

PhD Dissertation

*THE ECOLOGY OF TALENT
DEVELOPMENT IN SPORT*



Kristoffer Henriksen



UNIVERSITY OF SOUTHERN DENMARK

Institute of Sports Science and Clinical Biomechanics
Faculty of Health Sciences

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PhD thesis

THE ECOLOGY OF TALENT DEVELOPMENT IN SPORT: A MULTIPLE CASE STUDY OF SUCCESSFUL ATHLETIC TALENT DEVELOPMENT ENVIRONMENTS IN SCANDINAVIA

Kristoffer Henriksen

Supervisors:

Kirsten Kaya Roessler, Associate Professor, PhD, Institute of Sports Science and Clinical Biomechanics, University of Southern Denmark

Natalia Stambulova, Professor, PhD, School of Social and Health Sciences, Halmstad University

Opponents:

David Lavalley, Department of Sport and Exercise Science, Aberystwyth University

Anne-Marie Elbe, Department of Exercise and Sport Sciences, **University of Copenhagen**

Ask Elklit, **The Danish Research Unit of Psychological Trauma, University of Southern Denmark**

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Institute of Sports Science and Clinical Biomechanics

Faculty of Health Sciences

University of Southern Denmark

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PhD Thesis

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A Multiple Case Study of Successful Athletic Talent
Development Environments in Scandinavia

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FOREWORD

The urge to embark on this dissertation project can be traced to my experiences as an applied sports psychology consultant. In my work with a number of elite level athletes, I often found myself talking to the athletes not only about the thoughts and feelings related to their inner worlds but also about their family, their friends, their school and their job, about the way all these factors come together in their daily environment. I remember specifically a young girl – a soccer player – who had enormous potential, and who left her local club to join a bigger and more prestigious one. Her soccer career was on a roll, but everything else suffered. All her time was consumed by training and transport, and she felt she was falling behind in school. She felt she had let her old friends and teammates down and no longer felt comfortable asking them to play a friendly game of backyard soccer. And she felt an enormous pressure to succeed. In sum, she felt alienated in her own environment. When she came to me, she was in tears and close to giving up soccer altogether. Only through an intervention that involved the coaches both of the new and the old club as well as her parents – and that ended with her training in both clubs – did we manage to create an environment in which she could once more feel at home. In the end she managed to hold on to her love of soccer and continued to play.

During the last decade in Denmark a number of initiatives have been taken to promote talent development in sport, such as collaborations between schools and clubs and elite sport boarding schools. The managers involved in these projects have been desperately calling for guidelines to create successful talent development environments. Through my own former work at a sport boarding school, ‘Oure International College of Sport and Performance’, I witnessed at firsthand how the school environment in some cases was a resource for the athletic development of student-athletes, whereas in others it was a barrier.

All these experiences stimulated me to formulate an initial research question: What characterizes successful talent development environments in sport, and how can we make sure an environment supports the athlete’s development?

The present thesis is written in the form of a monograph. The decision to write a monograph, in contrast to a ‘collection of scientific publications’, was determined mainly by the nature of the research project. As will be evident in the text, the holistic ecological framework dictates a coherent presentation of the multiple case results and of the framework as ‘a whole’. I believe

that presenting this material in the form of a coherent monograph text is best suited to my project. However, during the course of the project the following two research articles were submitted and accepted for publication in international peer review journals:

- Henriksen, K., Stambulova, N., & Roessler, K. K. (2010). A Holistic approach to athletic talent development environments: A successful sailing milieu. *Psychology of Sport and Exercise, 11*, 212-222
- Henriksen, K., Stambulova, N., & Roessler, K. K. (in press). Successful talent development in track and field: Considering the role of environment. *Scandinavian Journal of Medicine & Science in Sports*

In the present volume the first two chapters are introductory. The first introduces the overall research tradition in the field of talent development in sport, while the second presents the framework of the study. The third chapter outlines the method used in the study. Chapters four, five and six present the results in the form of case presentations of the three athletic talent development environments included in the study. Chapters seven and eight are the equivalent of a discussion. The photographs used in the thesis were taken by me during observations of daily life in all three environments and are printed with the permission of the participants.

The framework and results of this dissertation project have been presented at a number of international research conferences within the areas of sport and exercise psychology and sport sciences. These include the 12th European Congress of Sport Psychology (2007) in Greece, the Nordic Conference (2008) in Halmstad, Sweden, and the 12th World Congress of Sport Psychology (2009) in Morocco.

Just as there is an ecology of talent development, so there is an ‘ecology’ of writing a PhD. Regarding athletes in isolation from their context is a narrow outlook that fails to do justice to the various environments within which they function. In the same way writing a PhD involves a supportive environment comprising many people. While working on the research project, I have been lucky enough to be included in a number of environments that have encouraged and supported me in the development of my ideas. These environments are the Institute of Sports Science and Clinical Biomechanics at the University of Southern Denmark, School of Social and Health Sciences at the University of Halmstad, the Danish Forum for Sport

Psychology, and Team Denmark, where I am part of the sport psychology team. I owe my thanks to many able and helpful colleagues from these environments.

I also wish to thank all the people involved in the three athletic talent development environments that are part of the study: the Danish 49er sailing team, IFK Växjö in Sweden and Wang's kayak team in Norway. Your hospitality has made my research a real pleasure.

Special thanks go to my two Supervisors. Thank you, Dr. Kaya Roessler, for having an eye on me as a whole person. Thank you, Professor Natalia Stambulova, for your endless dedication to the project, for inspiring me to aspire to go beyond where I thought I could go, and for teaching me the trade – you are my role model.

I also wish to thank John Mason both for proof-reading my texts and for improving my ability to write in English, Thomas Bredahl for helping me with the coding of data, Dr. Urban Johnson for helping me get in contact with IFK Växjö, and Maren Clausen, Fredrik Weibull and Eirunn Thun for transcribing the interviews. Finally to my wife and three children – for simply being you.

The project has been funded by the Collaboration for Regional Growth on Fyn¹ and Sport Study Sydfyn². Ole Hjorth and Carsten Petersen from Oure International College of Sport and Performance and Gitte Minor and Jannie Kaae from Sport Study Sydfyn have been particularly active in helping to promote funding and have maintained a keen interest in the project along the way. Thank you for that.

February, 2010

Kristoffer Henriksen

¹ The collaboration for regional growth on Funen ('det regionale vækstsamarbejde på Fyn') consists of the Danish Enterprise and Construction Authority, the Region of Southern Denmark, and the municipalities of Svendborg, Odense, Faaborg-Midtfyn, Langeland and Ærø.

² A Syndicate of sport clubs, schools and business communities on southern Funen that aims to create synergetic effects between research, practice and education in the local area.

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English summary of the thesis

Contemporary research on psychological aspects of talent development has tended to focus on individual athletes and their micro-environment. This thesis introduces a holistic ecological approach to talent development, which 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. This approach facilitates our understanding of the central challenges involved in talent development in modern societies, where there are growing problems with the recruitment, retention and transitions of athletes in sport.

The holistic ecological approach to talent development is built on central tenets of systems theory, ecological psychology and cultural and cross-cultural psychology. The athletic talent development environment (ATDE) is considered holistically – that is, as consisting of micro- and macro-levels, athletic and non-athletic domains, and a set of factors, which come together to create the ATDE's effectiveness, such as preconditions, process, individual development, and organizational culture. Two working models – the ATDE model and the ESF model – represent the framework 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

Beyond defining an ATDE and developing the frameworks to study ATDE's, the objectives of the study include identifying common and unique features of successful ATDEs and providing applied guidelines for those involved in creating such environments.

To test the holistic ecological approach to examining ATDE's a multi-case study was designed to examine three environments in different sports and different Scandinavian countries, each with a history of successfully producing top-level senior athletes from among its juniors. Principal methods of data collection included interviews, participant observations of daily life in the environment and analysis of data available in the environments.

Using the results as a basis, empirical versions of the working models were created that captured the specific features of each environment under study. Results revealed that each environment was unique, but also that the environments shared a number of features. The major features shared by the environments emerging from the cross-case analysis were as follows: their organization in training groups with proximal role models; the integral quality of the environments' efforts; environments weighted towards sport; limitations in resources leading to compensation elsewhere; training that allowed for diversification; support for the development of psychosocial skills and competences for life; a strong and integrated group culture; and finally the environments' embeddedness in cultural and temporal contexts

The description of three successful ATDE's naturally points to the value of studying further environments based on the holistic ecological perspective. A study of environments from different contextual settings (e.g. outside Scandinavia), different sports (e.g. team sports) different age groups (e.g. younger athletes or senior elite athletes) and of less successful environments would have the particular potential to further develop the framework. Finally, designing ecological intervention studies is a clear challenge for the future.

With regard to applied perspectives, the holistic ecological 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 the elite senior level. 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.

Dansk resumé af afhandlingen

Tidens forskning i psykologiske aspekter af talentudvikling har som tendens fokuseret på den individuelle udøver og i enkelte tilfælde på hans eller hendes mikro-miljø. Denne afhandling introducerer en økologisk og holistisk tilgang til talentudvikling, der sætter miljøet i centrum, således som det påvirker den talentfulde udøver. Denne tilgang afspejler virkelighedens kompleksitet og kan bidrage til vores forståelse af centrale udfordringer indenfor talentudvikling, i en tid hvor sporten oplever stigende problemer med at rekruttere, fastholde og udvikle udøvere.

Den holistisk økologiske tilgang til talentudvikling har sit teoretiske fundament i systemisk, økologisk og kultur- psykologi. Talentudviklingsmiljøet betragtes i sin helhed og indeholder både et mikro- og et makro-niveau, såvel som miljøet i og udenfor sporten. Tilgangen udpeger endvidere en række faktorer – miljøets forudsætninger, daglige rutiner og organisationskultur samt udøvernes udvikling – der tilsammen lægger fundamentet for miljøets succes. Tilgangen er i konkret form udmøntet i to arbejdsmodeller, ATDE og ESF modellen, der komplimenterer hinanden i den forstand, at den ene skaber fundament for at *beskrive* miljøet, mens den anden giver struktur til analysen af de faktorer, der kan *forklare* miljøets succes.

Afhandlingens formål er både at udvikle en teoretisk og metodisk ramme til at undersøge talentudviklingsmiljøer – inklusive definitioner, kriterier og arbejdsmodeller, at teste denne ramme, at identificere succesrige miljøers unikke og fælles træk, samt at udvikle retningslinjer, der kan anvendes til at skabe succesrige talentudviklingsmiljøer i sportens praksis.

Den empiriske del af afhandlingen består af et multi-case studie af tre talentudviklingsmiljøer i forskellige sportsgrene i henholdsvis Danmark, Sverige og Norge, der alle igennem flere år med succes har formået at udvikle eliteudøvere. Data blev indsamlet via interviews med unge talentfulde udøvere, eliteudøvere, trænere og ledere (multiple perspektiver), deltagerobservation i træning, konkurrence og udenfor sporten (flere kontekster) og analyse af dokumenter og hjemmesider.

Resultaterne præsenteres som case-beskrivelser og opsummeres for hver case i en empirisk og unik udgave af hver af de to arbejdsmodeller. Resultaterne viste, at hvert miljø var unikt, men også at de tre miljøer delte en række træk. De vigtige fællestræk var: miljøernes organisering i træningsgrupper med tætte relationer mellem talenter og elite; en stærk integration af hele miljøet; en skævvridning af miljøerne hvor sporten stod stærkest; begrænsning i økonomiske ressourcer der blev kompenseret for på andre fronter; træning med plads til at afprøve anden sport; at miljøerne understøttede udøverne i at udvikle kompetencer, der ikke bare er vigtige i sporten men også i andre dele af livet; en stærk organisatorisk kultur i gruppen; og at miljøerne var indlejret i en større kulturel og historisk ramme.

