



Holistic approach to athletic talent development environments: A successful sailing milieu

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ABSTRACT

Objectives: Research into the discovery and development of athletic talent has tended to focus on the individual athlete. This study assumes a holistic ecological approach; it focuses on the overall athletic talent development environment (ATDE), presents an analysis of one particular ATDE (the Danish national 49er sailing team) and examines key factors behind its success in creating top athletes. To guide the project, two working models were developed. The ATDE working model serves to describe the environment's components and structure. The environmental success factors (ESF) working model serves to structure factors contributing to the environment's success.

Method: The research takes the form of a case study. Data were collected from multiple perspectives (in-depth interviews with administrators, coaches and athletes), from multiple situations (observation of training, competitions and meetings) and from the analysis of documents.

Results: Empirical versions of the ATDE and ESF models were developed of the investigated environment, which was characterized by a high degree of cohesion, with the relationship between current and prospective elite athletes at its core. A lack of resources was compensated for by a strong organizational culture, characterized by values of open co-operation, individual responsibility and a focus on performance process.

Conclusions: The research concluded that the holistic ecological approach constitutes an important supplement to the contemporary literature on athletic talent and career development, that further studies of specific environments are needed to establish the common features of successful ATDEs and that practitioners should look beyond the individual in their attempts to nurture sporting excellence.

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This paper is going to introduce a holistic ecological approach to talent development, which shifts the focus from the individual athlete to the environment in which he or she develops. This shift facilitates our understanding of the central challenges involved in talent development in modern societies that have growing problems with the recruitment, retention and transitions of athletes in sport (Green, 2005; Petlichkoff, 1996). Some sporting environments (clubs/teams) are more successful than others in helping their talented young athletes to make a successful transition to the senior elite level and an investigation into such successful environments aids our understanding of talent development.

Research in the area of athletic talent has tended to focus on the individual athletes (see Durand-Bush & Salmela, 2001 for review).

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This research has emphasized either talent discovery focused on the assessment of the prerequisites for athletic excellence, which allow sports organizations to predict who is likely to excel (Gould, Dieffenbach, & Moffett, 2002; Hohmann & Seidel, 2003; Holt & Dunn, 2004; Howe, Davidson, & Sloboda, 1998; Lidor, Côté, & Hackfort, 2009), or talent development, emphasizing the quantity and quality of training needed to reach top-level performance (Côté, Lidor, & Hackfort, 2009; Stambulova, 2009). Talent development researchers have outlined two different pathways: the first advocates early specialization and deliberate practice (i.e., high in structure but low in enjoyment), leading to elite performance (Ericsson, Krampe, & Tesch-Römer, 1993; Ericsson & Lehmann, 1996); the second advocates sampling a range of sports before choosing to specialize in one of them, this choice being accompanied by a gradual move away from deliberate play (low in structure but high in enjoyment) and towards deliberate practice, as a more healthy route to top-level performance (Côté, Baker, & Abernethy, 2003, 2007; Côté et al., 2009).

We find support for the shift towards a more contextual approach in several contemporary lines of research and practice,

including career development literature, organizational psychology and social sport psychology.

Serving as a broader frame for studying talent development, research into athletic career development clearly highlights the importance of the context within which that development takes place (Stambulova & Alfermann, 2009; Stambulova, Alfermann, Statler, & Côté, 2009; Wylleman & Lavalée, 2004). Among the factors influencing athletes' career development and transitions, researchers have traditionally focused on the micro-environment: for example, coaches, parents and peers (Côté, 1999; Côté et al., 2007; Wolfenden & Holt, 2005; Wylleman, De Knop, Verdet, & Ceci-Érpič, 2007). Recent cross-cultural studies, however, have also identified national culture and the national sports systems as important factors in athletes' transitions (Alfermann, Stambulova, & Zemaityte, 2004; Stambulova, Stephan, & Järphag, 2007) and advocated a holistic approach (i.e., one not focused exclusively on the world of sport or the athletes' micro-environment) to the study of how athletic potential is nurtured.

Organizational psychology emphasizes relational issues such as organizational structure, learning, communication and culture in research and intervention (Argyris & Schön, 1978, 1996; Schein, 1992; Senge, 1990). Equally it focuses on the influence upon organizations of the wider society in which they are embedded (Hofstede, 1997).

In the social sport psychology literature, Martindale and colleagues (Martindale, Collins, & Abraham, 2007; Martindale, Collins, & Daubney, 2005) introduced the term 'talent development environment' and interviewed 16 British coaches about the factors that they believed to be important in effective talent development. The authors defined the "talent development environment" as encompassing "all aspects of the coaching situation" (Martindale et al., 2005, p. 354) and highlighted long-term strategy and planning, coherent communication and support, individualized training programmes and an emphasis on the athletes' progress rather than on their early results as key features of the coaches' views. Martindale and colleagues employed an ecological but not holistic approach to their study of talent development, because they focused exclusively on sport domain and coaching.

This study will introduce a holistic ecological approach to the study of athletic talent, one that focuses on the broader developmental context or environment in which pre-elite athletes find themselves. From this perspective an "athletic talent development environment" (ATDE) is defined as a young athlete's social relations both inside and outside the world of sport—social relations which have a sports club or team as their core but also include the larger context in which the club or team is embedded.

Each individual club or team is different in terms of how it interacts with the broader socio-cultural context and in terms of its degree of success in nurturing sporting potential. To test the holistic approach to examining ATDEs, we designed a case study of three successful ATDEs in Scandinavia, each with a successful history of producing top-level senior athletes from among its juniors. This paper presents the first of these case studies: the Danish national 49er sailing team.

In order to be able to compare the environments involved in the overall project and to deal with large amounts of data expected, we created two working models of a successful ATDE. From ecological theory (Bronfenbrenner, 1979) we adopted the idea of seeing the environment as a series of nested structures, which includes, but is not restricted to, the settings in which the talented athletes are active. The systems theory framework (Patton & McMahon, 2006) assisted us in viewing ATDEs as systems with certain functions, components, structure and development. In systems theory it is postulated that systems (i.e., organized wholes) are qualitatively different from the sum of their parts and that systems are self-

regulating in terms of maintaining a fit with the context and maintaining stability (Bateson, 1973; Bertalanffy, 1968; Lewin, 1939). From organizational psychology (Schein, 1992) we adopted the notion of an organizational culture that guides the socialization of its members. The two working models are described briefly below.

