findings (moderately strong correlations between the various TDEQ-5 and YSEQ subscales) suggest that efforts aimed at establishing environments in which talent can be developed effectively may also foster team cohesion and vice versa.

5.3.4. Objective four: To explore how organisational culture factors are embedded within TDEs by comparing the perspectives of coaches and captains of two different high schools.

Through interviews and a comparative case study design, the findings revealed that coaches within the same TDE, who incorporated the same holistic ecological approach (i.e., adopted the same everyday processes and embedded a similar organisational culture) led to consistent performances across u/15 and u/18 age groups. The analysis also revealed that teams with highly involved coaches who promote long-term player development, team unity and progression over results had a strong coach-player relationship, which may have improved player motivation and drive. This finding

signifies the importance of the previously stated finding, as one team from the consistently underperforming TDE shared these qualities with both teams in the consistently performing TDE. These results justify the importance of the coach in athlete development as they link the TDE and organisational culture. Coaches are responsible for creating a strong organisational culture so that the environment could develop talent effectively and that teams are able to perform.

5.4. Study limitations

Several limitations should be acknowledged. The TDEQ-5 and YSEQ has not been validated for use among the South African population. As far as I know, only two local studies utilised the TDEQ-5 to date (Van Den Berg & Surujlal, 2013; Van Den Berg *et al.,* 2021). The reliability indices of the current sample were acceptable, apart from the TDEQ-5's Long-term Development Focus subscale, which warrants cautious interpretation of those results. I did not determine directionality of the relationship between group cohesion and performance. The players' perceptions about the team's cohesiveness may have fluctuated during the course of the tournament and depending on the match results. Additionally, only captains and coaches of the respective schools participated in the study's second phase; therefore, these findings only reflect their perspectives. Moreover, participant observation was not possible due to the COVID-19 pandemic, as certain schools withdrew themselves from all sporting commitments to limit exposure to their pupils. Thus, the findings were limited to interviews, tournament results and document analyses. Participant observation plays an important role in qualitative research and could have uncovered more elements that may have been missed or misinterpreted during the interviews. The use of athletes from the Western Cape Province also limits the generalisability of these results to other regions of the country, even though this was never the intention of the qualitative study in any case.

5.5. Recommendations for future research

I implore future researchers to explore and guide the development of effective TDEs in African contexts as most of the current literature is based on European and Scandinavian settings. Furthermore, if the current study was to be continued and/or duplicated, other provinces should be included. South Africa is one of the most diverse countries in the world, with citizens from many different cultures, ethnic groups,

languages, religions etc. Specific factors and traits that were observed in the Western Cape, may not apply to places such as the Gauteng province, as different geographical areas have established their own sense of what works for them. This means that an entirely new set of organisational cultures is yet to be explored (in fact, there is still qualitative data from four more schools in this study, which have not been explored. This could lead to a better understanding of the Western Cape culture). By adopting a comparative case study approach, one could get a better understanding of the shared organisational culture factors that leads to consistent performances across the country at provincial level. This may also be beneficial for the national team coaches and federations as they could incorporate these shared organisational culture factors within their structures, which could potentially lead to more consistent and competitive performances internationally.

5.6. Recommendations for practitioners

Nurturing environments that adopt a long-term player development focus with an emphasis on strong team cohesion bodes well for team performance, even more so, because of the association between these variables. Coaches should enhance both the social and task dimensions of cohesion in order to increase team effectiveness and performance. However, overly high social cohesion may have potential negative effects. Coaches and managers should emphasize long-term progression as opposed to short-term immediate success. Individualised and ongoing player development as well as coherent messages and support from various stakeholders may further enhance these outcomes. Coaches should also look at organisational culture as it has been linked with team performances as well.

Incorporating strong primary basic assumptions into a cultural model, could lead to the socialisation of new members, provide constancy and acclimatise the organisation to a consistently adapting environment. This is important to consider, as high schools undergo changes every year, as new students enter, and old students leave. Furthermore, environments that have adopted a robust organisational culture, described by values of individual responsibility and a focus on performance process, can help counteract inhibiting factors such as lack of resources (i.e., limited equipment and training facilities). This is important in a South African context, as some schools do not have the resources or the finances to compete against some of the bigger and

richer schools. Having a strong organisational culture can help correct this imbalance and lead to more competitive performances.

5.7. Closing remarks

I hope that high schools in South Africa could use this study as a point of reference to improve their respective TDEs. The study shed light on the role of a strong organisational culture and identified various factors that contributed to effective TDEs and team success. Encouraging strong coach-to-coach relationships between age-group coaches facilitates the formulation of shared processes, which could help implement more effective and well-aligned training programmes and contribute to a stronger organisational culture. Programmes that encompass the significant TDE variables and promote team cohesion within a positive organisational culture may contribute to long-term development and the delivery of more elite water polo players from the Western Cape.

Furthermore, I hope that this study can be a steppingstone to improve South African water polo in general. I urge coaches, managers, and administrators to use the findings of my results to improve their respective environments in a bid to make them more successful and develop better players in the long-term. I hope that Water Polo South Africa can take away valuable information from this study and use it to develop a more suitable Long-Term Player Development programme for international representation. This should help retain more players at senior level and increase competitiveness at an international level.

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APPENDICES

Appendix A: Permission letter to schools

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

Permission letter

To whom it may concern,

This letter serves as confirmation that Lwazi Nqa Madi has contacted us about performing his research study on our school premises. We as a school would like to grant him permission to perform his master's research study entitled: "Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape".

By granting him permission to perform this study, we as a school will allow him to interview the coaches, managers and team captains, as well as, asking the participants (students) to answer questionnaires. We will grant him permission to collect data from the participants over the course of the water polo season (February-March/April) 2020. Phase 1: Data collection will take place over one/two days during the season (questionnaires). Phase 2: Interviews with the coaches, managers and team captains will take place as soon as the questionnaires have been collected, completed and interpreted.

We as a school would like to assist him as much as we can in performing his study as we are interested in the results that will come from this study. The study appeals to us as we believe that the results can help us restructure our current programme and improve our water polo programme as a whole. He has explained the study clearly to us and the core premise of what he is attempting to achieve. We as school are happy with this arrangement as we understand that the data will be reported with anonymity for the participants of the study. All aspects of the study have been explained clearly to us and we would be happy to have Mr Madi join us at our school.