At sætte miljøet i centrum er en ny retning indenfor forskning i talentudvikling, og denne undersøgelse af tre succesrige miljøer peger naturligt på værdien af at studere flere miljøer. Særligt interessant ville det være at studere miljøer i andre kulturelle kontekster (i lande udenfor Skandinavien) i andre sportsgrene (f.eks. holdsport) og med udøvere i andre aldersgrupper (f.eks. etablerede eliteudøvere). Undersøgelser af mindre succesrige miljøer kan endvidere danne basis for interventionsstudier baseret på den holistisk økologiske tilgang.

I et anvendelsesorienteret øjemed, kan den holistisk økologiske tilgang inspirere sportens verden til at kigge udover den enkelte udøver i deres talentudviklings-initiativer og arbejde på at skabe miljøer, der understøtter udøvernes langsigtede udvikling. At skabe hele og gode miljøer er en bæredygtig vision, der potentielt kan skabe grobund for rekruttering, udvikling og fastholdelse af talentfulde sportsudøvere.

Chapter 1

Talent Development in Sport: Major Research Traditions and the Role of Environment

“You’ll never walk alone”. These words feature on the Shankly Gate entrance to the stadium of Liverpool Football Club and in its anthem invariably sung by its supporters moments before the start of each home game. Most likely the words are meant to support the players, letting them know that, whether they win or lose, the fans are behind them. You are part of the family now. I suggest here a more profound meaning. You never walk alone. Nothing you accomplish is accomplished alone. Like it or not, you are situated in an environment.

The world of elite sport presents increasing physical and mental challenges to athletes while making ever greater financial demands on sporting organizations. Sport systems capable of developing athletes to the highest international levels are likely to receive financial rewards and recognition. For these reasons, talent detection and development have become central challenges to all sport systems and have increasingly become the focus of researchers and practitioners (Abbott, Collins, Martindale & Sowerby, 2002).

In this thesis I will introduce a holistic ecological approach to talent development that 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 today’s societies, where there are growing problems with recruitment, retention and transition (Green, 2005; Petlichkoff, 1996). Some sporting environments (clubs or teams) are more successful than others in helping their talented young athletes to make a successful transition to the senior elite level. An investigation into such successful environments expands our understanding of talent development and will ultimately allow us to formulate recommendations as to how to create environments that nurture sporting talent.

In this chapter I present a summary of the current body of research within the area of talent development in sport. First I outline the evolution and current status of research in this area, progressing from a focus on the detection and identification of talent to the development of this talent. Second I present how the areas of talent development and career development in sport are linked. Third, I present research findings that highlight the role of environment in the nurturing of sporting talent. Final, I suggest working definitions of key concepts and present the objectives of the study.

The Evolution and Current Status of Talent Research in Sport Psychology

Although talent detection and development has been the subject of academic study for more than 50 years, (Tranckle, 2004) definitions have rarely been offered. In the literature ‘talent’ refers interchangeably to an athlete’s preconditions for success (i.e. innate potential) and to the outcome of the developmental process (i.e. athletic excellence during youth) (Gagne, 1985; Tranckle, 2004; Helsen, Van Winckel & Williams, 2005; Williams & Reilly, 2000b). Csikszentmihalyi (1993) stated that talent is simply a social construction, a label of approval which we place on traits and abilities that are found to be of value to the society in which we live.

The nature-nurture debate is central to a definition of athletic talent. Is a highly skilled athlete gifted by nature with innate talent or with a certain disposition to sporting performance? Or is exceptional performance a result of countless hours of high quality training? Research in the area of athletic talent has evolved away from a focus on the discovery of talent towards an emphasis on the development of that talent, though both approaches tend to focus on the individual athletes (see Durand-Bush & Salmela, 2001 for overview).

Talent Detection and Selection

The talent discovery approach is based on the notion that there is an innate reservoir of talent. Using an advanced assessment of the prerequisites for athletic excellence, sporting organizations are able to identify such talent and predict who is likely to excel (Gould, Dieffenbach & Moffett, 2002; Hohmann & Seidel, 2003; Holt & Dunn, 2004; Howe,

Davidson & Sloboda, 1998; Lidor, Côté & Hackfort, 2009). Howe, Davidson & Sloboda (1998) assign the following properties to the composition of innate talent.

(1) Talent originates in genetically transmitted structures and hence is at least partly innate. (2) Its full effects may not be evident at an early stage, but there will be some advance indications, allowing trained people to identify the presence of talent before exceptional levels of mature performance have been demonstrated. (3) These early indications of talent provide a basis for predicting who is likely to excel. (4) Only a minority is talented, for if all children were, there would be no way to predict or explain differential success. Finally, (5) talents are relatively domain-specific. (pp 399...)

This talent discovery approach advocates the systematic detection of talent as an essential part of elite sport programmes. Hohmann and Seidel (2003) point to the following advantages of systematic talent detection and selection: Improved motivation derived from recognition of a special talent; less likelihood of specialization in “the wrong sport”; and better financial support for truly talented athletes once those without the right preconditions have been eliminated, which all results in a more efficient use of resources.

It has been suggested that there should be a differentiation between talent as raw material and as end product (Gagne, 1985). The proposal involves employing the term “giftedness” to refer to innate potential, defined as untrained and spontaneously expressed natural abilities, and the term “talent” to refer to the superior mastery of systematically developed skills. In consequence of this distinction, and with an eye to soccer, Williams and Reilly (2000b) defined *talent detection* as the discovery of potential performers not yet involved in the sport, and *talent identification* as the recognition of current participants with the potential to become elite players. These definitions have the potential to clarify the field, but they have not been widely implemented within talent research in sport (Tranckle & Cushion, 2006).

Even though uni-dimensional research on talent detection does exist, the trend is to consider talent as a multidimensional and dynamic construct (e.g. Reilly, Williams, Nevill & Franks, 2000; Simonton, 1999). In a systematic review of the development of talent in sport, Durand-Bush & Salmela (2001) present a number of general models for the detection of sporting talent that were used primarily in the 1970’s to detect and select prospective elite athletes for specific training regimes. Mapping early indications that could potentially predict later success, the models all highlighted influences such as anthropometry (e.g. body size and

composition), physiology (e.g. muscle fibre composition) and fundamental motor skill, but varied in the relative importance they attributed to psychological factors.

It is beyond the scope of this thesis to further examine anthropometrical and physiological characteristics of potential future elite athletes, but a closer look at research into psychological aspects of talent selection is appropriate.

It has been suggested that psychological factors are of primary importance in determining whether an athlete reaches and stays at a high level (Gould et al., 2002). A number of reviews (Aidman & Schofield, 2004; Morris, 1995; in press; Vealey, 1992) dealing with personality in sport (personality referring to traits in the individual that are consistent across time and situations as well as distinct) identified more than 1500 studies on the subject. This body of research however suffers from a variety of methodological problems ranging from inappropriate sampling, lack of clear definitions of sports participation at the elite level, lack of theoretical basis, to the absence of measurement instruments specific to sport. Morris (in press) concludes that, although individual studies found significant features, this body of research has not been able to establish any common personality factors that reliably distinguish sporting participants from non-participants, participants in certain types of sports from participants in other types, or successful athletes from less successful ones.

Nevertheless, among training practitioners and researchers alike, the concept of a 'sport personality' remains an acknowledged influence on the developmental process of elite athletes (Vanden Auweele, Nys, Rzewnicki & Van Merle, 2001). Although conclusive evidence is lacking, successful athletes have often been characterized by traits such as emotional stability, high need for achievement and assertiveness (Vanden Auweele et al., 2001). Other researchers (e.g. Morris, in press) see promising directions for research into psychological variables that may predict sport success in such areas as mental toughness (Crust, 2008; Loehr, 1986; Jones, Hanton & Connaughton, 2007), hardiness (Golby & Sheard, 2004; Sheard, 2008), and the concept of adaptive perfectionism (Flett & Hewitt, 2005) or perfectionistic strivings vs. perfectionistic concerns (Stoeber, Otto, Pescheck, Becker & Stoll, 2007; Stoeber, Stoll, Pescheck & Otto, 2008). However, questions remain as to whether these variables are, in fact, *personality* traits (i.e. consistent and distinct). Concluding on the developmental trend of this research tradition, Durand-Bush & Salmela (2001) find that

Chapter 1: Talent Development in Sport

research regarding the influence of psychological variables on sports performance has evolved from a focus on *traits* towards a focus on *skills* and state:

Research has shown that elite athletes possess significantly higher levels of mental skills than do less elite athletes. The development and maintenance of psychological skills is obviously important for the evolution of talent. It is noteworthy that commitment and self-confidence have consistently been associated with high level performance. (p. 283)

Abbot and Collins (2004) reach the same conclusion and mention psychological skills such as goal setting, realistic performance evaluation, imagery and commitment as factors that may potentially distinguish between successful and less successful elite level athletes.

Since most research on the traits and skills of successful athletes has been conducted with current elite athletes and has been cross-sectional rather than longitudinal, it presupposes a natural link between being and becoming an elite athlete, which is at the very least questionable. Highlighting the need to distinguish between present performance on the one hand and the capacity to develop on the other, Abbot & Collins (2004) argue that the set of characteristics and skills that are predictive of elite performance are different to the set of characteristics and skills that are predictive of long-term development in young athletes. They assert that motivation and appropriate learning strategies (such as goal setting, planning, evaluation and self-regulation) are good indicators of the capacity to develop, and they continue:

This concept is formulated on the belief that talented individuals will only maximize their potential (innate capacities) when provided with appropriately stimulating developmental conditions (e.g., facilities, parental support, effective coaching) *and* when exhibiting high motivation and adopting effective learning strategies. (p. 399)

When it comes to the psychological characteristics of young prospective elite athletes, research is in short supply, although there are a few notable exceptions. A number of German studies have established that certain personality variables or traits that relate to an athlete's motivation and willpower are relevant to the identification of talented young athletes. For example, 'sport specific achievement motivation' seems to predict the future success of athletes in a German elite sport school (Elbe, Beckmann & Szymanski, 2003), and a high level of volitional personality factors makes athletes less likely to drop out (Elbe &

Beckmann, 2006; Elbe, Szymanski & Beckmann, 2005). This line of research also established that these factors are not entirely stable but subject to influence from the environment. For example, action orientation and volition seem to change over time and as a joint function of the athletes' experiences inside and outside their sport (Elbe, Beckmann & Szymanski, 2006; Elbe & Wikman, 2007).

Holt and Dunn (2004) presented a grounded theory study of the psychosocial competences of young talented soccer players on the verge of making a breakthrough into professional ranks. They identified important psychological determinants of successful development in soccer as a) discipline (compliance with institutional demands and external instruction and willingness to sacrifice time spent with family and friends), b) commitment (love of the game and determination to succeed supported by strategic planning), c) resilience (overcoming obstacles and bouncing back after adversity), and d) the ability to find and use social support.

To refine Holt & Dunn's original study, Holt & Mitchell (2006) examined sub-elite soccer players in a professional talent development system with the aim of identifying psychosocial characteristics of athletes on the verge of *not* making it into the professional ranks. The study found that these athletes lacked volitional behaviour, acceptance of delayed gratification, determination to succeed, strategic career planning, coping strategies and tangible support. This finding suggests that these psychosocial competences may be the most important predictors of future soccer success. Relating their findings to *hope theory* (Snyder, Ritschel, Rand & Berg, 2006; Snyder et al., 1991), Holt & Mitchell (2006) conclude that:

...high-hope players (players who use pathways and agency thinking to pursue their goals) who are resilient (able to rebound from setbacks) and receive high social support (serving emotional, informational and tangible functions) have a greater likelihood of soccer success than low hope, low resilience, low social support athletes.
(p. 94)

Problems and Limitations Regarding Talent Detection and Selection

Systematic attempts to select athletes based on identification of their special talent are subject to criticism for a number of reasons (e.g., Lidor et al., 2009). The overall problem is simply that talent is so complex a construct that it is not easily defined nor measured. As a consequence of the multidimensionality of athletic talent, some athletes who score low in

certain areas are able to compensate with high scores in other areas and reach the international elite level in spite of seemingly bad odds, as in the case of a short basketball player or a tall wrestler. This makes assessing the relevant areas in relation to each other a virtually impossible task (Durand-Bush & Salmela, 2001) and compounds the risk of selecting or de-selecting the wrong athletes.