Descriptive working model: the athletic talent development environment model

Fig. 1 presents the ATDE working model as a framework for describing a particular athletic environment and for clarifying the roles and functions of the different components and relations within the environment in the talent development process. The main function of an ATDE as a system is to help promising young athletes make a successful transition from junior to top-level senior sports. The young prospective elite athletes therefore appear at the centre of the model, and other components of the ATDE are structured into two levels (micro- and macro-) and two domains (athletic and non-athletic), complemented by the past, present and future of the ATDE. The micro-level refers to the environment where the prospective elite athletes spend a good deal of their daily life and is thus characterized by real communication and interactions. The macro-level refers to social settings, which affect but do not contain the athletes, as well as to the values and customs of the cultures to which the athletes belong. The athletic domain covers the part of the athletes' environment that is directly related to sport, whereas the non-athletic domain presents all the other spheres of the athletes' lives. Directly surrounding the young athletes (at the centre of the model) is the club environment, with coaches, managers, elite senior and younger athletes and experts. Other components include school, family, peers and related teams and clubs (at the micro-level), as well as sports federations, the media, reference groups and the educational system (at the macro-level). Some of the components clearly belong to one level and one domain (e.g., school), whereas others (e.g., the family) may transcend levels or domains. The macro-environment also involves various cultural contexts, such as national culture, general sporting culture, the culture of the specific sport and youth culture. To

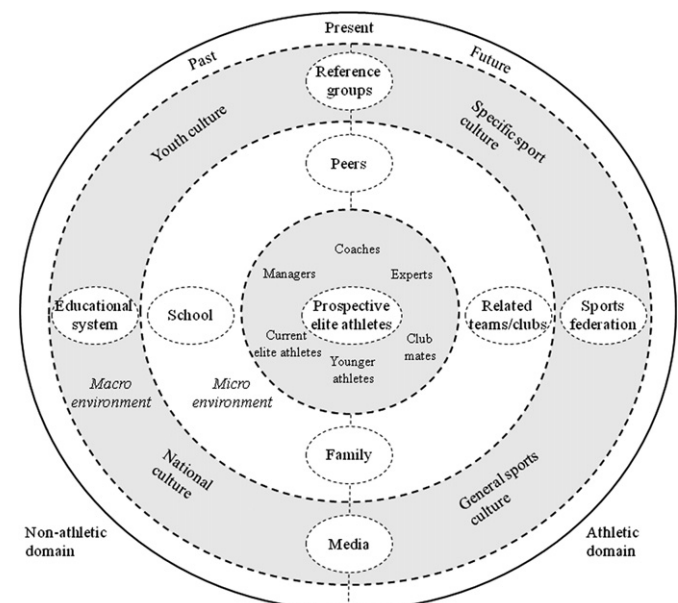


Fig. 1. The athletic talent development environment (ATDE) working model.

illustrate the permeability and interdependence of the different components, these are marked by dotted lines. The outer layer of the model presents the past, present and future of the ATDE, emphasizing that the environment is dynamic and the athletes and their contexts are constantly changing and influencing each other in a reciprocal manner.

This model is ecological in the sense that it regards the development of an athlete as influenced by the context in which this development takes place. The model is holistic in three senses: it includes both the athletic and the non-athletic domain; it includes both the micro and the macro-level; and it includes the development (past, present and future) of the environment.

Explanatory working model: the environment success factors model

Fig. 2 presents the environment success factors (ESF) working model. Taking as its starting point the preconditions provided by the environment, the model illustrates how the daily routines (process) have three outcomes: athletes' individual development and achievements, team achievements (in team sports), and organizational development and culture. All of these are highly inter-related and influence the environment's success. "Preconditions" include human (e.g., coaching and management resources), material (e.g., training and accommodation facilities) and financial factors, all of which are necessary for the talent development process but none of which guarantees success. "Process" refers to everyday activities in the given environment. These activities can be diverse and specific to the environment, but elements such as training, camps, competitions and social events are expected. "Individual development and achievements" refers to the athletes' acquisition of psycho-social competencies and athletic skills, and the way these in combination lead to sporting success. "Team achievements" refers to the team's athletic success and is thus mainly relevant to team sports. Individual and team achievements are, of course, a product of the process, most notably countless hours of training, but are also a product of organizational development and culture. "Organizational culture" is central to the ESF model and consists of three levels: cultural artefacts, espoused values and basic assumptions (Schein, 1992). "Cultural artefacts" include stories and myths told in the environment and also customs and traditions, as well as physical cultural manifestations such as

clothing, buildings and organization charts. The artefacts are easy to observe but hard to decipher. "Espoused values" are the social principles, norms, goals and standards that the organization shows to the world; they exist in the minds of the members and serve as visible motivations for actions, although these espoused values (i.e., what the members say they do) do not always correspond to the enacted values (i.e., what they actually do). "Basic assumptions" are underlying reasons for actions. They consist of beliefs and assumptions that are no longer questioned but are taken for granted and which exist at a level below that of the members' consciousness, and are therefore derived by the researchers. Organizational culture is characterized by the integration of the key basic assumptions into a cultural paradigm guiding socialization of new members, providing stability and adapting the organization to a constantly changing environment. The ESF working model therefore predicts that the ATDE's success (i.e., effectiveness in producing senior elite athletes) is a result of the interplay between preconditions, process, individual and team development and achievements, with organizational culture serving to integrate these different elements.

Objectives

Focusing as it does on individual athletes and their micro-environment, much contemporary research on talent development presents a one-sided story. Aiming to uncover the secrets of particularly successful environments, our overall study intends to present a description of three such environments and, by extension, to explain their success. This paper will (a) provide a holistic description of one particular ATDE – the Danish national 49er sailing team and (b) investigate the factors influencing its success in the development of elite athletes. Our hypothesis is that each successful ATDE is unique, and therefore empirical versions of the ATDE and ESF working models will appear as concretizations of the working models reflecting the specific environment under study.

Method

Selection of the Danish national 49er sailing team as a successful ATDE

The Danish national 49er sailing team was selected for the study because it has a successful record of producing elite senior athletes, with a large proportion of the pre-elite group managing a successful transition to the senior elite level. The 49er class is a highly competitive and expensive class, appealing only to very ambitious sailors and has 36 nations engaged in serious elite programs. Ever since the introduction of the 49er class in 1996, followed by its inclusion as an Olympic sport in 2000, at least one Danish boat has been ranked in the top 10 in the world, with a gold medal in the 2008 Olympic Games as the most recent highlight.