Yours sincerely,

Sign here with name underneath *Add School badge*

Title at school

Appendix B: Permission letter to Swimming South Africa and Western Cape Water Polo Society

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

Dear Members of Swimming South Africa and Western Cape Water Polo Society,

Permission to conduct research

I am currently pursuing a course of study leading to a Master's degree in Sport Science. I would like to request your permission to conduct research at the 2019 Western Province Water polo league and Mazinter cup tournament.

I plan to do a multimethod study (qualitative and quantitative study) in which I will be exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape. My data collection entails the administering of questionnaires to the participants of the respective teams prior to the commencement of the tournament. My data collection also entails conducting focus group interviews with coaches, managers and team captains for the respective schools.

My objectives in this study are:

1. To determine if various Talent Development Environment factors distinguish between more and less successful schools based on their final ranking in a school's tournament.
2. To determine if team cohesion distinguish between more and less successful schools based on their final ranking in a school's tournament.
3. To compare the u15 and u19 (1st team) age groups with regard to the talent development environment and team cohesion.
4. To explore how organisational culture and the talent development environments these schools are trying to create are inter-related.

I have obtained permission from the Ethical Committee of Stellenbosch University to conduct this research. I guarantee total confidentiality of information pertaining to the participating players, coaches, managers and teams, and will only report information that is in the public domain and permissible within the law.

Please find attached a copy of the consent and information sheet which further explains the whole concept of my proposed study. It includes my contact details as well as that of my supervisor, to which any inquires, and concerns could be forwarded. I would be grateful for your approval and support of my study.

Kind regards,

Lwazi Madi.

Appendix C: Permission letter to Western Cape Education Department

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

Dear Members of the Western Cape Education Department,

Permission to conduct research

I am currently pursuing a course of study leading to a Master's degree in Sport Science. I would like to request your permission to conduct research at the 2019 Western Province Water polo summer league 1st division (high schools) and Mazinter cup tournament.

I plan to do a multimethod study (qualitative and quantitative study) in which I will be exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape. My data collection entails the administering of questionnaires to the participants of the respective teams prior to the commencement of the tournament. My data collection also entails conducting focus group interviews with coaches, managers and team captains for the respective schools.

My objectives in this study are:

1. To determine if various Talent Development Environment factors distinguish between more and less successful schools based on their final ranking in a school's tournament.
2. To determine if team cohesion distinguish between more and less successful schools based on their final ranking in a school's tournament.
3. To compare the u15 and u19 (1st team) age groups with regard to the talent development environment and team cohesion.
4. To explore how organisational culture and the talent development environments these schools are trying to create are inter-related.

I have obtained permission from the Ethical Committee of Stellenbosch University to conduct this research. I guarantee total confidentiality of information pertaining to the participating players, coaches, managers and teams, and will only report information that is in the public domain and permissible within the law.

Please find attached a copy of the consent and information sheet which further explains the whole concept of my proposed study. It includes my contact details as well as that of my supervisor, to which any inquires, and concerns could be forwarded. I would be grateful for your approval and support of my study.

Kind regards,

Lwazi Madi.

Appendix D: REC approval Letter

UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

NOTICE OF APPROVAL

REC: Social, Behavioural and Education Research (SBER) - Initial Application Form

3 March 2020

Project number: 13117

Project Title: Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape.

Dear Mr Lwazi Madi

Your REC: Social, Behavioural and Education Research (SBER) - Initial Application Form submitted on 6 February 2020 was reviewed and approved by the REC: Humanities.

Please note the following for your approved submission:

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
3 March 2020	2 March 2021

GENERAL COMMENTS:

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number (13117) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Default	CV HGrobbelaar-2019	06/11/2019	1
Data collection tool	Interview scripts (ALL)	06/11/2019	1
Data collection tool	TDEQ5 and YSEQ	06/11/2019	1
Request for permission	Permission letter to schools	18/12/2019	1
Request for permission	Permission letter to schools	18/12/2019	1
Request for permission	Permission letter to schools	18/12/2019	1
Request for permission	Permission letter to schools	18/12/2019	1
Request for permission	Permission letter to schools	18/12/2019	1
Request for permission	Permission letter to schools	18/12/2019	1
Proof of permission	Research approval letter	18/12/2019	1
Request for permission	Permission letter to Swimming South Africa and Western Cape Water Polo Society	18/12/2019	1
Proof of permission	Permission from Li, Eys and Henriksen	18/12/2019	2
Budget	Budget for research project	13/01/2020	1
Parental consent form	SU HUMANITIES Consent form Parent-Legal guardian	05/02/2020	2
Assent form	Informed assent forms (minors) (1)	05/02/2020	2
Informed Consent Form	All informed consent and assent forms (2)	05/02/2020	2
Information sheet	Information sheets (ALL)	05/02/2020	2
Default	TEMPLATE FOR RESPONSE LETTER	05/02/2020	1
Research Protocol/Proposal	Research Proposal ethics (2) (1)	05/02/2020	2

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

National Health Research Ethics Committee (NHREC) registration number: REC-050411-032.
The Research Ethics Committee: Humanities complies with the SA National Health Act No.61 2003 as it pertains to health research. In addition, this committee abides by the ethical norms and principles for research established by the Declaration of Helsinki (2013) and the Department of Health Guidelines for Ethical Research: Principles Structures and Processes (2nd Ed.) 2015. Annually a number of projects may be selected randomly for an external audit.

Appendix E: Information Sheet (Players and Captains)

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

"Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape".

Information Sheet: Players and captains

Purpose of the study:

This study will focus on water polo schools in the Western Cape, and the different environments that make the Western Cape unique in terms of talent development. By exploring the different environments, it will allow me to identify the key characteristics which makes the Western Cape a powerhouse in the South African Schools' Water polo. By making use of questionnaires and interviews, I will be able to critically explore these environments, through coaches and players, and get a better understanding of why the Western Cape has an environment for producing talented water polo players.

Procedure:

Players

You have been invited to partake in a research project. If you are under the age of 18, your parent/guardian must provide their consent, I am also required to obtain your informed assent (permission) to participate in the study. If you are over the age of 18,

then only your consent will be needed. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Filling out the Talent Development Environment Questionnaire (TDEQ-5), which measures the experiences of developing athletes in relation to empirically identified "key features" of effective talent development environments, and the Youth Sport Environment Questionnaire (YSEQ), which is used to measure the athletes' perceptions of their team's cohesion. Both questions are quantitative in nature. Time allocated for the completion of the questionnaires will be 60-80 minutes. The questionnaires will be completed at your school.