In addition the fact that most selection models are built on investigations into current elite athletes also means they adopt a static view of the sport. The rapid development of international elite level sport suggests that it is questionable to assume that future demands to excel will match current ones. Below I will cite a couple of findings that show the problems inherent in a talent detection approach.

However we define 'talent', a number of factors unrelated to it seem to play a significant role in determining the likelihood that a young athlete will make a successful transition to elite sport. One such factor is age. The relative age effect (Helsen et al., 2005; Helsen, Hodges, Van Winckel & Starkes, 2000; Helsen, Starkes & Van Winckel, 2000) highlights birth date as a predictor of athletic success, with athletes born in the beginning of a selection year being more likely to make it to the senior elite level than athletes born late within the selection year. Research has yet to uncover the underlying mechanism, but Côté, Macdonald, Baker, and Abernethy (2006) make a compelling hypothesis that older athletes in a group are likely to be bigger, stronger and faster. This means that they are (1) more often selected for special training and put in decision-making roles, which gives them more time on task, and (2) more often reinforced by coaches, team mates or others in the sense that they achieve success and their success brings congratulation and added confidence. Although likely to be outbalanced during maturation, physical maturity seems to play a role in the selection processes and to define who has access to superior training conditions.

Another factor unrelated to innate potential but with a significant predictive value is the size of the town in which an athlete is born. Côté et. al (2006) indicate a birthplace bias, with professional players of hockey, basketball, baseball and golf being overrepresented in cities with populations of between 50,000 and 500,000 in North America. They hypothesize that cities of this size provide ample opportunities to engage in a variety of sports, fewer safety concerns and less competition for leisure time, which are favourable conditions for talent development.

Given the lack of validated scientific criteria for detecting and identifying talented athletes, coaches and scouts most often rely on subjective assessment based on experience (Williams & Reilly, 2000a; 2000b) and their “eye for talent” (Christensen, 2009), to which they attribute predictive value. However, the success of coaches’ subjective assessment may be compared to a self-fulfilling prophecy. When an athlete is “scouted” by a coach and later manages a successful transition to elite sports, it may be because the coach scouted the right athlete. On the other hand, however, this athlete’s success may simply be explained by the fact that he (as a consequence of being scouted) has been selected for extra training and has received extra positive attention from the coach.

The difficulties involved in detecting and selecting talented young athletes must be seen in combination with the potential social implications of an innate talent account. Athletes who are identified as not talented are likely to lose motivation and unlikely to receive attention and support from coaches and other significant people (Howe et al., 1998). This has prompted a number of researchers to argue against early selection and for an inclusive approach to youth sport (Lidor et al., 2009). This recommendation seems very appropriate in small countries, such as in the Scandinavian group. However, in large countries and in talent programmes where selection is a necessary consequence of large numbers of applications for limited spots, it seems relevant to include psychological factors into the selection procedures (Elbe & Beckmann, 2006).

Research into sport psychology dealing with areas of talent in sport has responded to such issues by shifting its focus from talent detection and selection to talent development (Durand-Bush & Salmela, 2001).

Talent Development

The talent development approach emphasizes acquired motor and psychological skills rather than innate capacities and focuses on the quantity and quality of training needed to reach top-level performance (Côté, Lidor & Hackfort, 2009; Stambulova, 2009a). A number of models constructed in stages have been proposed (Bloom, 1985; Côté, 1999; Durand-Bush & Salmela, 2002), all with the same underlying logic: without intense nurturing and years of commitment to intensive training, no individual will attain excellence in any area.

This developmental approach itself comprises two different pathways. The first pathway is promoted by Ericsson and his colleagues (Ericsson, 1996b; 2005; Ericsson & Lehmann, 1996; Ericsson, Krampe & Tesch-Römer, 1993) and advocates early specialization and deliberate practice leading to elite performance. In suggesting the need for approximately 10,000 hours of intensive training to become an expert in any given area, Ericsson et al. (1993) introduced the concept of deliberate practice, referring to highly structured, goal-oriented, supervised training designed to improve performance and requiring cognitive or physical effort. Having started their line of research with elite musicians, they expand the framework to include expert performance in several other areas, including sports. This line of research highlights the amount of hours spent in deliberate practice as the main factor distinguishing performers at different levels of expertise and suggests that a late starter will never be able to catch up with an early starter. As a result it advocates early specialization in one sport and large amounts of quality training designed to improve performance. Fully investing in large amounts of deliberate practice demands that the athlete is highly motivated and able to overcome constraints relating to resources, motivation and effort (Ryan & Deci, 2000). Despite some controversy regarding the definitions, a body of evidence supports the importance of deliberate practice in sports (Côté, Baker & Abernethy, 2007).

As a critique of Ericsson and colleagues' narrow focus on structured practice and early specialization, Côté and colleagues (Côté et al., 2007) stress that the above pathway rests on two assumptions that are not yet confirmed. Firstly, future experts are assumed already to distinguish themselves from future non-experts in the amount and quality of training they undergo at early stages of development. Secondly, deliberate practice is assumed to be superior to other activities in the acquisition of expertise, even at a young age. These two assumptions are questionable in the light of recent research, which has provided examples of experts and non-experts not differing in amount and quality of training before reaching 13-20 years of age (Baker, 2003; Baker, Côté & Deakin, 2005; Helsen, Starkes & Hodges, 1998) and examples of elite athletes having a diversified background with involvement in several sports and several types of training (Carlson, 1991; Côté, Baker & Abernethy, 2003).

Côté and colleagues (Côté et al., 2003; 2007; 2009; Côté & Wilkes, 2007) therefore promote a second pathway that 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. Deliberate play refers to intrinsically motivating, self-organized activities designed to maximize enjoyment, such as street hockey, back-yard soccer and the like. In deliberate play the athletes have high time-on-task rates with no waiting for instructions or for the setting up of new drills. They develop flexible and innovative strategies, playing against athletes of different ages and skill levels and in facilities with natural obstacles such as rough surfaces. And they become self-directed in their participation in sport. Côté, Baker and Abernethy (2007) suggest that involvement in intrinsically motivating activities at an early age provides a good foundation for engaging in externally controlled activities such as deliberate practice later in life.

In the Developmental Model of Sport Participation, Côté et al. (2007) summarize these two developmental pathways. The *elite performance through early specialization* trajectory, as suggested by Ericsson, involves early specialization and large amounts of deliberate practice from an early age and has the potential to lead to elite performance, but it is also likely to lead to risks to physical health, reduced enjoyment and increased drop-out. The *elite performance through sampling* trajectory, on the other hand, involves sampling a range of sports before specializing and a gradual move from deliberate play towards deliberate practice. It has the potential to lead to elite performance but with a less likelihood of seeing negative side effects (risks to physical health, reduced enjoyment and increased drop-out).

In reality, the pathway that is chosen depends on the sport and the social cultural context. Sampling, deliberate play and late specialization as a pathway is not suited for all sports, however, but is reserved for those in which the athlete reaches his/her peak at a relatively late age. In complex coordination sports such as figure-skating and gymnastics, athletes typically have to start earlier to capture favourable developmental periods in motor learning. This was acknowledged by Côté et al. (2007):

...sports with abilities that peak later in development can allow greater flexibility during early development than sports with abilities that peak earlier. But eventually all future expert athletes must adopt a program of training that focuses on deliberate practice... (p. 193)

The social cultural context is also influential, and the recommendation of one trajectory rather than the other can be seen as consequence of the researchers being part of a Western culture that values the individual's rights. Stambulova and her colleagues (Stambulova, Alfermann,

Statler & Côté, 2009) write about the Russian sport system with professional coaches, elite sport boarding schools and jobs for retired athletes:

In such a socio-cultural context, early sport specialization is taken as a necessary reality of a contemporary sport, and nobody struggles against it to protect children's rights for a "normal childhood". Instead, professional coaches working with athletes from their first steps in sport are educated on how to use all the benefits of early specialization and how to compensate for one-sided development and other related costs. (p. 404)

A Bridge between Talent Development and Career Development in Sport

Athletic talent development is mainly concerned with the development of the athletes' sporting skills and performance and focuses on a limited period in an athlete's life. Athletic career development has a broader focus on the lifespan development of the athlete, including the post-sport-career. In a career context, developing an athlete's sporting skills is one important aspect among many others, such as balancing sport and life, balancing stress and recovery, and coping with injuries. Put simply, talent development is successful when an athlete manages to transform his or her potential into performance at the international elite level, but career development is successful only when an athlete reaches his or her peak *and* makes the sporting career a pillar for life in general. In this sense:

Career development is viewed as a broader *context* for talent development, whereas an athlete's talent is considered not only as a set of motor skills and qualities, but also as the ability to develop and effectively use resources to overcome transition demands inside and outside of sport (Stambulova, 2009b p. 72-73)

In its infancy, research on athletic careers was mainly focused on career termination. Today, athletic careers are investigated in a broader framework. This includes a whole career approach and a whole person approach, but it also focuses not only on career stages but also on normative and non-normative transitions within and between these stages (Alfermann & Stambulova, 2007; Wylleman, Theebom & Lavallee, 2004). A number of descriptive models of athletic careers have been suggested (Bloom, 1985; Côté, 1999; Côté et al., 2007; Stambulova, 1994; Wylleman & Lavallee, 2004), all of which regard career development as a

progression through a number of stages and transitions, each presenting specific challenges for athletes (Stambulova, 2009b).

Whereas talent development has traditionally focused on the athletes' development on the athletic level, the whole person approach inherent in today's career literature examines athletic careers as a reciprocal interaction between development in the athletic domain and development in other areas. This is most clearly formulated by Wylleman and Lavallee (2004), who outline three non-athletic areas of influence, including the psychological level, including tasks related to childhood, adolescence and adulthood; the psychosocial level, embracing changes in social relations to coaches, family and peers; and the academic and vocational level, involving changes in school education, vocational training and occupation. These contexts all exert an important influence on the athlete's career.

Taking Stambulova's (1994) analytical model as a starting point, we can identify the transition from junior to senior sports as perhaps the most central transition in a sporting career as a whole and certainly a key challenge for talent development. This transition is described by athletes as a very difficult one (Stambulova, 2009b). It often coincides with transitions outside sport, and stagnation, irregular performances and drop-out are the rule (Vanden Auweele, De Martelaer, Rzewnicki, De Knop & Wylleman, 2004). In this transition athletes face a number of difficult challenges, such as balancing sport goals and other life goals, finding their own path in sport, winning prestige in the sport environment, coping with the pressure of selection for prestigious competitions and with possible relationship problems in an increasingly competitive team (Stambulova, 1994; 2009b). A particularly salient risk during this transition is that of identity foreclosure or developing a one-sided athletic identity, which jeopardizes not only the athlete's successful sports career but also the successful adaptation to life after sport (Lavallee, Gordon & Grove, 1997; Lavallee & Robinson, 2007; Pummell, Harwood & Lavallee, 2008). Such characteristic challenges of the transition from junior to senior – and they are not restricted to the sporting life – mean that athletes in this transition experience high life stress. Based on a summary of studies on the transition from junior to senior sport, the International Society of Sport Psychology recommends that athletes are given assistance in relation to career planning, balancing lifestyle, stress/time/energy management, and effective recovery, and that there is continuity in coaching and support from significant others (Stambulova et al., 2009 p. 408).

Looking at the links between career and talent development, it thus becomes clear that a central aim of talent development must be to build the athletes' resources to overcome the demands of career transitions, most notably the transition from junior to senior sport.

The Role of Environment in Talent Development in Sport

In this thesis I propose a shift in research attention from the individual athlete to the environment in which he or she develops. I find support for the need for this shift towards a more contextual approach in several contemporary lines of research and practice, including career development literature, organizational psychology and the social psychology of sport.