Introduction to the environment and participants

The Danish 49er environment consists of a coach and a group of athletes divided into two sub-groups: the national team (3 crews, i.e. 6 athletes) and the 'talent group' (4 crews, i.e. 8 athletes). This main sample is all male. The research also included interviews and informal talks with managers, parents and representatives from other boat classes. The environment is virtual in the sense that it is not situated in a specific location. Rather, the athletes travel the world and practice at the sites of the major competitions or where the weather provides good training conditions.

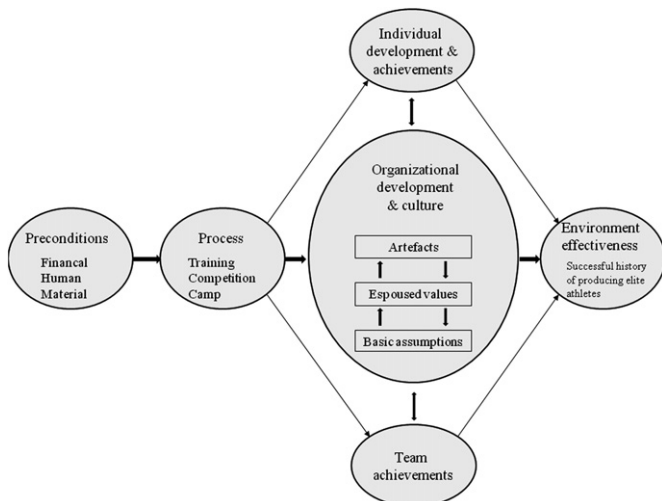


Fig. 2. The environment success factors (ESF) working model.

Research methods and instruments

Data were collected from interviews, participant observation and analysis of documents.

Interviews

Semi-structured interview guides (Kvale, 1996) were created to allow reflection on the part of the interviewees but also to make sure the interviewees commented on pre-selected issues derived from the ATDE and the ESF working models. Keeping a similar structure, separate interview guides were made for the prospective elite athletes, coaches, current elite athletes and managers, to allow for different perspectives. Each interview guide was divided into four parts. In the introductory part the interviewees were asked about their background and immediate impressions of the environment. In the descriptive part the interviewees were asked about the roles and functions of specific components of the environment and about the relationships between those components, at the micro- and macro-levels. The explanatory part, examining the factors contributing to the environment's success, comprised questions about preconditions, process, individual development and organizational culture. In the conclusive part, to place the current state of the environment in a broader time-frame, the interviewees were asked about past traditions and perceived future challenges for the environment.

Participant observation

This method enabled *in situ* observation of the social practices under study and gave the principal researcher a profound feel for the culture (Tinggaard, 2006). Furthermore, it made it possible to study the athletes in several diverse contexts, such as at training, in competition and at meetings, camps and social events. The observation guide was loosely structured and consisted of several pre-determined areas of interest derived from the ATDE and the ESF working models. The observations included a number of informal conversations, which allowed the researcher to ask about the subjects' experiences *in situ* rather than in a formal setting, perhaps long after the event under discussion (Denzin & Lincoln, 2005; Hammersley & Atkinson, 1995). Observation records consisted of field notes and a diary.

Analysis of documents

Sources used for the analysis included the team's success statistics, web page, training programmes and official papers describing the mission and structure of the Danish sailing federation.

Procedure

After the environment had been selected, preliminary acceptance from the athletes was gained through their coach. Full anonymity was offered but not accepted by the coach and management. It was agreed that the identity of the team could be disclosed but that names of individuals would be kept confidential. It was also agreed that the findings would be shown to the environment before publication. Upon arrival and before the field study began, participants were informed about this agreement and about the objectives of the study, and that they had a right to drop out at any time.

Interviewees were selected on the basis of informal talks and advice from people inside and outside the environment. Interviews were conducted with two elite athletes, three prospective elite athletes, the national team coach and the federation's elite manager. The interviews took place in a quiet part of the beach, in the yacht club coffee shop or in the athletes' apartments, and lasted between an hour and 90 min.

Participant observation was carried out during one intensive training camp abroad, one international competition, two training sessions "at home", at meetings of athletes, coach and training partners, and at one educational seminar. Altogether these observations covered about 300 h of intense team practice spread over six months, the main part of which consisted of the principal researcher observing a two-and-a-half-week training camp and competition abroad, during which he was given access to all activities, including training, competition, meetings, meals etc. During observations the researcher tried to assist the athletes and coach, helping to measure sails, organize equipment, move buoys and gauge wind direction. These practical activities laid the groundwork for productive informal conversations with the coach and athletes and also with coaches/sailors from other boat classes and parents.

Data treatment and interpretation

All interviews and observation material (notes and diary) were transcribed and coded, using a deductive–inductive approach. First, a node tree was built on the basis of the working models (deductive), but as new categories emerged, the node tree was expanded accordingly and the previously coded material was checked for signs of the new categories (inductive). The deductive part of the analysis primarily involved high-order themes, whereas the low-order themes and their content were inductively derived from the data. Next, interviews and observations were subjected to meaning condensation (Kvale, 1996), whereby the informants' statements were condensed into more precise formulations and a summary of each node was written.

Several steps were taken to establish trustworthiness. The interview guides were designed using open questions, to allow for the perspective of the interviewees to be clearly stated. The degree of specificity of the questions evolved from broad general questions to more specific ones. In the coding phase, inter-rater reliability (Kvale, 1996) was enhanced through a second researcher coding samples of interviews and through discussions of differences in codes. Finally, communicative validity was provided through a stakeholder check (Patton, 1990), where the results of the case study were presented to the participants. Major ideas were approved, and the discussions led to minor adjustments.

The working models served to guide the researchers' attention in the data collection phase. Using these results as a basis, we created empirical versions of the working models that capture the specific features of the environment under study.

Results

Description of the environment: the Danish national 49er sailing team

The major components, relations and structure of the environment are described below, followed by a presentation of the empirical version of the ATDE working model. For the sake of conciseness the term "athletic talent development environment" will be replaced by "environment", "athletes identified as having the potential to reach the highest level" by "prospects", "current elite athletes in the national team" by "elite athletes", "national team coach" by "coach" and "manager of the sailing federation elite section" by "manager". To keep focus on the environment, we refer to the position but not individual identity of the interviewees.