Captains

You have been invited to partake in a research project. If you are under the age of 18, your parent/guardian must provide their consent, I am also required to obtain your informed assent (permission) to participate in the study. If you are over the age of 18, then only your consent will be needed. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Participate in an interview. The interviews will be qualitative in nature and will include open-ended questions. Questions related to the Environment Success Factors (ESF) will be asked, in order to help me get your perspective of the culture of the sport in the environment. The ESF model, was designed by a researcher named Henriksen in 2010. Questions coming from this model include questions, for example, "what characterizes the culture (team values) in this environment?". Time allocated for the completion of the interview will be 90-120 minutes. The location of the interview will be in Cape Town. One of the schools will be contacted in advance to ask for permission to use the facilities for the interview process.

Benefits: Water polo is a fast-growing high school sport in the country. Its popularity has increased significantly over the past few years. The sport has grown so much that an under 15 South African age group has recently been created in order to help develop and nurture young talent. With that being said, the Western Cape has been notorious for producing some of the best young talent in the country. This study will explore the key characteristics that makes the Western Cape a powerhouse in water

polo. This information can be used to help improve training programmes, coach-player relationships, team environment and hopefully, can be used to develop more elite water polo athletes in South Africa.

Rights of Research Participants: You can choose whether to be in this study or not. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, please contact myself or the study leader.

Rights of the Researcher: The researcher has the right to remove the subject from the research project should the subject fail to adhere to the instructions given during data collection.

Confidentiality: Any information about you that is obtained in connection with this study will stay confidential and will be discussed only with your written permission. Individual information will be treated confidentially, and only group results will be reported on, in the form of descriptive statistics, such as mean scores, standard deviation and standard error of mean. However, the results of the study may be published or disclosed to other people in a way that will not identify you. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. Data will be kept in a password-controlled personal laptop and password-controlled google drive or one drive folder where only myself and project supervisor will have access to.

If you participate in the interview phase of this study, your responses to questions will be recorded using an audio taping device. Since the interview will happen amongst a focus group, participants will not have the opportunity to review and edit their responses as everything will be transcribed in verbatim. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. The data will be used for educational purposes of this study and will be erased once the study has been completed and finalised.

The information will be presented for the group, only if the research paper is published. As the primary investigator, I will be responsible for the implementation of the data management plan.

Consent: The researcher's intent is to only include participants that freely choose to participate in this study. Participation is voluntary, and you are free to withdraw your consent and discontinue with your participation at any time for any reason and you do not need to justify your decision. If you do withdraw, we may wish to retain the data that we have recorded from you but only if you agree, otherwise your records will be destroyed. Your participation in the study is voluntary and does not prejudice any right to compensation, which you may have under statute law.

Further Information: If you have any questions regarding this study you can contact any of the researchers detailed below. You will be given a copy of this information sheet and a consent form to read and keep prior to indicating your consent to participate by signing the consent form.

Student:	Lwazi Madi	Study Leader:	Dr. H.W. Grobbelaar
E-Mail:	[redacted]	Email:	[redacted]
Tel. Number:	[redacted]	Tel. Number:	[redacted]

The Human Research Ethics Committee at the Stellenbosch University requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Administrative Officer, Human Research Ethics Committee, Division of Research Development, Stellenbosch University, Private Bag X1, Matieland, 7602.

Appendix F: Information Sheet (Coaches and Managers)

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

"Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape".

Information Sheet: Coaches and Managers

Purpose of the study:

This study will focus on water polo schools in the Western Cape, and the different environments that make the Western Cape unique in terms of talent development. By exploring the different environments, it will allow me to identify the key characteristics which makes the Western Cape a powerhouse in the South African Schools' Water polo. By making use of questionnaires and interviews, I will be able to critically explore these environments, through coaches, managers and players, and get a better understanding of why the Western Cape has an environment for producing talented water polo players.

Procedure:

Coaches and managers

You have been invited to partake in a research project. In order for you to participate in this study, your informed consent will be needed. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Participating in a focus group interview with coaches, managers and captains. The interviews will be

qualitative in nature and will include open-ended questions. Questions related to the Environment Success Factors (ESF) will be asked, in order to help me get your perspective of the culture of the sport in the environment. The ESF model, was designed by a researcher named Henriksen in 2010. Questions coming from this model include questions, for example, “what characterizes the culture (team values) in this environment?”. Time allocated for the completion of the interview will be 90-120 minutes. The location of the interview will be in Cape Town. One of the schools will be contacted in advance to ask for permission to use the facilities for the interview process.

Benefits: Water polo is a fast-growing high school sport in the country. Its popularity has increased significantly over the past few years. The sport has grown so much that an under 15 South African age group has recently been created in order to help develop and nurture young talent. With that being said, the Western Cape has been notorious for producing some of the best young talent in the country. This study will explore the key characteristics that makes the Western Cape a powerhouse in water polo. This information can be used to help improve training programmes, coach-player relationships, team environment and hopefully, can be used to develop more elite water polo athletes in South Africa.

Rights of Research Participants: You can choose whether to be in this study or not. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, please contact myself or the study leader.

Rights of the Researcher: The researcher has the right to remove the subject from the research project should the subject fail to adhere to the instructions given during data collection.

Confidentiality: If you participate in the interview phase of this study, your responses to questions will be recorded using an audio taping device. Since the interview will happen amongst a focus group, participants will not have the opportunity to review and edit their responses as everything will be transcribed in verbatim. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. Data will be kept in a password-

controlled personal laptop and password-controlled google drive or one drive folder where only myself and project supervisor will have access to. The data will be used for educational purposes of this study and will be erased once the study has been completed and finalised.

The information will be presented for the group, only if the research paper is published. As the primary investigator, I will be responsible for the implementation of the data management plan.

Consent: The researcher's intent is to only include participants that freely choose to participate in this study. Participation is voluntary, and you are free to withdraw your consent and discontinue with your participation at any time for any reason and you do not need to justify your decision. If you do withdraw, we may wish to retain the data that we have recorded from you but only if you agree, otherwise your records will be destroyed. Your participation in the study is voluntary and does not prejudice any right to compensation, which you may have under statute law.

Further Information: If you have any questions regarding this study you can contact any of the researchers detailed below. You will be given a copy of this information sheet and a consent form to read and keep prior to indicating your consent to participate by signing the consent form.