Athletic Career Literature: The Importance of the Micro-environment

As a function of the whole-person approach described above, research into athletic career development clearly highlights the importance of the context within which that development takes place (Stambulova, 2009b; Stambulova & Alfermann, 2009; Stambulova et al., 2009; Wylleman & Lavallee, 2004). Among the factors influencing the development and transitions of an athlete's career, researchers have traditionally focused on elements in the micro-environment such as coaches, parents and peers (Côté, 1999; Côté et al., 2007; Wolfenden & Holt, 2005; Wylleman, De Knop, Verdet & Cecic-Erpic, 2007).

In the field of career development, recent cross-cultural studies have identified national culture and the national sports systems as important factors in athletes' transitions (Alfermann, Stambulova & Zemaityte, 2004; Stambulova, Stephan & Järphag, 2007) and have advocated a holistic approach to the study of how athletic potential is nurtured – in other words one that is not focused exclusively on the world of sport or the athletes' micro-environment.

Organizational and Educational Psychology: Organizational Culture and Interpersonal Learning

In research and interventions into organizations, organizational psychologists have a tradition of focusing on relational issues rather than on the individuals that make up the organizations. Among such relational issues are organizational structure (Mintzberg, 1979; Katz & Kahn, 1966), organizational learning (Argyris & Schön, 1978; 1996; Senge, 1990), and organizational culture (Schein, 1990; 1992). Equally, organizational psychology focuses on the influence upon organizations of the wider society in which they are embedded. As an example, Hofstede (1980; Schein, 1992; 1997) investigated national differences of culture within a multinational company (IBM) and found that managers from different countries varied in attitudes across four dimensions: power distance, uncertainty avoidance, individualism and masculinity. In the context of this thesis, the primary importance of Hofstede's work is the fact that he showed how organizational culture is embedded in a national culture and can even be seen as an entry point for society's influence on organizations.

In educational psychology a number of researchers break with the traditional perception of knowing and learning as properties of the individual mind, an idea that has separated learner and context. Rather they promote a view in which the individual coupled with the environment provides the minimal ontology for describing learning, knowing and even giftedness (e.g., Barab & Plucker, 2002; Lave & Wenger, 1991; Stelter, 2005). They argue that knowing and perception are properties of an ecosystem (Gibson, 1979), that cognition and learning are always situated (Brown, Collins & Duguid, 1989), and that, in solving complex tasks, learning and cognition are distributed among individuals (Hutchins, 1993). Coining the term "legitimate peripheral participation" Lave and Wenger (1991) investigated communities of practice in which there was little teaching yet large quantities of learning. Barab and Plucker (2002) conclude:

Learning is more than simply receiving a body of factual knowledge; rather learning is a process that involves becoming a different person with respect to possibilities for interacting with other people and the environment... Talent development, in this case, involves the construction of new identities as the individual becomes enculturated into a community of learners. The individual is no longer the same individual with new

skills, but is a new person who has become more enculturated into the practice of teaching (p. 173).

We can argue, then, that our focus should be on developing smart contexts rather than smart individuals. Although the vision here relates to education, the world of sport may well benefit from these ideas. Culver, Trudel and Werthner (2009) argue that communities of practice are rarely seen in competitive sports because coaches are reluctant to share knowledge. However they present a case study of a visionary leader's success in creating a community of practice among coaches in competitive youth baseball. In this community the coaches shared knowledge and had responsibility for all players and not only their own team. Knowledge thus became situated as coaches developed and refined their coaching skills.

Social Sport Psychology: The Sport Environment

In the literature on the social psychology of sport, a number of contextual factors have been shown to hold important implications for talent development. Bloom (1985) found that families of elite athletes, musicians and sculptors often had achievement values and that the parents themselves worked hard and valued "doing one's best". Holt & Dunn (2004) found that parents provided essential emotional, informational and practical support, and that these functions were taken over by friends and teammates later in the career. Csikszentmihalyi, Rathunde & Whalen (1993) have argued that the increased time and attention needed in the sport must be seen in conjunction with the increased desire for social peer interaction that is typical of adolescence. This presents a potential source of conflict for the young talented athlete, and concerns about friendships may be an important barrier to the talent development process. On the other hand, Helen et al. (1999) found that talent development activities provided opportunities to make very close friends. Athletes with satisfying relationships with peers within the sport showed commitment to the process of talent development, even if this meant reduced time for peer relationships outside sport, whereas a lack of friendships within the sport undermined their motivation.

A study of talent development in the seven most successful sports in Sweden (Carlson, 1991) and a study specifically in tennis (Carlson, 1988) investigated differences between athletes who reached the national team and athletes who were deemed at least as talented in the early part of their career but who never reached the national team. Results from the quantitative part

of the study revealed that the national team athletes compared to their less successful counterparts came from smaller towns, specialized later, engaged in more self-organized training activities (similar to deliberate play), had fewer coaches with less formal education, more often experienced satisfying personal relationships with their coaches, and experienced less pressure to perform. Results from the qualitative part of the study, which was based on interviews with selected athletes, revealed that the national team athletes attributed their success mainly to contextual factors such as a good club environment, friendships within the sport, absence of pressure to perform in the early years and good relationships with the coach. These athletes also mentioned personal characteristics and skills such as an ambitious mind-set.

In more recent publications (Martindale, Collins & Abraham, 2007; Martindale, Collins & Daubney, 2005) the term ‘talent development environment’ has been introduced, and 16 experienced British development coaches have been interviewed about the factors that they believed to be important in effective talent development. The authors focused on the goals and systems in effective talent development and defined the “talent development environment” as encompassing “all aspects of the coaching situation” (Martindale et al., 2005, p. 354). The interview study (Martindale et al., 2007) confirmed a number of theoretically derived notions and revealed a number of factors as key features of the coaches’ views on effective talent development. These factors include long term strategy and planning; coherent communication and support, ensuring that philosophies, aims and daily practices are coherently linked; flexible systems that allow room for individual differences and provide support through key transitions; and an emphasis on the athletes’ progress rather than on their early results. Finally, these efforts must be coordinated into an integrated system

Summary and Objectives

Much contemporary research on psychological aspects of talent development has tended to focus on individual athletes and their micro-environment. Research has emphasized either prerequisites for excellence (talent detection and selection) or the amount and quality of training needed to reach the elite level (talent development). People in sports tend to use three different perspectives in their conception of talent (Stambulova, 2009b). A biological perspective emphasises the innate quality of talent, and coaches who adopt this view will opt

for talent detection and selection. A psychological perspective downplays innate potential and emphasizes acquired competencies and skills, and coaches who adopt this view will opt for inclusive sports programmes, in which all athletes are given the opportunity to develop. Given the right conditions, the best athletes will naturally reach the elite level. Finally, in a social perspective, a *talent* refers to a young athlete who performs better in sport than those athletes with whom he is compared.

As my focus in this thesis is on the role of the environment, the psychological perspective provides the natural vantage point for a definition of talent. As a working definition, therefore, I suggest that *athletic talent* is “a set of characteristics, competencies and skills developed based on innate potential and multiyear practice, competition and interactions with the environment”. This also implies, that *athletic talent development* can be seen and as “a process of transformation of the innate potential of an athlete into the qualities, abilities, skills and performance excellence that are required in his/her sport over years of practice and competition and through interaction with both sporting and non-sporting environments”. This definition reflects an interactionist standpoint in the nature/nurture debate and has a number of implications. First, the definition stresses that athletic talent consists of innate potential *and* characteristics, competencies and skills developed in training. Second, it states that athletic talent shows itself in both a high level of performance and in qualities, abilities and skills of the athlete. Finally, it stresses that innate potential is only realized through a prolonged deliberate process both inside and outside the world of sport.

In this chapter, I have demonstrated a burgeoning interest in the role of the larger context (national culture, sport systems, town size and so on) on the development of athletic expertise. In order to gain a deeper understanding of the role of the environment in successful talent development, it is now necessary to expand the notion of context and to make the environment the central object of our investigations. In this study I aim to shed additional light on how the environment underpins successful development and onto the broad range of psychosocial and environmental conditions working as resources or barriers for athletic talent development.

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 athletic talent development environments, I designed a

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multi-case study of three successful environments in Scandinavia, each with a successful history of producing top-level senior athletes from among its juniors.

The objectives of this multi-case study are: (a) to define an athletic talent development environment (ATDE) and suggest criteria for successful ATDE's; (b) to develop and test a framework for holistic description of an ATDE; (c) to develop and test a framework for explanation of the ATDE's success in the development of elite athletes; (d) to identify common and unique characteristics of successful ATDE's representing different sports and countries; and (e) to provide guidelines that could be applied by those involved in creating such environments in other settings.

Chapter 2

The Holistic Ecological Approach to Talent Development in Sport

In this thesis I propose a holistic ecological approach to the study of athletic talent. The central object under investigation is the overall athletic talent development environment (ATDE) and the way in which it underpins the nurturing of athletic talent.

In this chapter I provide an introduction to the approach. More specifically I will (a) provide a working definition of an athletic talent development environment; (b) suggest criteria for successful ATDEs; (c) describe the theoretical underpinnings of the approach, including the system's theory, the ecological approach to human development and cultural and cross-cultural perspectives; and (d) propose and describe a framework that consists of two working models, one that can be used for a *description* of the ATDE and another that can structure factors *explaining* its success.

Athletic Talent Development Environment

The central focus of the study is the athletic talent development environment (ATDE). As a working definition I suggest: "An ATDE is a system of an athlete's interactions inside and outside sport on the micro-level and how these interactions are influenced by the macro-level". This definition reflects a holistic perspective incorporating both micro and macro-levels and sporting and non-sporting domains.

Each individual club or team is different in terms of its degree of success in nurturing sporting potential. As mentioned, this study investigates three successful environments. As a way to select such environments I propose that a successful athletic talent development environment is an environment that holds a successful track record of producing elite senior athletes from among its juniors. This definition reflects the standpoint that the aim of talent development is

to assist young prospective elite athletes in making a successful transition to the senior elite level in their sport, rather than, for example, high-performance junior results or healthy young adolescents.

Background Theories

The overall theoretical framework of the study is built on central tenets of systems theory, ecological psychology and cultural and cross-cultural psychology.

System's Theory

Systems theory is not one specific theory but rather a scientific tradition. Systems theory is a term that embraces a diverse set of theories within different areas. These hold in common the idea that most phenomena must be considered systems, that is organised wholes that are so complex that they cannot be disassembled into parts without losing their central quality, or their wholeness (Lewin, 1936).

Systems theory incorporates Grand Theories aiming to describe everything from the atom to the universe and to provide an overarching framework for all science (Bateson, 1973; Bertalanffy, 1968), psychological theories (Berger & Luckmann, 1966; Bronfenbrenner, 1979; Lewin, 1936), theories in the field of sociology (Berger & Luckmann, 1966; Luhmann, 1995), and in biology (Maturana & Varela, 1987). In applied areas systems theory has been proposed as a basis for working with learning (Bateson, 1973; Luhmann, 1995), family therapy (Minuchin, 1974), schizophrenia (Berger & Milton, 1978), career assistance (Patton & McMahon, 2006) and development of organizations (Schein, 1992).

As a consequence of its wide use, systems theory is not a united theory. "One finds wide divergence in definition of systems, in criteria of classification, and in the evaluation of the systemic approach as a contribution to knowledge." (Rapoport, 1986, p. 1) The section that follows makes no claim to outline systems theory in all its complexity. Instead, some fundamental ideas will be presented that form the theoretical background of this particular study.

Basic System's Theory Concepts. Below I will mention a number of basic tenets of the system's theory that form part of the theoretical background of the thesis. Unless otherwise specified, these basic notions refer to the works of Bateson (1973), Lewin (1939; 1936) and Bertalanffy (1968). The central scientific unit of a systems theory approach is a system, which can be viewed as a whole in which the parts are interrelated and interdependent and which works by specific principles.