Micro-environment: athletic domain

The target group in this study comprises 8 prospects between 18 and 21 years old, belonging to the Danish sailing federation's talent

group. Having sailed from the age of seven or eight, these athletes are experienced sailors but are new (i.e., with one or two years' experience) to the 49er boat class.

Elite athletes

They are all in their late twenties and have been sailing 49ers for 5–10 years. They are attempting to reach world class, which entails a heavy training load comprising about 150–200 days travelling per year. In addition, most of them are university students and work periodically as coaches for younger athletes.

Elite athletes – prospects

The elite athletes form the spine of the environment, and the relationship between prospect and elite athletes is central to the environment. Year plans as well as daily activities are built around the elite athletes' needs and wishes. The process of development of the prospects is to a large degree dependent on them. The set of functions describing the elite athletes' interaction with the prospects comprise the latter's 'apprenticeship' and includes: showing them the best way to handle the equipment, showing them how manoeuvres are carried out and how rigging is handled, looking at and commenting on their technique and providing general guidance about life as an elite sailor. One elite athlete explained:

We show how we do things, taking sailing to a higher level and perfecting every detail. We are available as a knowledge bank. We are open and always find time, even when they ... ask us how we handle school, parents, girlfriends and finances. I do not consider it my responsibility to teach them, but I respect them and enjoy being helpful.

During interviews the prospects emphasized that the elite athletes serve as a reference group for them.

Coach – elite athletes – prospects

The coach has had his position for eight years and has obligations primarily towards the elite athletes. Because his job depends on a steady flow of athletes to the national team, the coach gives the prospects as much help as time permits. This further helps to establish a close relationship between the elite and the prospects. As one prospect said: "What the coach does is mainly create a connection between us and the elite athletes. Right now, they are the ones who can really teach us a lot."

Experts – elite athletes – prospects

Linked to the national team are experts in meteorology, physical training, sport psychology, nutrition and physiotherapy. The prospects are not granted direct access to these experts, but the elite athletes share their knowledge openly and thus provide an indirect link between the prospects and the experts.

Other sailing teams – elite athletes – prospects

Crews from other nations are opponents, but they are also sometimes used as training partners. During the field study, for example, the elite athletes formally co-operated with one elite German crew. Training was planned jointly, and knowledge and databases about equipment and adjustments were shared. Since crews very often consider other crews from their own country to be their fiercest rivals (both for funds and in terms of competition places), training communities with several boats from the same nation are a rare occurrence. Allowing prospects to join the training community is even rarer. Yet the group of elite Danish sailors insisted that the prospects should be invited to participate in meetings and form part of the training community along with the German elite crew.

Prospects – younger athletes

The prospects occasionally coach younger athletes (from outside the environment). They reported several motives for their coaching work: to earn money to finance their sailing; to learn by teaching others; to get to know other sailors and publicize the 49er class; fun; and personal growth through sharing knowledge.

Micro-environment: non-athletic domain

Prospects – families

Most of the prospects' families have a background in sport or in recreational sailing. Families provide emotional, tangible and financial support. In the early years this is most important in the form of financial and tangible support (such as transport or boat repair). By the time the athletes reach the 49er class, parental involvement is limited to emotional support and an acceptance of the athletes' dedication to their sport.

Prospects – peers

Because it takes up a vast amount of time and entails a heavy training programme, life as an elite sailor is difficult in terms of maintaining close friendships outside sport. The athletes therefore prioritize friendships within the world of sailing. One prospect commented on how these friends show more appreciation of their venture:

During a night on the town other athletes respect that we have to train the next morning and do not drink much. Non-athletes find it strange, and we have to explain all the time. You sort of lose some friends from school but you gain other friends from sport. It is a kind of choice.

Prospects – school

School education is part of life for all the athletes. It is seen as providing a necessary safeguard, since the sport itself offers opportunities to make a living only to a few, but it is also a rival to the sport in terms of time, a precious commodity. The athletes compensate for the way their time is restricted by being determined, focused and structured in the way they manage school. The fact that they travel extensively makes it difficult to take part in study groups, which are a typical feature of the Danish school system. Because they are sometimes involved by post and by phone instead of taking part physically at meetings and discussions, the athletes often feel marginalized.

Macro-environment and related contexts

The environment – the sailing federation

The federation is a cohesive force in the overall sailing environment. It creates centres of excellence, deals with sponsorship and strengthens relations with the broader sailing community. It also plays a key role in the prospects' macro-environment, helping them plan their athletic career (e.g., helping them decide which boat types to sail and in which competitions to participate) and their education, organizing their training and selections for the talent group and the national team. It also provides indirect financial support, for example by lending cars to enable athletes to attend a competition or by selling on second-hand equipment at an affordable price. The coach explained how the policy on financial support is constructed to promote the athletes' learning as follows:

If the young athletes come down here [Mallorca], we will support them. If they come to take part in the training with the elite athletes during weekends in Denmark, we will support that too. But if they decide to take part in the world championships

in Cascais [Portugal], we will not support that. It is very expensive, and they will get a beating. Similar defeats can be experienced much cheaper elsewhere.

The prospects express a wish for more support from the federation, such as increased coaching and more expert resources, as well as more clarity in the selection criteria for the national team.

Prospects – federation – family

In this environment close parental involvement is appreciated neither by the athletes nor by the coach. Because he wants the athletes to be self-reliant, the coach is on guard against excessive parental involvement: “Family is important. But we have lost many great sailors because of the wrong kind of support from home. ... There are many ambitious parents in sailing, and there is a tendency for their kids to drop out.”

The coach also admitted that he occasionally drew on the skills of parents who are themselves former elite sailors, inviting them on the water or even letting them take a training session. But as a general rule, parents are not invited to competitions and are usually asked not to interfere. The manager explained:

If we have to have a dialogue with a sailor's parents, it is our view that the sailor is not mature enough for the national team. The sailor has to be able to take responsibility for himself. We cannot have a parent interfering. If that happens, either the sailor or the parent is simply not mature enough. Our motto is: “Mature athletes require mature parents”.