Student:	Lwazi Madi	Study Leader:	Dr. H.W. Grobbelaar
E-Mail:	[redacted]	Email:	[redacted]
Tel. Number:	[redacted]	Tel. Number:	[redacted]

The Human Research Ethics Committee at the Stellenbosch University requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Administrative Officer, Human Research Ethics Committee, Division of Research Development, Stellenbosch University, Private Bag X1, Matieland, 7602.

Appendix G: Informed Assent Form (Players under the age of 18 years old)

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
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"Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape".

STELLENBOSCH UNIVERSITY

ASSENT TO PARTICIPATE IN RESEARCH (Players and captains under the age of 18 years old)

I would like to invite you to take part in a study conducted by Lwazi Madi, master's in science student from the Sport Science Department at Stellenbosch University. Your child will be invited as a possible participant because he has met the following criteria:

Playing u15A team water polo for your school;

Playing 1st team water polo for your school, under the age of 18;

Captaining 1st team water polo for a school, under the age of 18;

Captaining u15A team water polo for your school.

PURPOSE OF THE STUDY

This study will focus on water polo schools in the Western Cape, and the different environments that make the Western Cape unique in terms of talent development. By exploring the different environments, it will allow me to identify the key characteristics which makes the Western Cape such a strong province in South African Schools'

Water polo. By making use of questionnaires and interviews, I will be able to critically explore these environments, through coaches, managers and players, and get a better understanding of why the Western Cape has an environment for producing talented water polo players.

WHAT WILL BE ASKED OF ME?

Players

You have been invited to partake in a research project. Since this study involves participants that are under the age of 18, consent must be obtained by your parents as well as your assent (permission) to participate in the study. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Filling out the Talent Development Environment Questionnaire (TDEQ-5), which measures the experiences of developing athletes in relation to empirically identified "key features" of effective talent development environments, and the Youth Sport Environment Questionnaire (YSEQ), which is used to measure the athletes' perceptions of their team's cohesion. Time allocated for the completion of the questionnaires will be 60-80 minutes. The questionnaires will be completed at your school.

Captains

You have been invited to partake in a research project. Since this study involves participants that are under the age of 18, consent must be obtained by your parents as well as your informed assent (permission) to participate in the study. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Participating in a focus group interview with coaches, managers and team captains. The interviews will be qualitative in nature and will include open-ended questions. Questions related to the Environment Success Factors (ESF) will be asked, in order to help me get your perspective of the culture of the sport in the environment. Time allocated for the completion of the interview will be 90-120 minutes. The location of the interview will be in Cape Town. One of the schools will be contacted in advance to ask for permission to use the facilities for the interview process.

POSSIBLE BENEFITS TO PARTICIPANTS AND/OR TO THE SOCIETY

This study is beneficial to the Western Cape Water polo society as well as the National Water polo society as a whole. The results will potentially uncover very important factors that lead to success in water polo schools. It will also allow coaches and schools from around the county to identify constraints and weaknesses in their environments, they can then adjust their current environment to one that will lead them to achieve their set goals and become more competitive. One of the major benefits of this study is that it will help schools create a more nurturing and developing environment for their athletes to thrive and achieve success as well as produce more elite junior athletes to participate more competitively at a senior level.

PAYMENT FOR PARTICIPATION

Participants will not be paid for their participation.

PROTECTION OF YOUR INFORMATION, CONFIDENTIALITY AND IDENTITY

Any information about you that is obtained in connection with this study will stay confidential and will be discussed only with your written permission. Individual information will be treated confidentially, and only group results will be reported on, in the form of descriptive statistics, such as mean scores, standard deviation and standard error of mean. However, the results of the study may be published or disclosed to other people in a way that will not identify you. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. Data will be kept in a password-controlled personal laptop and password-controlled google drive or one drive folder where only myself and project supervisor will have access to.

If you participate in the interview phase of this study, your responses to questions will be recorded using an audio taping device. Since the interview will happen amongst a focus group, participants will not have the opportunity to review and edit their responses as everything will be transcribed in verbatim. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. The data will be used for educational purposes of this study and will be erased once the study has been completed and finalised.

The information will be presented for the group, only if the research paper is published. As the primary investigator, I will be responsible for the implementation of the data management plan.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be part of this study or not. If you consent to taking part in the study, please note that you may choose to withdraw or decline participation at any time without any consequence. You may also refuse to answer any questions you don't want to answer and still remain in the study. Participants of the study have the right to withdraw from the study without any consequences. Participants should answer all the questions, however, they may refrain from answering specific questions if they don't feel comfortable with answering said questions. these individuals can still remain in the study if they wish. The investigator (myself) and project supervisor can choose to exclude a participant if a situation comes up that permits me to do so. The participant can choose to exclude a participant if a situation comes up that permits me to do so.

RESEARCHERS' CONTACT INFORMATION

If you have any questions or concerns about the study, please feel free to contact:

Name	**Contact number**	**Email address**
Lwazi Madi (Primary Investigator)	[redacted]	[redacted]
Dr H.W. Grobbelaar (Study Leader from the Department of Sport Science)	[redacted] [redacted]	[redacted]

RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a

research participant, contact Ms Maléne Fouché [[redacted]] at the Division for Research Development.

DECLARATION OF CONSENT BY THE PARTICIPANT

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ (name of participant) agree to take part in this research study, as conducted by Lwazi Madi (name of principal investigator).

_____ _____

Signature of Participant **Date**

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions. In addition, I would like to select the following option:

	The conversation with the participant was conducted in a language in which the participant is fluent.
	The conversation with the participant was conducted with the assistance of a translator (who has signed a non-disclosure agreement), and this "Consent Form" is available to the participant in a language in which the participant is fluent.

_____ _____

Signature of Principal Investigator **Date**

Appendix H: Informed Consent Form (players and captains 18 years and older)

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH (Players and captains 18 years and older)

"Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape".

I would like to invite you to take part in a study conducted by Lwazi Madi, master's in science student from the Sport Science Department at Stellenbosch University. Your child will be invited as a possible participant because he has met the following criteria:

Playing 1st team water polo for your school, over the age of 18;

Captaining 1st team water polo for your school, over the age of 18.

PURPOSE OF THE STUDY

This study will focus on water polo schools in the Western Cape, and the different environments that make the Western Cape unique in terms of talent development. By exploring the different environments, it will allow me to identify the key characteristics which makes the Western Cape such a strong province in South African Schools' Water polo. By making use of questionnaires and interviews, I will be able to critically

explore these environments, through coaches, managers and players, and get a better understanding of why the Western Cape has an environment for producing talented water polo players.