The first and perhaps most basic tenet of systems theory is expressed in the idiom *the whole is different from the sum of its parts*. Systems do consist of parts but cannot be reduced to their parts. Or, as Lewin writes, (1939)

...a dynamic whole has properties which are different from the properties of their parts or from the sum of their parts... The whole is not "more" than the sum of its parts, but it has different properties... Both whole and parts are equally real. On the other hand, the whole has definite properties of its own. (p. 146)

The parts of a system interact in complex ways to create a whole, and investigating wholes rather than pieces of the whole is a fundamental notion. This entails an emphasis on ecological validity, on investigating phenomena in their natural context. Investigating specific elements or variables in isolation is considered a reductionist strategy, since isolating a part from the whole may cause it to present itself differently to the researcher. A systems theory approach is essentially interested in investigating systems that are so complex that the researcher cannot isolate specific elements without destroying the whole, the very essence. (Bertalanffy, 1968)

Another basic tenet of systems theory is that *interactions between parts of a system present themselves in patterns*. As an example, the interactions between members of a social system such as a sports club are organized by rules and codes of conduct, such as commitment, discipline and fair play.

Acknowledging the complex nature of human and social life, systems theory emphasises a *reduction of attention given to causality* and stresses the cyclical nature of development. The term recursiveness describes how behaviour is influenced by the past, present and future. Concepts like feed-back and feed-forward have been used to describe the circular nature of human interaction. In a context of constant change, systems – and these would include

athletes and clubs – are self-regulating in terms of maintaining a fit with their context and maintaining stability. Such change may be a matter of slow ongoing accommodation, or it may be abrupt discontinuous change resulting in new patterns of functioning.

Systems can be divided into types – psychic, social, mechanic and organic – and into levels. In the case of social systems these divisions might be interactions, organizations and society (Luhmann, 1995). Whereas interactions describe actual interactions between people and cease to exist when the participants stop communicating, organizations refer to institutionalizations that exist beyond the members' interactions.

Social systems are open and permeable to information from the outside, and therefore *a change somewhere in the system will likely create changes elsewhere in the system*. As a consequence, it is not possible to describe a human system without reference to the (actual and necessary) environment.

Ecological Model of Human Development

In studying child development, Bronfenbrenner (1977; 1979) formulated an ecological systems theory depicting the environment as a series of nested structures. The micro-system is made up of relations in which the person spends a good deal of time, such as home or school; the meso-system consists of the interrelations between different micro-systems; the exo-system is formed by contexts in which the individual is not actually situated but which have direct influence on development, such as the parents' work place; and the macro-system made up of larger cultural patterns of the society. Bronfenbrenner's use of the word ecology refers to the interrelatedness between the individual and his context.

Throughout a life course dedicated to developing an ecological framework for the study of child development, Bronfenbrenner wrote a number of papers, in which his theory evolved into the Bioecological Theory of Human Development (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 1998; Bronfenbrenner & Morris, 2006; see Krebs, 2009 for overview). In these more recent publications on the ecology of child development it is stressed how development is affected by the complex interrelationship between process, person, context and time (PPCT model). As the primary mechanism of human development, the process refers to proximal processes that are interactions between the individual and the

context (objects, symbols and people on the micro-, meso-, exo- and macro-level) over an extended period of time. The person refers to the dispositions and resources of the developing person and the way in which this person invites or discourages reactions from the social context. Context refers to the four levels of the environment (micro-, meso-, exo-, and macro-levels) and includes both objective properties of the context and the way in which the context is perceived by the person. Finally, time includes micro-time (what happens during an activity) and macro-time (the importance of historic events or periods). The model acknowledges that the person affects as well is affected by the context. Bronfenbrenner thus defines the ‘ecology of human development’ as:

... The scientific study of the progressive, mutual accommodation, throughout the life course, between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, as this process is affected by the relations between these settings, and by the larger context in which the settings are embedded. (2005, p. 107, cited in; Krebs, 2009 p. 113)

Although some sport psychology research is conducted within an ecological framework, particularly when dealing with cognition and visual guidance during particular tasks (Beek, 2009), the ecological approach has been largely lacking in research into talent development, and there have been calls for theoretically guided research (Araujo, 2009; Araujo & Davids, 2009). Krebs (2009) suggests such an ecological approach to the study of talent development, but Beek (2009) has reservations about Krebs’ approach:

Aspects of the development of sports talent are linked to all components of Bronfenbrenner’s bioecological model on a general semantic level, and a generative rather than confirmatory design of research is advocated, but how such a design should be implemented, and what kind of insights are to be gained from such an implementation, remains largely opaque. (p. 149)

In other words, there remains a need to develop an ecological framework and a corresponding scientific method suitable for studying talent development in sport.

Cross-cultural and Cultural Frameworks

Culture has been described as “the collective programming of the mind, which distinguishes the members of one group or category of people from another” (Hofstede, 1997) or as “a

social system of shared symbols, meanings, perspectives, and social actions that are mutually negotiated by people in their relationships with others” (Stead, 2004, p. 392). Culture is both material, appearing in cultural artefacts such as stadiums, buildings or clothes, and non-material comprising values, beliefs, lifestyles, patterns of interactions and so on that are shared by a group of people (Si & Lee, 2007).

Research on the impact of culture on human behaviour and development can be grouped within two main traditions - *cross-cultural* and *cultural* perspectives - that hold in common the idea that human beings are situated in a cultural context and the acknowledgement that psychological development and experiences are not the same everywhere but that culture accounts for important variations. Berry and Triandis (2004) argue that “...in practice, both traditions employ individual data, contextual data, and the comparative method in their work” (p. 528). But the traditions differ in respect to their understanding of the ontology of culture.

Cross-cultural psychology

Cross-cultural psychology (Berry & Triandis, 2004) emphasizes the comparison of human behaviour and experiences between cultures. This is an *etic* approach, concerned with universal constructs that apply to all humans in any culture (Ryba, Schinke & Stambulova, 2010). Triandis (2004) identifies cultural syndromes as dimensions of cultural comparison, and describes a cultural syndrome as “a pattern of shared attitudes, beliefs, categorizations, self definitions, standard operating procedures unstated assumptions, norms, roles and values that is organized around a theme” (p. 555). One such syndrome is individualism vs. collectivism. In individualist cultures people value the individual and his or her rights and behave according to their own attitudes and goals. These cultures can be either vertical (stimulate competition between its members) or horizontal (stimulate modesty and low competitiveness). In collectivist cultures people put the interests of the group ahead of those of the individual and behave according to group norms. These cultures can also be vertical (have hierarchical systems and stimulate inter-group competition) or horizontal (stimulate cooperation and sharing). Another such syndrome is cultural tightness. Tight cultures are characterized by a large number of rules and norms and a high degree of conformity to these rules and norms. Loose cultures have a multitude of norms and stimulate tolerance. A third syndrome is planning, with some cultures valuing planning and others valuing spontaneity

and freedom of action. The last syndrome to mention here is that cultures tend to differ in their focus on process (how we do things) or outcome (achievement, no matter how).

As an example of culture's influence on talent development, one study attributed the success of Eastern European elite gymnastics to the collectivist cultures of these countries (Girginov & Sandanski, 2004). When highly successful Bulgarian gymnastics coaches were first employed as gymnastic coaches in England, these coaches felt the individualist English culture as a barrier in their work. The authors concluded:

To be a successful athlete one has to employ the best methods and practices available. These methods, however, were not a simple body of knowledge that could be taken from the shelf, learned and reproduced. Rather they were deeply rooted in and represented local cultural practices, rituals, traditions, norms and attitudes (page 820)

Tudge (2008) argues that cross cultural psychology is in essence dualistic and belongs in a simplistic mechanist paradigm, because it treats culture as an independent variable and a cause of human development.

Cultural Psychology

Cultural psychology (Greenfield & Keller, 2004) considers culture and psychological processes to be mutually constitutive. Such a contextualist stand would imply either a holistic position, denying a meaningful boundary between individual and context, or a dialectical position, stating that individual and social world have separate realities but are in constant dynamic interaction (Tudge, 2008). In other words, culture is everywhere in peoples' practice, human behaviour is context specific, and the aim of cultural research is to uncover the unique culture of the people under study. This has also been referred to as an *emic* approach, concerned with what is unique for a socio-cultural context or group (Ryba et al., 2010; Schweder, 1990).

An example of this approach is the study of culture in small groups that has been developed by organizational psychologist Edgar Schein (1992). According to Schein, all groups are faced with two basic tasks. First they must survive and grow through adapting to the constantly changing environment. Second they must keep the group functional through internal integration. Organizational culture emerges as a set of solutions, actions and values that, in contributing to the group's ability to solve these two tasks, become integrated to a

degree where they are longer questioned. The interactions of the members constantly shape and refine the culture, and at the same time, the culture stabilizes these interactions. Culture is characterized (a) by stability over time, (b) by integration of the key basic assumptions into a 'cultural paradigm', and (c) by socialisation of new members. Guiding its members in relation to how they should feel, think and act, culture becomes a stabilizing force in the group and serves a basic human need for cognitive stability. Schein's notion of organizational culture fits well within a systems theory approach. It focuses on patterns of behaviour that belong to the culture rather than to the individuals and describes the group as an open system constantly adapting to a changing society.

Schein contends that organizational culture consists of three layers: cultural artefacts, espoused values and basic assumptions, as illustrated in figure 1.

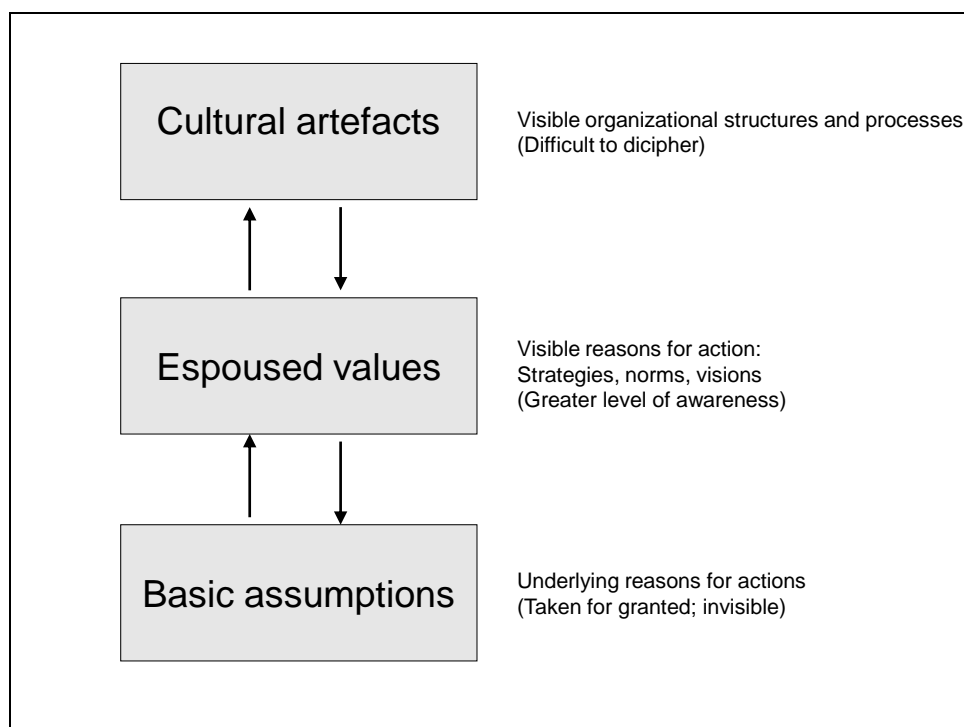


Figure 1: Schein's (1992) model of organizational culture

At the surface is the layer of cultural artefacts. These *artefacts* include various manifestations of the culture expressed through the word (stories and myths told in the environment), behaviour (customs and traditions) and objects (styles of clothing, buildings and organization

charts), all of which we see and hear when encountering an unfamiliar culture. The artefacts are easy to observe but hard to decipher, and a deeper familiarity with the culture is needed to determine what they disclose about the culture. *Espoused values* are the social principles, norms, goals and standards that the organization shows to the world; they exist in the minds of its members, serve as visible motivations and justifications for actions and are often confirmed by social validation. These espoused values, which represent what the members say they do, do not always correspond to the enacted values, representing what is actually done. As Schein says (2004): "... in analyzing beliefs and values one must discriminate between those that are congruent with underlying assumptions and those that are, in effect, either rationalizations or only aspirations for the future" (p. 30). *Basic assumptions* (or "theories-in-use", Argyris & Schön, 1978) are underlying reasons for and the ultimate source of actions. They consist of beliefs and assumptions that are no longer questioned but are taken for granted. They exist at a level below that of the members' consciousness, and therefore have to be deduced by the researchers.