The environment – the educational system

Every student in a higher education in Denmark is eligible for a state education grant. Since the athletes are unable to sustain a living through sailing, the grant represents an important form of financial support and provides a basic living, allowing the federation and athletes to focus specifically on sport-related costs. The coach advises the athletes to choose a higher education course with a high degree of flexibility and a low amount of compulsory attendance. When they have specific requests or problems relating to school issues, the athletes contact the federation. The federation then addresses these to the Danish national elite sports association (Team Denmark), which is in continuous dialogues with athletes' schools. One prospect explained: “My school does not back me up directly. But they support me by not questioning my absence, as long as I document it through Team Denmark.”

The environment – mass media

The environment works in a structured way to make sure that the mass media become a resource rather than a barrier in the talent development process. This work consists of helping the prospects create stories of interest to the media, assisting them during interviews and gradually getting them used to media attention.

Context created by Danish national culture and by sailing culture

During the interviews culture was talked about only when it was specifically mentioned in a question from the researcher. However, Danish national culture and the culture of sailing were considered influential. It is part of Danish national culture that the interests of the individual outweigh those of the state, and there is a focus on personal development and goals. At the same time modesty is a virtue, and there is a marked dislike of people claiming or wanting to be the best, which is clearly formulated in the “Jante law”, which can be summarized as “Do not think you are better than us” (Sandemose, 1933). One elite athlete commented: “In Denmark being elitist, setting high goals and saying out loud ‘I want to be the best’ is not appreciated. If it was more commonly accepted, I think it would be easier to prioritize elite sport.”

The athletes and coaches viewed their team culture as being influenced much more by the specific culture of sailing than by the general sporting culture. Sailing is seen as a gentleman's sport, mainly involving the wealthy (thus reducing financial concerns among the athletes), and the culture of sailing is seen as hierarchical; sailors are also seen as spontaneous rather than as planning in advance. It is explicitly recommended not to specialize too early but rather to try out many different types of boat before embarking on an Olympic campaign. Sailors typically reach their peak in the late twenties and are able to compete internationally until late in life.

The environment in the time-frame

The above snapshot of the environment at the time of the field study must be understood in the perspective of past traditions and perceived future challenges. Both the coach and the manager reported a feeling of being trapped between the undoubted success of the past and the necessity to make changes in anticipation of future challenges. The traditional image of a sailor in Denmark is of an autonomous athlete, who has to be able to cope with matters such as boat repairs, weather conditions, training, finances and transport. Only when he has proved his worth will he receive financial support, and even then the guidance he receives is limited. The sport is becoming increasingly professionalized. Foreign talent programmes are seen as increasingly structured and focused on every detail, and better financially supported. The main challenge for the future is thus to find a proper balance between autonomy and professionalism, spontaneity and structure.

From the ATDE model to the empirical model of the Danish 49er sailing environment

Fig. 3 presents the empirical model of the Danish 49er sailing team. Bearing in mind that all the components of the environment are interconnected and affect one another, the empirical model depicts the most important components and relations as well as the structure of the environment. At the centre of the model is the relation between elite and prospects. The elite athletes are the main knowledge-providers for the prospects, and the coach works

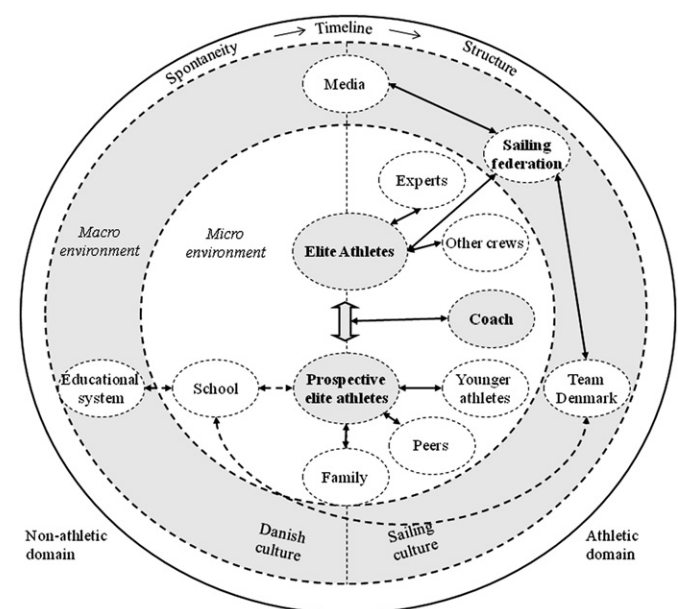


Fig. 3. The athletic talent development environment (ATDE) empirical model of the Danish 49er sailing team.

mainly on facilitating this central relationship in the environment. The prospects are highly dependent on the elite athletes, but in their relations to younger athletes they are accustomed to a more independent role. The environment's structure is skewed towards the athletic domain. The only component in the non-athletic domain to which any importance is attributed is school. On the macro-level, acting as a cohesive force in the environment, the sailing federation plays a key role. It organizes team selection, financial support and important relationships with the media, and it engages in a continuous dialogue with Team Denmark about school issues and backs up the efforts of the athletes and coach to minimize parental interference. The time-frame depicts a move away from the spontaneous nature of talent development, with the autonomous athlete as a key value, towards greater structure and professionalization in the talent development process.

Factors influencing the success of the environment

These factors are analysed following the logic of the ESF working model.

Preconditions

Sailing 49er is an expensive sport and in general, the Danish sailors suffer from a lack of resources in comparison with their peers from other nations, some of whom are full-time professional sailors. The federation partially supports the elite athletes but is only able to offer marginal assistance to the prospects. In a virtual environment such as this, material resources include cars and boats used by coaches. Coaching resources are also limited. On the other hand, this lack of material resources is to some extent compensated for by the extra focus that coach and athletes place on organizational culture and teamwork. This compensatory strategy involves competent competition at every training session, collective analysis of ways to improve manoeuvres and a common database on equipment and how it behaves in specific weather conditions. The coach explained: "All the other nations have more money. But we have something else. We win by working together, by all the time helping each other and also pushing each other hard."

Process

This refers to daily life in the environment, with several subcategories: training, competitions, meetings, social events, living on the beach and learning.

Training. Training takes place in two different settings: daily training at home, and camps abroad. At home the prospects train 2–4 times a week during the afternoons and on weekends, and training is co-ordinated with school. While the elite athletes are abroad, the prospects keep their boats in their own club. When the elite athletes are training at home the prospects keep their boats at the site where the elite athletes train. This often means they can only train during weekends. One prospect commented:

All the national team boats have a base in the same town. ... There are not many places in the world with such a concentration of world-class crews as there. ... I would certainly gain more from training two days with the national team than from training seven days on my own.