WHAT WILL BE ASKED OF ME?

Players

You have been invited to partake in a research project. If you are over the age of 18, then only your consent will be needed to participate in this study. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Filling out the Talent Development Environment Questionnaire (TDEQ-5), which measures the experiences of developing athletes in relation to empirically identified "key features" of effective talent development environments, and the Youth Sport Environment Questionnaire (YSEQ), which is used to measure the athletes' perceptions of their team's cohesion. If you are the captain of the team, you may be asked to participate in answering interview questions. Time allocated for the completion of the questionnaires will be 60-80 minutes. The questionnaires will be completed at your school.

Captains

You have been invited to partake in a research project. If you are over the age of 18, then only your consent will be needed to participate in this study. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Participating in a focus group interview with coaches, players and managers. The interviews will be qualitative in nature and will include open-ended questions. Questions related to the Environment Success Factors (ESF) will be asked, in order to help me get your perspective of the culture of the sport in the environment. The ESF model, was designed by a researcher named Henriksen in 2010. Questions coming from this model include questions, for example, "what characterizes the culture (team values) in this environment?". Time allocated for the completion of the interview will be 90-120 minutes. The location of the interview will be in Cape Town. One of the schools will be contacted in advance to ask for permission to use the facilities for the interview process.

POSSIBLE BENEFITS TO PARTICIPANTS AND/OR TO THE SOCIETY

This study is beneficial to the Western Cape Water polo society as well as the National Water polo society as a whole. The results will potentially uncover very important factors that lead to success in water polo schools. It will also allow coaches and schools from around the county to identify constraints and weaknesses in their environments, they can then adjust their current environment to one that will lead them to achieve their set goals and become more competitive. One of the major benefits of this study is that it will help schools create a more nurturing and developing environment for their athletes to thrive and achieve success as well as produce more elite junior athletes to participate more competitively at a senior level.

PAYMENT FOR PARTICIPATION

Participants will not be paid for their participation.

PROTECTION OF YOUR INFORMATION, CONFIDENTIALITY AND IDENTITY

Any information about you that is obtained in connection with this study will stay confidential and will be discussed only with your written permission. Individual information will be treated confidentially, and only group results will be reported on, in the form of descriptive statistics, such as mean scores, standard deviation and standard error of mean. However, the results of the study may be published or disclosed to other people in a way that will not identify you. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. Data will be kept in a password-controlled personal laptop and password-controlled google drive or one drive folder where only myself and project supervisor will have access to.

If you participate in the interview phase of this study, your responses to questions will be recorded using an audio taping device. Since the interview will happen amongst a focus group, participants will not have the opportunity to review and edit their responses as everything will be transcribed in verbatim. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. The data will be used for educational purposes of this study and will be erased once the study has been completed and finalised.

The information will be presented for the group, only if the research paper is published. As the primary investigator, I will be responsible for the implementation of the data management plan.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be part of this study or not. If you consent to taking part in the study, please note that you may choose to withdraw or decline participation at any time without any consequence. You may also refuse to answer any questions you don't want to answer and still remain in the study. Participants of the study have the right to withdraw from the study without any consequences. Participants should answer all the questions, however, they may refrain from answering specific questions if they don't feel comfortable with answering said questions. these individuals can still remain in the study if they wish. The investigator (myself) and project supervisor can choose to exclude a participant if a situation comes up that permits me to do so. The participant can choose to exclude a participant if a situation comes up that permits me to do so.

RESEARCHERS' CONTACT INFORMATION

If you have any questions or concerns about the study, please feel free to contact:

Name	**Contact number**	**Email address**
Lwazi Madi (Primary Investigator)	[redacted]	[redacted]
Dr H.W. Grobbelaar (Study Leader from the Department of Sport Science)	[redacted] [redacted]	[redacted]

RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a

research participant, contact Ms Maléne Fouché [REDACTED] at the Division for Research Development.

DECLARATION OF CONSENT BY THE PARTICIPANT

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ (name of participant) agree to take part in this research study, as conducted by Lwazi Madi (name of principal investigator).

_____ _____

Signature of Participant **Date**

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions. In addition, I would like to select the following option:

	The conversation with the participant was conducted in a language in which the participant is fluent.
	The conversation with the participant was conducted with the assistance of a translator (who has signed a non-disclosure agreement), and this "Consent Form" is available to the participant in a language in which the participant is fluent.

_____ _____

Signature of Principal Investigator **Date**

Appendix I: Informed Consent Form (Coaches and managers)

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"Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape".

STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH (Coaches and managers)

I would like to invite you to take part in a study conducted by Lwazi Madi, master's in science student from the Sport Science Department at Stellenbosch University. Your child will be invited as a possible participant because he has met the following criteria:

Coaching u15A team water polo for a school;

Coaching 1st team water polo for a school;

Managing u15A team water polo for a school;

Managing 1st team water polo for a school.

PURPOSE OF THE STUDY

This study will focus on water polo schools in the Western Cape, and the different environments that make the Western Cape unique in terms of talent development. By exploring the different environments, it will allow me to identify the key characteristics which makes the Western Cape such a strong province in South African Schools' Water polo. By making use of questionnaires and interviews, I will be able to critically explore these environments, through coaches, managers and players, and get a better understanding of why the Western Cape has an environment for producing talented water polo players.

WHAT WILL BE ASKED OF ME?

You have been invited to partake in a research project. For you to participate in this study, I am required to obtain your consent. If you agree to participate in this study, you will be given an overview of the study and its potential benefits. Once this has been done, I will ask you to assist me with the following: Participating in a focus group interview with coaches, managers and captains. The interviews will be qualitative in nature and will include open-ended questions. Questions related to the Environment Success Factors (ESF) will be asked, in order to help me get your perspective of the culture of the sport in the environment. The ESF model, was designed by a researcher named Henriksen in 2010. Questions coming from this model include questions, for example, "what characterizes the culture (team values) in this environment?". Time allocated for the completion of the interview will be 90-120 minutes. The location of the interview will be in Cape Town. One of the schools will be contacted in advance to ask for permission to use the facilities for the interview process.