Schein further provides a list of key questions that an organization's culture must provide an "answer" to. The key questions concern: (a) the organization and its surroundings (is cooperation or competition the appropriate strategy, and does the organization perceive itself to be submissive or dominant?); (b) the nature of human nature and activity (is human nature perfectible or fixed?); (c) the nature of reality and truth (e.g. is truth defined by pragmatic test, social consensus or wisdom?); (d) the nature of time (what is the basic orientation in terms of past, present or future?) ; and (f) the nature of social relations (should individuals be encouraged to conform or innovate?).

Emphasizing the thorough investigation of a group's unique culture, Schein's (1992) notion of organizational culture has roots in cultural psychology. At the same time it reflects a functional approach, in which an organization's culture is created and maintained by its members, especially by the management, and in which it is possible to distinguish between more or less functional cultures in relation to the task of the organization (Alvesson, 2002; Nielsen, 2008; Schultz, 1990).

In relation to the present thesis, the cross-cultural perspective inspired me to think of culture as a multilevel and complex phenomenon and to include national culture, youth culture, and sport culture in general alongside specific sport culture in the working models. The cultural

perspective stimulated me to explore the uniqueness of each environment's organizational culture.

The Holistic Ecological Framework: Working Models

To study athletic talent development environments, a holistic ecological approach is suitable for providing an adequate framework by integrating theoretical tenets from systems theory, ecological psychology and cultural perspectives. The overall theoretical ideas, however, must be translated into a manageable approach and a corresponding scientific methodology that is suited for the study of sporting environments. To develop such an approach and in order to be able to compare the environments and to deal with large amounts of data expected, two working models of a successful athletic talent development environment (ATDE) were created (Henriksen, 2008; Henriksen, Stambulova & Roessler, 2010; in press).

As a basic tenet, inspired by ecological psychology (Bronfenbrenner, 1977; 1979; 2005), I took the assertion that talent development must be understood in the light of the particular environment in which it takes place. This environment is seen as a series of nested structures, which includes, but is not restricted to, the settings in which the talented athletes are active. Environments evolve and cannot be examined without a reference to the time frame. As a final feature adopted from ecological psychology, proximal processes of daily life such as training and competitions are seen as the engine of development (Bronfenbrenner & Morris, 1998). The systems theory framework (Patton & McMahon, 2006) assisted me in viewing ATDE's as systems with certain functions and components, with a structure and a development, in other words as organized wholes that are self-regulating in terms of maintaining a fit with the context and maintaining stability (Bateson, 1973; Bertalanffy, 1968; Lewin, 1936). ATDE's are always nested in a broader societal and cultural sphere that cannot be neglected. Cross-cultural psychology describes culture as a multi-level phenomenon that has an important impact on human experience and behaviour. Culture affects human practices, and is therefore represented in working models below. The phenomenon of culture is not restricted to a broader societal level but also relevant in small groups. This element was incorporated into the working models by using the concept of an organizational culture that defines central values, directs behaviour and guides the

socialization of new members, as described by Schein (1992). The two working models are described below.

Athletic Talent Development Environment (ATDE) Model: A Descriptive Working Model

Figure 2 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.

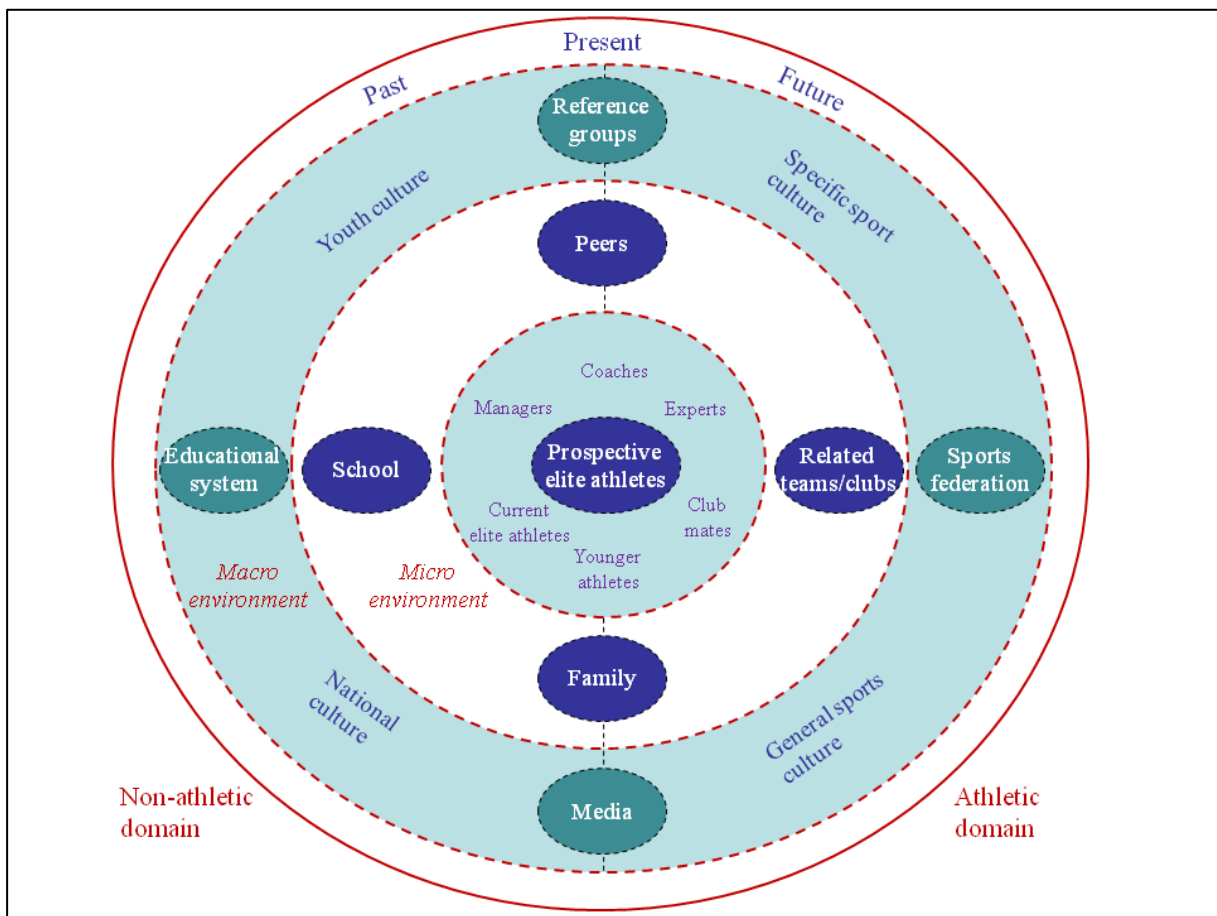


Figure 2: Athletic Talent Development Environment (ATDE) working model

The environment is viewed as a system with functions, a structure and components. 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. Other components of the ATDE are structured into two levels (micro and macro) and two domains (athletic and non-athletic). 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 both to social settings, which affect but do not contain the athletes, and 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.

At the micro-level directly surrounding the young athletes is the club environment. The club environment typically involves managers, coaches and experts such as sports psychologists, sports physiologists, nutrition experts and physiotherapists. It also often includes younger athletes and elite senior athletes, who may serve as role models. Beyond the club environment, the micro-level includes school, family, peers and also related teams and clubs, who may be perceived as opponents or opportunities for enriching interactions.

The macro-level refers to the wider environment and includes a number of components. Sports federations comprise both those that are sport specific or those more generally representing national sports. The educational system serves as a structure for educational activities and may be perceived as a resource or as an obstacle by the athletes. Reference groups may be national team athletes, Olympians or others. The media has a significant role in distributing media coverage and interest. The macro-environment also involves various cultural contexts, such as national culture, general sporting culture, the culture of the specific sport and youth culture.

Some components clearly belong to one level and one domain – the coach, for example, clearly belonging to the micro-level and the athletic domain. Other components may transcend levels and domains, so that the family belongs to the non-athletic domain but may also have a strong involvement in the sport. The permeability and interdependence of the various components are indicated by encircling them with dotted lines.

In the outer layer of the model, past, present and future represent the time line, illustrating that the environment is dynamic and ever-changing. The environment has to adjust and evolve to maintain a fit with the broader context. Perceptions of past, present and future are

simultaneously represented when talented individuals make decisions about future involvement, when sports organizations distribute resources and when clubs design talent development programmes. The relative importance of the different components in the environment also changes over time.

This model is ecological in the sense that it regards the development of an athlete as being 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.

Environment Success Factors (ESF) Model: An Explanatory Working Model

The ATDE model provides a framework to guide the *description* of the environment. It does not, however, provide a framework for analysing *why* the environment is successful. The Environment Success Factors (ESF) model was developed as a framework for structuring factors contributing to an environment's success.

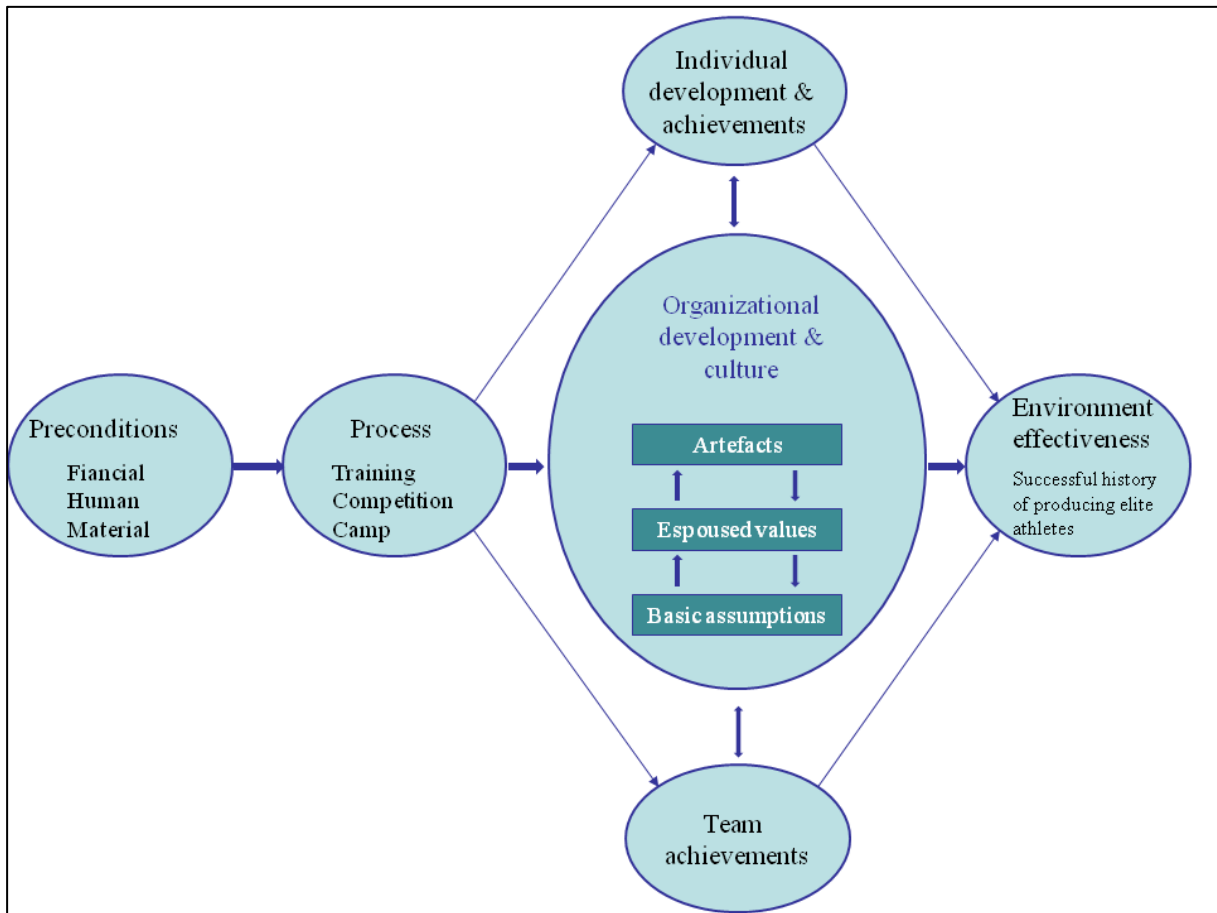


Figure 3: The Environment Success Factors (ESF) working model

Figure 3 presents the Environment Success Factors (ESF) working model. Taking as its starting point the preconditions provided by the environment, the model illustrates how the process in the form of daily routines has three outcomes: the athletes’ individual development and achievements, team achievements (in team sports), and organizational development and culture. All of these are intimately interrelated and influence the environment’s success.