During training camps before international competitions the athletes focus solely on sailing. They train twice a day and spend 3–5 h repairing and maintaining boats. The prospects take part in these camps as often as their finances allow.

The coach is seen as a facilitator of learning and development. He provides space for athletes' own initiative and independent

training. He asks questions rather than providing answers. When interviewed, the coach explained his role thus:

There must be reflection and exchange of experiences in the group. I will never be able to reach the level of detailed knowledge necessary to teach a young crew how to sail perfectly ... I have never sailed a 49er myself. There are many things I do not know. But I am an extra set of eyes watching them sail. How they train, how they perform within a number of parameters. I tell them what I see, and we have a conversation about it. I see it as co-operation between the crew and myself.

During training, for both elite and prospects, the focus is on performance process rather than results. The coach explained: "In training, finishing first is not important. If we are practising our technical handling of the boat at the start of a race, it is unimportant who finishes first, as long as they got a perfect start."

Competitions. Gaining experience with high-level international competitions is seen as an important part of the talent development process. As an elite athlete explained: "The investment represented by sending talented young sailors to important international competitions with good support is invaluable". With no age-group competitions and using old equipment, defeat is inevitable for the prospects. This supports their orientation towards long-term development, focusing on performance process rather than results.

Meetings. During camps, group meetings are held at least twice a day. Morning meetings are used to plan the day's training, taking into account weather conditions and the wishes of the elite crews. Evening meetings are aimed at: (a) optimizing performance through studying photographs and videos of the day's training and discussing specific manoeuvres and indicators of a change in the wind; (b) discussing organizational questions, such as the distribution of resources and selection criteria for international competitions; (c) socializing (e.g., planning dinner, making jokes). The prospects are always welcome at the meetings, but they are never formally invited. They have to ask when and where the meetings are held. Although the prospects sometimes find this tradition difficult, they accept it. As one of them commented: "You are there on your own initiative. Developing your talent is your own responsibility. No one invites you or holds your hand. You have to kick the door in, and that is how it should be."

Living on the beach. This emerged from the data as an important sub-category to the daily process. The athletes spend many hours on the beach or in the harbour repairing equipment, polishing boats, measuring sails, drinking coffee and telling stories. The prospects watch the elite athletes, ask many questions and are shown important details about the boats.

Learning. During the interviews the athletes and the coach placed great stress on learning and elaborated enthusiastically on the subject. We can sum up their ideas in the following sentences: a) the coach has no monopoly on knowledge, and all the athletes can contribute to discussions and thereby stimulate learning; b) teaching others forces the athletes to put into words their own tacit knowledge and thus provides an important opportunity to reflect and learn; c) learning is most efficient in communities in which there are no secrets, since everybody improves when knowledge is shared; d) there are no final answers, and what works for one crew may not work for another; and e) a diverse set of experiences with different boats and roles provides a good basis for development and for elite performance.

Organizational culture

Artefacts. During the initial observations of the ATDE under study, what stood out immediately were a marked informality, a high degree of interaction between the athletes, a continual drive for perfection in every detail, and verbal artefacts as dominating the environment.

Many anecdotes are told every day, mostly by the elite athletes. These stories seldom highlight sports results; rather, they are about experiences of the world, humorous incidents, lessons learned, difficulties faced and mutual support. Another artefact is the sponsored sailing clothes always worn by the elite athletes, which mark them out as members of the national team.

Espoused values. Key values expressed by the participants in the environment include working together as a group, helping each other and having fun while aiming at top-level performance. The athletes often referred to “the Danish model”, which one elite athlete explained as follows: “Every country wants to be the best. At the same time their athletes compete among themselves. We are the only nation that has chosen to solve this dilemma by working together. And I am damned proud of that.” The coach highlighted the fact that this approach has characterized the group from the outset: “It is like a tradition that you are willing to pass on your knowledge. What you are given, you give back to the next generation.”

Basic assumptions. The group is characterized by a cultural paradigm consisting of six interconnected basic assumptions. The first assumption is that *the individual athlete must take responsibility for his own excellence*. The prospects are instructed to organize their own travel arrangements and to find out for themselves the time and place of team meetings. Autonomy is considered a key attribute of a prospective winner in sailing, as was shown clearly one afternoon in the yacht club (from observation material):

While having a cup of coffee, a group of Danish sailors discussed the dismissal of the American coach of a Danish elite boat (not a 49er). The sailors agreed that, with him as a coach, the crew had performed well. But rather than teaching the crew to analyse and make decisions, the coach had told them exactly how to do things. An elite sailor from a different type of boat commented: ‘That way they will never learn how to handle things for themselves and make their own decisions on the water. Weather conditions change all the time. A coach like that can push them a bit of the way, but he will never be able to take them all the way to the top.’ The other athletes agreed.

The second assumption is that *a strong team is a precondition for the elite performance of its members*, which explains why the group is so tight and why foreign partners as well as the prospects are allowed to take part in training, and additionally explains why the elite athletes take the time to help the prospects, just as they had been taught by the national team athletes that went before them. The third assumption relates to the organization of the group and states that *the elite athletes have priority but also have a duty to help younger athletes*. The coach clearly prioritizes elite athletes, but although the interests of the prospects are subordinated to the interests of the elite group, prospects are welcomed and helped in training. The fourth assumption is that *you can always improve* or strive for perfection, even though perfection itself can never be reached. This idea is closely connected to the fifth assumption, which states that top results are achieved through a focus on performance process and development rather than on results. This is evident in the verbal artefacts and daily training for prospect and elite athletes alike. As a fundamental governing principle, openness and co-operation are at the core of the team's cultural paradigm, a fact reflected in the sixth assumption: *through open sharing of*

knowledge and co-operation, everybody improves. The coach explained how learning is promoted in the whole group through open sharing of knowledge:

We always put our cards on the table, even with foreign partners. I have always had the idea that, if we train for a period with one other crew, we will give them something that makes them better. But we will also receive something back and improve. If we then do the same with another crew, then we will learn something from them. So it's all about keeping close relations to the international environment and being open.

The organizational culture of the 49er group is characterized by a high degree of coherence between its different levels. Artefacts, espoused values expressed by the participants and basic assumptions, derived from analysis of actual behaviour, are highly consistent, allowing the culture to be an effective stabilizing force in the environment.