POSSIBLE BENEFITS TO PARTICIPANTS AND/OR TO THE SOCIETY

This study is beneficial to the Western Cape Water polo society as well as the National Water polo society as a whole. The results will potentially uncover very important factors that lead to success in water polo schools. It will also allow coaches and schools from around the county to identify constraints and weaknesses in their environments, they can then adjust their current environment to one that will lead them to achieve their set goals and become more competitive. One of the major benefits of this study is that it will help schools create a more nurturing and developing

environment for their athletes to thrive and achieve success as well as produce more elite junior athletes to participate more competitively at a senior level.

PAYMENT FOR PARTICIPATION

Participants will not be paid for their participation.

PROTECTION OF YOUR INFORMATION, CONFIDENTIALITY AND IDENTITY

If you participate in the interview phase of this study, your responses to questions will be recorded using an audio taping device. Since the interview will happen amongst a focus group, participants will not have the opportunity to review and edit their responses as everything will be transcribed in verbatim. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. Data will be kept in a password-controlled personal laptop and password-controlled google drive or one drive folder where only myself and project supervisor will have access to. The data will be used for educational purposes of this study and will be erased once the study has been completed and finalised.

The information will be presented for the group, only if the research paper is published. As the primary investigator, I will be responsible for the implementation of the data management plan.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be part of this study or not. If you consent to taking part in the study, please note that you may choose to withdraw or decline participation at any time without any consequence. You may also refuse to answer any questions you don't want to answer and still remain in the study. Participants of the study have the right to withdraw from the study without any consequences. Participants should answer all the questions, however, they may refrain from answering specific questions if they don't feel comfortable with answering said questions. these individuals can still remain in the study if they wish. The investigator (myself) and project supervisor can choose to exclude a participant if a situation comes up that permits me to do so. The participant can choose to exclude a participant if a situation comes up that permits me to do so.

RESEARCHERS' CONTACT INFORMATION

If you have any questions or concerns about the study, please feel free to contact:

Name	**Contact number**	**Email address**
Lwazi Madi (Primary Investigator)	[redacted]	[redacted]
Dr H.W. Grobbelaar (Study Leader from the Department of Sport Science)	[redacted] [redacted]	[redacted]

RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [redacted] at the Division for Research Development.

DECLARATION OF CONSENT BY THE PARTICIPANT

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ (name of participant) agree to take part in this research study, as conducted by Lwazi Madi (name of principal investigator).

_____ _____

Signature of Participant **Date**

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions. In addition, I would like to select the following option:

	The conversation with the participant was conducted in a language in which the participant is fluent.
	The conversation with the participant was conducted with the assistance of a translator (who has signed a non-disclosure agreement), and this "Consent Form" is available to the participant in a language in which the participant is fluent.

_____ _____

Signature of Principal Investigator **Date**

Appendix J: Informed Consent Form (Parent/Legal guardian)

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STELLENBOSCH UNIVERSITY

PARENT/LEGAL GUARDIAN CONSENT FOR CHILD TO PARTICIPATE IN RESEARCH

"Exploring organisational culture, talent development environments and team cohesion of the top six water polo high schools in the Western Cape".

I would like to invite your child to take part in a study conducted by Lwazi Madi, from the Sport Science Department at Stellenbosch University. Your child will be invited as a possible participant because he has met the following criteria:

Playing u15A team water polo for his school;

Playing 1st team water polo for his school, under the age of 18;

Your child is a captain of the 1st team water polo team at the school he attends (under 18 years of age);

Your child is a captain of the u15A water polo team at the school he attends.

PURPOSE OF THE STUDY

This study will focus on water polo schools in the Western Cape, and the different environments that make the Western Cape unique in terms of talent development. By exploring the different environments, it will allow me to identify the key characteristics which makes the Western Cape such a strong province in South African Schools' Water polo. By making use of questionnaires and interviews, I will be able to critically explore these environments, through coaches, managers and players, and get a better understanding of why the Western Cape has an environment for producing talented water polo players.

WHAT WILL BE ASKED OF MY CHILD?

Players

Your child has been invited to take part in this study. Consent from you, the parent/guardian will be needed to undergo the study. The researcher will then approach the child for their assent to take part in the study. If the child agrees to take part in the study, he/she will be asked to assist me with the following: Filling out the Talent Development Environment Questionnaire (TDEQ-5), which measures the experiences of developing athletes in relation to empirically identified "key features" of effective talent development environments, and the Youth Sport Environment Questionnaire (YSEQ), which is used to measure the athletes' perceptions of their team's cohesion. If your child is the captain of the team, he may be asked to participate in answering interview questions. Time allocated for the completion of the questionnaires will be 60-80 minutes. The questionnaires will be completed at your child's school.

Captains

Your child has been invited to take part in this study. Consent from you, the parent/guardian will be needed to undergo the study. The researcher will then approach the child for their assent to take part in the study. If the child agrees to take part in the study, he/she will be asked to assist me with the following: Participating in a focus group interview with coaches, managers and captains. The interviews will be qualitative in nature and will include open-ended questions. Questions related to the Environment Success Factors (ESF) model will be asked, in order to help me get

perspectives of the culture of the sport in the various environments. The ESF model, was designed by a researcher named Henriksen in 2010. Questions coming from this model include questions, for example, “what characterizes the culture (team values) in this environment?”. Time allocated for the completion of the interview will be 90-120 minutes. The location of the interview will be in Cape Town. One of the schools will be contacted in advance to ask for permission to use the facilities for the interview process.

POSSIBLE BENEFITS TO THE CHILD OR TO THE SOCIETY

This study is beneficial to the Western Cape Water polo society as well as the National Water polo society as a whole. The results will potentially uncover very important factors that lead to success in water polo schools. It will also allow coaches and schools from around the county to identify constraints and weaknesses in their environments, they can then adjust their current environment to one that will lead them to achieve their set goals and become more competitive. One of the major benefits of this study is that it will help schools create a more nurturing and developing environment for their athletes to thrive and achieve success as well as produce more elite junior athletes to participate more competitively at a senior level.

PAYMENT FOR PARTICIPATION

Participants will not be paid for their participation.

PROTECTION OF YOUR AND YOUR CHILD’S INFORMATION, CONFIDENTIALITY AND IDENTITY

Any information about you and your child that is obtained in connection with this study will stay confidential and will be discussed only with your written permission. Individual information will be treated confidentially, and only group results will be reported on, in the form of descriptive statistics, such as mean scores, standard deviation and standard error of mean. However, the results of the study may be published or disclosed to other people in a way that will not identify you and your child. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. Data will be kept in a password-controlled personal laptop and password-controlled google drive or one drive folder where only myself and project supervisor will have access to.