Preconditions are the environment’s resources. They include human, material and financial resources. Human resources include the number and proficiency of coaches, experts and managers. Material resources refer to such elements as facilities for training, accommodation and testing, and the state and availability of these facilities. These factors are all necessary for the talent development process but they do not guarantee 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 competences and athletic skills, and to 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 they are also a product of organizational development and culture.

Organizational culture is central to the ESF model. To analyze the organizational culture of the environment, Schein's (1992) theory, which is described in detail above, is incorporated into the model. Briefly, it outlines three levels: cultural artefacts, espoused values and basic assumptions. Organizational culture is characterized by the integration of the key basic assumptions into a cultural paradigm that guides the socialization of new members, provides stability and adapts the organization to a constantly changing environment. The ESF working model therefore predicts that the ATDE's success – that is, its 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.

From General to Empirical Models

The models presented and described above are general working models, heuristically derived based on research findings and theoretical notions. The working models served to guide the researchers' attention in the data collection phase and were used as a basis to develop guides for interviews and observation. Using the results as a basis, empirical versions of the working models were created that capture the specific features of the environment under study. The presentation of each environment will be summarized in the empirical versions of the ATDE and ESF working models, which exemplify the specific environments.

Summary and Hypotheses

In this thesis I propose a holistic ecological approach to the study of athletic talent development and take the overall athletic talent development environment – and the way in which it underpins the nurturing of athletic talent – as the central object of investigation.

On the basis of systems theory, of the ecological model of human development, of cultural and cross-cultural psychology and of organizational culture we developed a framework for the study of ATDEs. These environments are 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). The perspective also outlines a set of factors, such as preconditions, process, individual/team development and achievements, and organizational culture, which together determine the effectiveness or success of the ATDE 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 for a description of the environment, and the latter helps to summarize factors influencing its effectiveness

Our hypotheses for the study are: (a) each successful ATDE is unique, and therefore empirical versions of the ATDE and ESF working models will appear that reflect the specific environment under study; (b) although unique, the environments will share some characteristics that point to the nature of successful environments; (c) differences between the environments will appear mainly in dominant components and relationships between these components; and (d) common characteristics will appear mainly in regard to the components involved – the process (the daily routines) and the organizational culture.

Chapter 3 Method

This project adopts a holistic ecological approach (see chapter 2) in order to study athletic talent development environments (ATDE's) in different sports and countries. More specifically it investigates three highly successful ATDE's in Scandinavia: the National Danish 49er sailing team, IFK Växjö athletics club in Sweden, and the kayak team at Wang School of Elite Sports in Norway.

Research Design

The research design chosen for the dissertation project is a multiple case study that, based on an explorative integrative approach, investigates three environments in contemporaneous and holistic ecological perspectives. Since the study of ATDE's is a new research field with models and categories to be developed and refined during the study, a qualitative methodology was employed.

Multiple Case Study Design

The complex and dynamic nature of the environments and the objective of developing a rich and detailed insight into actual existing environments called for a case study approach. The case study has been defined as an “empirical enquiry that investigates a real-life phenomenon within its real-life context” (Yin, 1989). Maaloe (1996) has refined this definition by adding that case studies involve the use of multiple sources of evidence. Case studies are a suitable research strategy particularly when the phenomenon to be studied – in contrast to the controlled experiment – is of a complexity that places it beyond the control of the researcher. Case studies are conducted in a real-life context and thus have the potential to uncover the circumstances in which the findings are valid.

Performing a multiple case study in this project really meant performing a series of discrete and complete case studies before embarking on a comparative analysis of them. Based on systems theory, which dictates that the primary task is to understand the specific case as a whole, the analysis of each case was undertaken as a complete investigation. However, a multiple case study is more than a series of single case studies. After each case study, the data collection protocol, comprising interview and observation guides, was revised to accommodate the findings, and the cases were cross-analyzed to identify common and specific patterns. In a multiple case study the researcher compares the results or conclusions of the specific case studies rather than comparing individual variables across cases (Eisenhardt, 1989; Ramian, 2007; Stake, 1995). The research process is illustrated in figure 4.

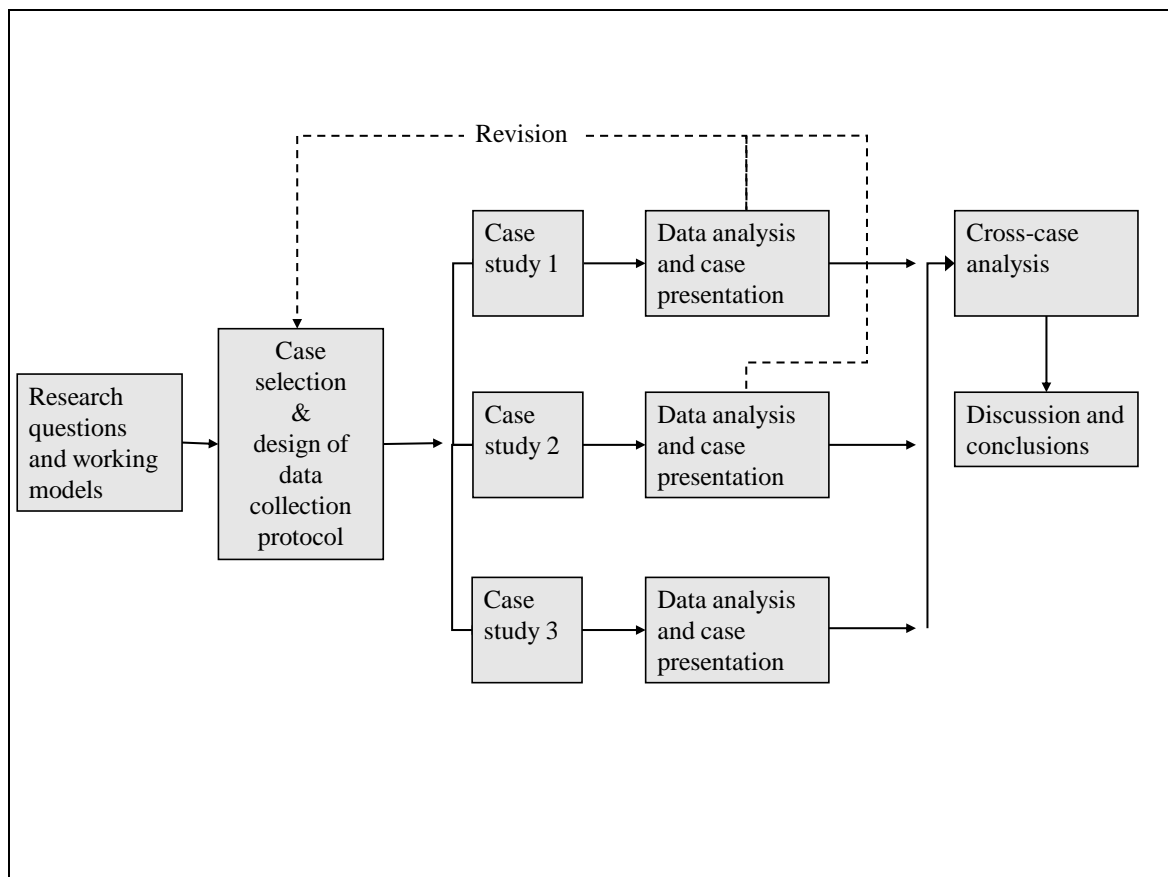


Figure 4: Schematic illustration of the research design

Doing a multiple rather than a single case study strengthens the validity of the findings, mainly by allowing a deeper understanding of the ‘opus operandi’ (Maaloe, 1996), the conditions under which the results hold true. The results of the first case may be augmented, adjusted or refined by the findings of the following cases. Looking at successful ATDE’s in different sports and different countries provides a nuanced picture of environmental success. Since the data collection protocol was adjusted after the first and the second case analyses, the method was continuously strengthened and refined throughout the research process.

Explorative Integrative Approach

Maaloe (1996) identifies three different traditions in case study research, a theory test approach, a theory building approach and an explorative integrative approach.

Promoting the use of cases studies to test theories, Yin (1989) argues that it only takes one case to discard a theory. This view is a ‘top-down’ approach and borrows from Popperian falsificationism (Popper, 1934; 1968) and experimental research. According to Popper and Yin, how a theory originates is of minor importance, but any theory should be formulated in a way that makes it possible for other researchers to test it and perhaps reject it. When designing case studies within this tradition, researchers must have clear categories from the very start of their investigation and know exactly which answers will confirm or reject the hypothesis being tested.

Using case studies to build theories is a ‘bottom-up’ approach, where accumulated and unbiased data inductively forms a theory, described as ‘grounded theory’ by Glaser and Strauss (1967). The researcher must approach the field without bias and without preconceived categories or notions. Theories should be built from empirical data and evolve from a specified and systematic procedure of coding and analysis.

Both of the above traditions suffer limitations. Approaching the field with strictly formulated categories may lead the researcher to miss data that does not fit the categories. To believe that the field may be approached without preconceived notions or categories, on the other hand, is perhaps a naive ideal (Maaloe, 1996) and may result in an unguided search and unmanageable quantities of data (Kvale, 1983).

This has led Maaloe (2004) to formulate a third position, the explorative integrative approach, which is, “a cyclic approach of a continuous dialogue between pre-chosen theories, generated data, our interpretation and feedback from the informants, which hopefully will lead us to a more inclusive theory building or even understanding” (p. 3). This approach integrates the methods of theory-testing and theory-building in one framework.

This study uses the explorative integrative approach. Before entering the field, a thorough review of theories and empirical studies on talent development was performed. This led to the creation of the two working models that were presented in chapter two, the ATDE model and the ESF model. These two models were used to design instruments for data collection, which were however formulated in a broad sense to allow the informants’ answers to guide the researchers’ attention. After each case analysis, the instruments were revised according to the findings. The results of each case study were summarized in an empirical version of each model reflecting the unique characteristics of the particular environment.

Holistic Ecological and Contemporary Perspectives

As described in the previous chapters, most research conducted on psychological aspects of athletic talent development has focused on individual athletes – on the amount and quality of training needed to reach the elite level, for example – or on the role of selected individuals in their microenvironment, typically parents and coaches. 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, as indicated by Araujo and Davids (2009): “Acknowledging the interdependence of the whole system and its parts signifies that the latter must be studied ‘in vivo’. Studying the parts of a complex system in sport in isolation does not work” (p. 32). The ATDE is considered holistically – that is, as consisting of micro- and macro-levels as well as of athletic and non-athletic domains. This environment has a sports club/team as a core, but it also goes beyond the athletes’ direct interaction within the club/team. Using a holistic approach also means investigating the environment through multiple lenses, seeing it through the eyes of prospect athletes, elite athletes, coaches, managers and parents.