Process – culture – outcomes

According to the ESF working model, preconditions and process work through the organizational culture to produce outcomes such as individual/team development and achievements and the success of the environment.

In the talent development process within the environment, the athletic achievements of the prospects are considered less important than working on the athletic skills and psycho-social competencies that underpin long-term athletic development. Analysis of data revealed autonomy and responsibility, a drive for excellence, resilience, social and communications skills, and the courage to focus on elite sailing despite the financial and social costs as the most important aspects of individual development, supported by membership of the 49er sailing environment. The coach reflected that they developed a versatile profile:

I think they learn that, if they are not organized and ambitious, they have no business here ... Simultaneously receiving an education and going for an elite sports career, they learn to prioritize their time. They have to be good at finding sponsorships, handling their career, handling logistics, transportation of boats, buying the right equipment, selecting the right crews to train with and so on. I think this environment makes them autonomous.

The empirical model explaining the Danish 49er sailing environment's success

Fig. 4 presents the empirical version of the ESF model, summarizing the most important factors influencing the success of the Danish 49er sailing environment as a context for helping talented young athletes to develop their potential. Bearing in mind the complexity of the talent development process, certain key elements in each category have been selected for the model, which thus serves as a summary of the case.

On the principle that a deficiency prompts a compensating strength, the lack of resources leads to an increased focus on organizational culture. In the 49er sailing environment the process (daily routine) is organized so as to optimize learning and is heavily connected to its culture. This strong culture – with openness and co-operation in a hierarchical team, focus on performance process, responsibility for one's own excellence and a determination to improve as central elements – permeates the daily routine (training, competition, meetings, social events, living on the beach and learning) and has a major influence on individual members' development of psycho-social competencies such as autonomy, responsibility, drive for excellence, resilience and social skills. These competencies, along with the organizational culture, provide the groundwork for the environment's success.

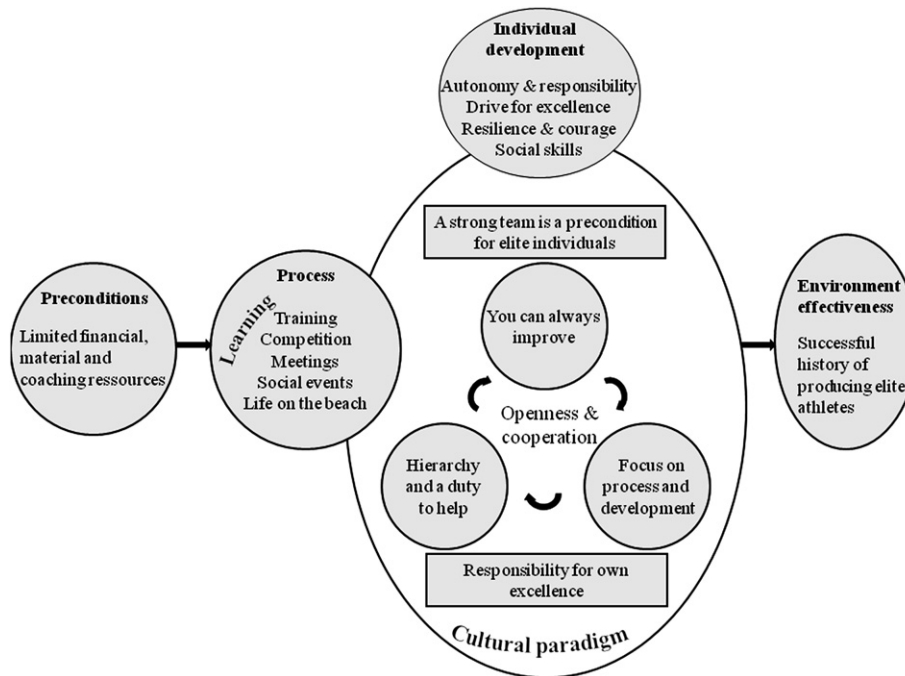


Fig. 4. The environment success factors (ESF) empirical model of the Danish 49er sailing team.

Discussion and conclusion

Holistic ecological perspective in athletic talent development

The ecological perspective in research into athletic talent development shifts the researchers' focus away from talented athletes and on to the environment in which they develop. The ATDE is considered holistically – that is, as consisting of micro- and macro-levels, athletic and non-athletic domains and the given time-frame (past, present and future). This environment has a sports club/team as a core, but it also goes beyond the athletes' direct interaction within the club/team. The perspective also outlines a set of factors, such as preconditions, process, individual/team development and achievements, and organizational culture, that come together to create the ATDE's effectiveness or success in developing talented young athletes and helping them to make a successful transition to the senior elite level in their sport. Two working models – the ATDE model and the ESF model – represent the holistic ecological perspective in talent development and complement each other in such a manner that the former provides a framework to describe the environment and the latter helps to summarize factors influencing its effectiveness. Both models were tested in this case study of the Danish national 49er sailing team, and their implementation resulted in two empirical models reflecting the unique characteristics of the environment.

In the first empirical model, describing the Danish 49er sailing team (see Fig. 3), the relation between elite and prospects is emphasized as the centre of the environment on its micro-level. On the macro-level the sailing federation appeared as the most influential component. As depicted in Fig. 3, the environment is biased towards the athletic domain, with the prospects spending a lot of time and energy in sport, having friends mainly in sport and considering school as a necessary but inconvenient part of their lives. Participants reflected on the impact of Danish national culture (e.g., the Jante law) and especially of the culture of the sport of sailing on their environment. From the perspective of the time-frame it appeared that the environment has traditions (e.g., autonomous

athletes, openness and co-operation) that are passed on to the new members over more than a decade, but in the ever-changing world of sailing, in order to maintain its stability and success, continuous efforts, for example towards greater professionalization and structure in the talent development process, are required.

The second empirical model, summarizing the factors behind the 49er sailing environment's effectiveness (see Fig. 4), emphasizes the organizational culture as a key element in its success. Owing to a lack of preconditions (e.g., financial and coaching resources), there has been an increased focus on building and maintaining the organizational culture that underpins the athletic and personal development of each member. Such culture pervades every aspect of the environment's life, including how the members relate to the lack of natural advantages, and what happens in training and at competitions and meetings. The culture comprises artefacts, values and basic assumptions, which all revolve around the group of elite athletes openly sharing their knowledge and the idea of individual responsibility for one's own excellence. What may seem a dilemma between, on the one hand, autonomy and, on the other, a strong dependency on the group seems to dissolve. Autonomy and responsibility for one's own excellence are expressed in the way the athletes handle logistics, training plans and have proactively to seek the help they need. Dependency on the group manifests itself in the learning process, where access to meetings and training allows the prospects to learn from the elite athletes.