If your child participates in the interview phase of this study, his responses to questions will be recorded using an audio taping device. Since the interview will happen amongst a focus group, participants will not have the opportunity to review and edit their responses as everything will be transcribed in verbatim. All data sets will be anonymous stored and analysed. No one, except the researcher and project supervisor will be able to access this raw data. The data will be used for educational purposes of this study and will be erased once the study has been completed and finalised.

The information will be presented for the group, only if the research paper is published. As the primary investigator, I will be responsible for the implementation of the data management plan.

PARTICIPATION AND WITHDRAWAL

You and your child can choose whether to be part of this study or not. If you consent to your child taking part in the study, please note that your child may choose to withdraw or decline participation at any time without any consequence. Your child may also refuse to answer any questions they don't want to answer and still remain in the study. Participants of the study have the right to withdraw from the study without any consequences. Participants should answer all the questions, however, they may refrain from answering specific questions if they don't feel comfortable with answering said questions. these individuals can still remain in the study if they wish. The investigator (myself) and project supervisor can choose to exclude a participant if a situation comes up that permits me to do so. The participant can choose to exclude a participant if a situation comes up that permits me to do so.

RESEARCHERS' CONTACT INFORMATION

If you have any questions or concerns about the study, please feel free to contact:

Name	**Contact number**	**Email address**
Lwazi Madi (Primary Investigator)	[redacted]	[redacted]
Dr H.W. Grobbelaar	[redacted]	[redacted]

(Study Leader from the Department of Sport Science)	[redacted]	

RIGHTS OF RESEARCH PARTICIPANTS

Your child may withdraw their consent at any time and discontinue participation without penalty. Neither you nor your child are waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your or your child's rights as a research participant, contact Ms Maléne Fouché [redacted] at the Division for Research Development.

DECLARATION OF CONSENT BY THE PARENT/ LEGAL GUARDIAN OF THE CHILD- PARTICIPANT

As the parent/legal guardian of the child I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information have been explained.

By signing below, I _____ *(name of parent)* agree that the researcher may approach my child to take part in this research study, as conducted by Lwazi Madi (name of principal investigator).

_____ _____

Signature of Parent/Legal Guardian **Date**

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the parent/legal guardian. I also declare that the parent/legal guardian was encouraged and given ample time to ask any questions.

_____ _____

Signature of Principal Investigator **Date**

Appendix K: Talent Development Environment Questionnaire (TDEQ-5)

Scale	Items	Score
		6-point Likert scale: 1= Strongly Disagree 2= Disagree 3= Disagree a little bit 4= Agree a little bit 5= Agree 6= Strongly Agree
Long-Term Development Focus (LTF)- 5 items Long-Term Development Focus- The extent to which developmental programmes are specifically designed to facilitate athletes' long-term success (e.g., fundamental training and rounded development, ongoing opportunities, and de-emphasis of winning).	1. My training is specifically designed to help me develop effectively in the long term	
	2. My coach emphasises that what I do in training and competition is far more important than winning.	
	3. I spend most of my time developing skills and attributes that my coach tells me I will need if I am to compete successfully at the top/professional level.	
	4. My coach allows me to learn through making my own mistakes.	
	5. I would be given good opportunities even if I experienced a dip in performance	
Alignment of Expectations (AOE)- 5 items Alignment of Expectations- The extent to which goals for sport development are coherently set and aligned (e.g., goal setting, goal review, and individualised goals).	1. My coaches make time to talk to my parents about me and what I am trying to achieve.	
	2. The advice my parents give me fits well with the advice I get from my coaches.	
	3. My progress and personal performance are reviewed regularly on an individual basis.	
	4. I am involved in most decisions about my sport development.	
	5. I regularly set goals with my coach that are specific to my individual development.	
Communication (COM)- 4 items. Communication- The extent to which the coach communicates effectively with the athlete in both formal and informal settings	1. My coach and I regularly talk about things I need to do to progress to the top level in my sport (e.g., training ethos, competition performances, physically, mentally, technically, tactically).	
	2. My coach and I talk about what current and/or past world-class performers did to be successful.	

(e.g., development path, rationale for training, and feedback).	3. My coach and I often try to identify what my next big test will be before it happens.	
	4. My coach explains how my training and competition programme work together to help me develop.	
*Holistic Quality Preparation (HQP)- 7 items. Holistic Quality Preparation (HQP)- The extent to which intervention programmes are prepared both inside and outside of sports settings (e.g., caring coach, clear guidance, mental preparation, and balanced life).	1. My coach rarely talks to me about my well-being. *	
	2. My coach doesn't appear to be that interested in my life outside of sport. *	
	3. My coach rarely takes the time to talk to other coaches who work with me. *	
	4. I don't get much help to develop my mental toughness in sport effectively.	
	5. I am rarely encouraged to plan for how I would deal with things that might go wrong. *	
	6. The guidelines in my sport regarding what I need to do to progress are not very clear.*	
	7. I am not taught that much about how to balance training, competing, and recovery. *	
Support Network (SN)- 4 items. Support Network- The extent to which a coherent, approachable, and wide-ranging support network is available for the athlete in all areas (e.g., professionals, parents, coaches, and schools).	1. Currently, I have access to a variety of different types of professionals to help my sports development (e.g., physiotherapist, sport psychologist, strength trainer, nutritionist, lifestyle advisor).	
	2. I can pop in to see my coach or other support staff whenever I need to (e.g., physiotherapist, psychologist, strength trainer, nutritionist, lifestyle advisor).	
	3. My coaches talk regularly to the other people who support me in my sport about what I am trying to achieve (e.g., physiotherapist, sport psychologist, nutritionist, strength and conditioning coach, lifestyle advisor).	
	4. Those who help me in my sport seem to be on the same wavelength as each other when it comes to what is best for me (e.g., coaches, physiotherapists, sport psychologists, strength trainers, nutritionists, lifestyle advisors).	

*= Reverse score items- all items with this symbol (*) are to be reverse

Appendix L: Youth Sport Environment Questionnaire (YSEQ)

Youth Sport Environment Questionnaire

The following questions ask about your feelings toward **your team.** Please **CIRCLE** a number from 1 to 9 to show how much you agree with each statement.