To sum up, the Danish national 49er sailing environment appeared to be: (a) virtual, but relatively stable and cohesive; (b) skewed towards the athletic domain but supporting athletes in their education and coaching work; (c) hierarchical but open and sharing in all systems of sport-related and non-sport-related communication; (d) demanding but supportive, and providing enough 'personal space' and freedom for the prospects; (e) limiting parental involvement and encouraging athletes to be autonomous but also stimulating them to develop psycho-social skills in order to access the knowledge they need for their development; (f) having limited resources but a high level of effectiveness/success in talent

development, owing mainly to the way the organizational culture emphasizes openness and co-operation, autonomy and self-responsibility among the athletes, and continuous development rather than early success; (g) conscious of its current success in talent development but also of the need in the future for greater professionalization and structure at every level.

The study supports the findings of contemporary literature on the importance of context in talent and career development and transitions. For example, the study reinforces the developmental model of transitions faced by athletes (Wylleman & Lavalley, 2004) through demonstrating the importance of considering athletes not only in the sport context but also in the contexts of their psychological, psycho-social and academic/vocational development. More specifically, this study confirms research findings on the transition from junior to senior sports, which demonstrated that athletes making this transition face demands covering various spheres of their lives, such as sport, studies, work and relationships (Stambulova, 2007, 2009). Sailors make this transition at a relatively late age (around age 20), so the limited amount of parental involvement and the athletes' own responsibility for their development, both typical of the 49er sailing team, are well justified.

The focus on sport and the bias of the 49er sailing environment towards the athletic domain could stimulate prospective elite athletes to create a high athletic identity for themselves and thus put them at risk of jeopardizing a successful transition out of elite sports (e.g., Petitpas, Brewer, & Van Raalte, 2002). Therefore it is important that sailors belonging to this environment manage to combine sport with education and coaching jobs, which makes the natural bias within the structure of the environment less problematic.

The findings of this study are also of relevance to the debates about sampling versus specialization and deliberate play versus deliberate practice (Côté et al., 2003, 2007; Ericsson et al., 1993). In the 49er sailing environment, where the prospects are engaged in serious training and invest the majority of their time and energy in the sport, deliberate play activities are still evident in the process. Mountain biking, surfing and sailing different types of boats are activities performed by current and prospective elite athletes alike and are undertaken not only for their training value but also because they are stimulating and fun. In a sense, the athletes in the study all specialized early (from the age of seven or eight). Yet, within the sport of sailing, they had all sampled different boat types for a long period, before specializing in the 49er as late as the age of 20. The athletes typically had competed in between four and six different classes during their athletic career before entering the 49er class. This type of sampling could be termed 'intra-sport diversification' and supports the healthy trajectory towards elite performance (from sampling to specialization) outlined by the developmental model of sport participation (Côté et al., 2007).

Comparing this study with the previous research on talent development environments, several parallels can be made. Martindale et al. (2007) presented five principles outlined by coaches for the successful talent development environment. Three of these – the need for coherent communication and support, integration of efforts, and emphasis on appropriate development rather than early success – are supported by this study. The completeness and coherence of the Danish 49er sailing environment were particularly evident in the high degree of coherence between the team's espoused values (what the participants say they do) and their enacted values (what they actually do, based on their basic assumptions).

Methodological reflections

We selected the qualitative case-study design to investigate "a real-life phenomenon within its real-life context" (Yin, 1989, p. 23). This approach has appeared adequate to provide an insight into the

actual existence of the environment. Whereas most of the research conducted on psychological aspects of athletic talent development has been retrospective in nature (see Durand-Bush & Salmela, 2001, for review), and thus subject to recall bias (Cohen, 1999), this study looked at the real-time functioning of the environment. Interviews, observation of the participants and analysis of documents complemented each other in mapping not only the current status of the environment but also its history and perceived future challenges. The two working models ensured a holistic view of the environment, and the empirical models appeared to complement each other in illustrating the unique features of the environment.

Two limitations of the study are worth mentioning. First, it is difficult to prove the uniqueness of the environment, since it is not possible to compare it with other environments studied using the same approach. Second, the qualitative methodology used in this study did not allow us to establish a rigorous causal relationship in terms of factors influencing the environment's success. Creating the related empirical model, we relied mainly on the causal relationships emphasized by the participants as well as on our interpretations of observational data and the documents analysed.

Future research

The description of one successful ATDE naturally points to the value of studying further environments based on the holistic ecological perspective. As mentioned earlier, this study is a part of the larger project examining three successful ATDEs in Scandinavia. This project may create a basis for further research, including, for example, a comparison of ATDEs representing different sports (both individual and team sports) within the same socio-cultural context or a comparison of ATDEs representing the same sport but in different countries, and investigations of ATDEs in which both genders are represented. We state in this paper that each ATDE is unique, but we also think that studying a number of ATDEs will hopefully allow researchers to establish some common features among environments that are successful in their work in the area of talent development.

Applications

The holistic ecological approach taken in this study has important practical implications. First, this approach may inspire practitioners to look beyond the quantity and quality of training, and to think instead about the larger environment in their efforts to help talented junior athletes make a successful transition to elite senior level. Second, although each ATDE is unique, investigating successful ATDEs may provide inspiration for those involved in creating such environments in other settings. Third, and in relation to the specific environment under study, a presentation of the research findings may inspire members of the environment to further improvement. In the 49er case, the principal researcher presented the results to the coach and sailors, which led to several new initiatives on the part of the environment, designed to improve their practice. The participants commented on the value of feedback from an outsider to help identify 'blind spots' and optimize the environment.

Conclusion

A holistic ecological perspective on talent development highlights the central role of the overall environment as it affects a prospective elite athlete and mirrors the complexity of talent development in the real world. Young talented athletes are imbedded into their ATDEs, a fact that must be taken into consideration if we are to understand the complex nature of talent

development in sport. The implementation of a holistic ecological approach is a promising way to address the central challenges presented by the recruitment, retention and promotion of athletes in a modern society, and it is hoped that the study of successful environments will allow us to make recommendations as to how to create environments that nurture sporting talent.

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