1. We all share the same commitment to our team's goals.[1]

1 2 3 4 5 6 7 8 9
Strongly Disagree **Strongly Agree**

2. I invite my teammates to do things with me.[2]

1 2 3 4 5 6 7 8 9
Strongly Disagree **Strongly Agree**

3. As a team, we are all on the same page.[1]

1 2 3 4 5 6 7 8 9
Strongly Disagree **Strongly Agree**

4. Some of my best friends are on this team.[2]

1 2 3 4 5 6 7 8 9
Strongly Disagree **Strongly Agree**

5. I like the way we work together as a team.[1]

1 2 3 4 5 6 7 8 9
Strongly Disagree ***Strongly Agree***

6. I do not get along with the members of my team.[3]

1 2 3 4 5 6 7 8 9
Strongly Disagree ***Strongly Agree***

7. We hang out with one another whenever possible.[2]

1 2 3 4 5 6 7 8 9
Strongly Disagree ***Strongly Agree***

8. As a team, we are united.[1]

1 2 3 4 5 6 7 8 9
Strongly Disagree **Strongly Agree**

9. I contact my teammates often (phone, text message, internet).[2]

1 2 3 4 5 6 7 8 9
Strongly Disagree **Strongly Agree**

10. This team gives me enough opportunities to improve my own performance.[1]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

11. I spend time with my teammates.[2]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

12. Our team does not work well together.[3]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

13. I am going to keep in contact with my teammates after the season ends.[2]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

14. I am happy with my team's level of desire to win.[1]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

15. We stick together outside of practice.[2]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

16. My approach to playing is the same as my teammates.[1]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

17. We contact each other often (phone, text message, internet).[2]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

18. We like the way we work together as a team.[1]

1	2	3	4	5	6	7	8	9
Strongly Disagree								**Strongly Agree**

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[1]Task cohesion item
[2]Social cohesion item
[3]Spurious negative item

Appendix M: Interview scripts for coaches and managers

Success Factors based on ESF model

1) Preconditions
    - Please describe yourself and the others around you involved in the school.
    - Please, tell about the history and current structure of the school/water polo team?
    - How would you describe the club or team's main resources?
        - Facilities
        - Coach education level (i.e., are you full-time or part-time? Are you on an annual contract and will it be renewed?)
        - Other staff
        - Financial resources
        - Other?

2) Organisational culture
    - What characterizes the culture [predominant values] in this environment?
    - Do you think your players hang out a lot together outside of school?
        - If no, why do you think that is?
    - As a coach/manager, what characteristics stand out in this team compared to other teams you may have coached/managed in the past?
        - If I was to invite another [coach or manager] from your sport to be a part of the club - what would he/she find to be most different?
    - Please tell me [a story] about specific episodes that you feel describe the team's values.
    - Do you have specific symbols such as logos or styles of clothing that are salient to your team?
        - What do they symbolize?
    - Do you have specific traditions?
        - If yes, please elaborate on these traditions.
    - Does the club have a specific motto/vision/mission statement?
        - What does it read?
        - Please, describe the efforts you undertake to live in accordance with these visions and values?
    - What do you do to maintain this culture?
    - Is team culture visible in all your water polo teams at the school? Or is it only visible in certain teams?
    - How do you as a coach/manager pick your team up after a narrow loss?
    - Do you incorporate any team-building activities outside of the sport for your team?

- If yes, what team-building activities incorporate?
- To what extent does the team culture align with that of the school?

3) Individual development
   - Please tell me more about yourself and what do you do in terms of coaching?
   - How often do/did you coach these players a week?
     - Are you often satisfied with your team's efforts during practices and match fixtures?
   - Please describe what you do to develop the team and the individual players within that environment?
     - Do you work on weakness more than strengths of the team?
     - As a coach, to what extent do you focus on progression over results?
     - Based on the answer above, how does this affect/impact your results?
   - How does being a part of this particular environment affect the talented athletes?
     - Sport specific skills
     - Attitude towards training
     - Skills that could be of use for the athletes outside sport

4) Time frame
   - How long have you been involved with coaching this team?
     - How long have you been involved with the school?
     - Do you have a contract with the school?
       - If yes, is there a possibility of renewal?
       - If no, how does the relationship between you and the school work? Is it month-to-month basis?
   - Do you feel that the team is in a better condition now than when you found it?
     - If yes, please elaborate.
     - If no, what were your shortcomings?
   - What future challenges do you foresee for this team?
   - What can be done to make this environment even more successful?
   - What traditions would be wise to keep on to?
     - What traditions should be moved away from?
     - Are there traditions that interfere with the team's cohesion, with the synergy, with human rights, with equality etc?
     - Do you think that it is time to think of new traditions, rituals and symbols?
   - Is there anything else that you'd like to add to the discussion at this point?

5) Results section

- After seeing these results, what do you make of it?
- What do you think attributed to these results?
- Are you shocked by these results?
- Did you expect these results?
- Do you think you could have predicted these results before I showed them to you?
- Do you feel that your team has a good cohesion?
    - If no, why do you think that's the case?
    - If yes, please elaborate on why you think this is true?
- Do you think that your team had a misalignment of expectations?
    - If yes, please elaborate.

Appendix N: Interview scripts for captains

Success Factors based on ESF model

1) Preconditions
    - How would you describe the club or team's main resources?
    - In daily training, do you feel the club/team has sufficient resources in terms of money and coaches, for example?

2) Process
    - Please, describe daily life in this team
        - Training - how much do you train?
        - How is it organized?
        - Competitions
        - Camps
        - Do you have social events outside sport? Provide examples.
        - Other?

3) Organisational culture
    - What characterizes the culture [team values] in this environment?
    - Please tell me [a story] about specific episodes that you feel describe your team values.
    - Do you have specific symbols such as logos or styles of clothing that are salient to your team?
        - What do they mean to you?
    - Do you have specific traditions? Please provide examples.
    - What are the goals of your season?
        - Who sets these goals?
        - How much influence did you have on the goals?
    - Does the club have a specific motto/vision/mission-statement?
        - What does it read?
        - How do you experience this motto/vision in your daily routines in the team?
    - If I was to invite another athlete from your sport to be a part of your team for a week - what would he or she find to be most different?

4) Individual development
    - Tell me about what you learn in this environment:
        - What attitudes or values are appreciated in this environment?
        - When is the coach, for example, satisfied with your efforts in training?
        - And in competition?
        - What values do you take with you from this environment?
        - Do you learn anything that could be of use for you outside your sport?

5) Time frame
    - What can be done to make this environment even more successful?
    - What traditions would be wise to keep on to?