Most of the research conducted on psychological aspects of athletic talent development has been retrospective in nature, with current or former elite level athletes being asked to look back at their pre-elite years (Bloom, 1985; Durand-Bush & Salmela, 2001; Ericsson, 1996b). However, retrospective research has an eminent recall bias, since people continuously recreate their past in the light of the present. Memory is not a precise and adequate representation of the events as they occurred but is very often fragmented and coloured by the attitudes, conceptions and perspectives of the person at the time of the retrieval of the memories (Cohen, 1999). It is to be expected that glorious victories, unbearable defeats or unwanted career termination will colour the perspective through which an elite athlete remembers his or her junior elite years, including the environment in which he or she was embedded. This study therefore takes a contemporary – or real time – view of the functioning of the environment. This said, however, this research project also follows the development of the environment, mapping its history and assessing future challenges and thus integrating it in a broader time frame.

Environments and Participants

Selection Criteria for Successful ATDE's

Three successful talent development environments were chosen as cases for the study. The cases were selected on the basis of a set of criteria.

The main criterion of a successful ATDE is *a successful record of producing elite senior athletes*. There are several indicators of this criterion. Firstly, the elite athletes that are a product of the environment have to compete at a high international level. The definition of 'high international level' is sport specific, but relevant indicators are qualification for the Olympic Games, good results in international competitions and selection for national teams. Secondly, a larger number of young prospect athletes must make a successful transition to the senior elite level than is usual in other environments in the same sport. Acknowledging that different environments have different preconditions for developing elite athletes, an environment managing successful talent development against the odds, such as a small town club, was selected in preference to an environment where a steady production of elite athletes

is expected, such as a big city club. The precise and sport specific formulation of the main criterion was undertaken with the help of experts within the sports involved.

The main criterion reflects the standpoint that the aim of talent development is neither to produce high level youth results nor healthy young adolescents – although these aspects may prove to be important explanatory factors in the environments' success – but to assist young prospective elite athletes in making a successful transition to the senior elite level in their sport.

To facilitate the comparison between the environments, two additional criteria were added: sport and country. The environments selected focused on an Olympic sport, which would, I felt, ensure that they were highly competitive and that the international elite level standard was high. I also focused on individual sports or sports in which athletes compete in very small teams, leaving out the big traditional team sports.

Again to facilitate comparison, only Scandinavian (Danish, Swedish and Norwegian) environments were selected. With populations ranging from five to nine million people, Denmark, Sweden and Norway are small countries with too few potential elite athletes to focus solely on talent selection and are therefore forced to implement sustainable strategies for talent development. On the level of national culture (Triandis, 2004), Scandinavian countries are also similar. Arguably, Scandinavian countries are individualist rather than collectivist, with a self that is defined as autonomous and independent; they are horizontal rather than vertical, regarding modesty as a virtue and being reluctant to 'stand out from the crowd'; they are loose rather than tight, with a high diversity in accepted norms within the society; and they are complex rather than simple, with a multitude of occupations, types of settlements and political systems, and a high level of specialization. In a study of work-related values, Hofstede (1980; 1997) grouped Denmark, Sweden and Norway as countries with low power distance, high individualism, weak uncertainty avoidance and low masculinity. For the purpose of this study, therefore, since all three environments were Scandinavian, the larger cultural context of the three selected environments was considered to be fairly similar.

Selection of the National 49er Sailing Team, Denmark

The Danish national 49er sailing team was selected for the study because it has a successful record of producing elite senior athletes. Indicators of this success are the high level international results of the elite athletes and a steady production of skilled athletes ready to take over when elite athletes end their career. 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. Despite the small number of Danish athletes participating in the 49er class, with fewer than 10 new Danish sailors introduced to the class every year, a group of 6 national team athletes (3 crews) and 8-10 young prospect athletes (4-5 crews) is maintained as a training community; of these a large proportion of the prospect group manage a successful transition to the senior elite level, most often within the 49er but sometimes in other boat classes. In addition it is worth to mention that Denmark has a proud tradition in the sport of sailing and that through time Danish sailors have won numerous medals at European and World championships and the Olympic Games. It also adds to the relevance of selecting this case that Danish youth sailors have had impressive results, with 30 medals and 68 top 10 places in the most important international youth championships in 2006 (data from the Danish Sailing Federation's annual report 2007).

Selection of IFK Växjö Track and Field Club, Sweden

IFK Växjö has a successful record of producing elite senior athletes, and the club reports a steady flow of athletes from their junior to senior elite training squad. Indicators of this success are a large number of elite athletes representing the Swedish National Team and the club's success at the Swedish championship. The club won its first European championship in the early sixties, and every year since it has had athletes competing in the Swedish national team. The year before the study, 11 IFK Växjö athletes represented Sweden in international competitions, and the club's athletes won a total of 11 medals at the Swedish Championships (indoor and outdoor) for senior athletes. To substantiate these numbers, it is worth mentioning that Sweden has a successful history in international Track and Field and in the year of the study ranked first among the Nordic countries in the European league table, which is based on number of athletes in the top 30 across all disciplines. It is also worth mentioning that the

club's prospect athletes won 26 medals at the Swedish Championships for youth athletes the year before the study and that IFK Växjö is recognized in Sweden for its ability to foster elite athletes, a fact that the Swedish Athletic Association has acknowledged by locating one out of seven national Track and Field high schools and one out of two national Track and Field performance centres in Växjö.

Selection of Wang School of Elite Sports' Kayak Team, Norway

The flat-water kayak team at Wang School of Elite Sports was selected due to its success in developing young paddlers into elite senior athletes. Indicators of this success are the impressive results of Norwegian senior elite kayakers, the flow of young paddlers from Wang into the Norwegian senior national team, and recognition from the Norwegian kayak federation.

Ever since it won its first gold medal in the World Championships in 1968, Norway has won a large number of medals at senior World and European Championships and Olympic games. Norway has won medals at every Olympic Games from 1992 to 2008, was most winning nation in kayak in the 2004 Olympics, has been represented in the finals at every World Championships since 1968, and totals 123 medals at the senior European and World Championships and Olympic Games.

The school reports a steady flow of their paddlers into the Norwegian national teams. Wang admits approximately four new kayakers into the team every year, and the Wang kayak team has existed for ten years. Out of a total of 40 kayakers who have attended Wang, ten paddlers have represented Norway in the U23 World Championships and six paddlers have represented Norway in the Senior World Championships. In 2009 a total of five paddlers were selected to represent Norway in the youth World Championships, of whom four were students at Wang at the time. In the current structure Norway's senior national team consists of a performance and a development team, and more than half of all paddlers in this overall team are former or current students at Wang. To further support the assessment that Wang's kayak team is a successful ATDE, it should be noted that the Norwegian Canoe Association recommends skilled young paddlers to attend the Wang programme.

Participants

The central members of the environments under study were young prospective elite athletes who were recognized as ‘talented’ but who had not yet made it to the senior elite level. More specifically, the target group of the study is the group of athletes who are in their investment years (Côté et al., 2007) and embarking on a transition from talented junior to elite senior athletes. Because this phase and transition does not come at a fixed age but varies from one sport to another, the age of the target participants varied, being between 15-17 in track and field, 16-19 in kayak and 18-21 in sailing.

Besides the target group of prospective elite athletes, the environments had a number of other participants, such as elite athletes, coaches, experts, managers, parents and others. As a consequence of the holistic ecological approach, these were all included in the study, either as interviewees or during observation, as will be described below.

Research Methods and Instruments

Case studies use multiple sources of evidence. In this study data was collected through interviews, participant observation and analysis of documents. The purpose was to make a rich and detailed description of each environment as a basis for a cross-case analysis to be accompanied by the formulation of guidelines for creating successful ATDEs.

Interviews

The in-depth qualitative interview allows the researcher access to subjective experiences and detailed intimate information about peoples’ life worlds (Kvale, 1983; 1996). 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 to allow for different perspectives from the young prospective elite athletes, coaches, elite athletes and managers. Young prospect athletes were interviewed about the environmental facilitators and barriers

they encountered on their way to success and about the environment's perceived effects on their development. Focus was on the micro-environment and their daily activities. Coaches were interviewed to find out how they ensure that the immediate environment is conducive to the talent development process, how they assess its effect on the prospective elite athletes and what is done to optimize this. They were also asked to comment on macro-environmental influences, preconditions, process and the maintenance of group culture. Club administrators offered insights into the larger environmental system in which the club is embedded. They were primarily asked to comment on the role of the club and its values, macro-environmental influences, historic dimensions, financial and human resources and club initiatives to work with the surrounding environment. The elite athletes were not primarily asked to reflect back on their pre-elite years but rather to comment on their own role in regard to the young prospective elite athletes' developmental process. Also they were asked to share their insights into the environment's culture and development over time.

The interview guides were built on the basis of the ATDE and ESF working models and structured in four main parts. In the introductory part, all interviewees were asked about their background and their immediate perceptions of the environment. Questions included: "Tell me about yourself and your association to this environment", "How do you feel about being a part of this environment?", "Do you think the environment is a successful talent development environment?", "What tells you that it is successful?", "What do you consider the secrets of its success?"

Based on the ATDE model, the descriptive part posed question to the interviewees about the roles and functions of specific components in the environment and about the relationships between those components at the micro- and macro-levels. Questions for coaches and managers included: "What are important resources in your efforts to make good talent development? And what are barriers?", while athletes were asked, for example, "Who helps you in your efforts to make it to the elite level? Who hinders you?" This was followed up by more specific questions about the role of older/younger athletes, family, school, educational system, peers inside and outside sport, experts, related clubs, federations and the media. Questions were also asked about the relations between these components, for example: "What does the club do to maintain good working relations with the athletes' families?"

Based on the ESF model, the explanatory part examined the factors contributing to the environment's success and comprised questions about preconditions, process, individual development and organizational culture. Questions for managers about preconditions included: "How would you describe the club or team's main resources?" This was followed up by specific questions about facilities and financial and human resources. Questions for athletes about process included "Describe daily life in this team", followed by specific questions about training, camps, competitions and social events. Common questions about group culture included "What characterizes the culture in this environment?", and were followed by specific questions about the group's values, norms and traditions, such as the question for coaches and managers, "What do you do to maintain this culture?" Questions for coaches and parents about individual development were, "How does being part of this particular environment affect the athletes?", and this was followed by questions about athletic skills, personal values and attitude towards training.

To place the current state of the environment in a broader time-frame, the concluding part presented questions for coaches and managers about past traditions and perceived future challenges for the environment, including questions such as: "What can be done to make this environment even more successful?" and "What traditions would be wise to keep on to?" Two examples of interview guides are attached in appendixes 2 and 3.

Participant Observation

System's theory proposes that any phenomenon isolated from its natural context presents itself differently than within this context. In an attempt to achieve contextual sensitivity, emphasis was placed on participant observation of the prospective elite athletes in the natural setting of their daily lives as an important method of data collection.

Participant observation has at least three characteristics that make it a good strategy in scientific studies of social relations (Tinggaard, 2006a). Firstly, it enables *in situ observations* of the social practices under study. Being able to directly study everyday life allows for nuanced descriptions of the social practices and gives the researcher a profound feel for the culture. Listening to the myths and stories, watching rites, customs and traditions, and seeing buildings logos and styles of clothing (cultural artifacts), gives the researcher an impression of

how the environment creates and maintains its culture. Sharing these experiences is often the only way to access themes that interviewees would never mention, either because the themes are too obvious or unimportant from their perspective or simply because it is too difficult to verbalize. These glimpses and impressions were also an important foundation for posing additional questions in the interviews. Secondly, participant observation allows the researcher to follow the subjects across several contexts. The opportunity to study the athletes in several diverse contexts, such as at training, in competition and at meetings, camps and social events, revealed insights into which social norms belonged to a specific context and which were common to more than one context.

The observation guide was loosely structured and, rather than being strictly formulated according to predetermined categories, consisted of several areas of interest derived from the ATDE and the ESF working models. Questions derived from the ATDE model included: “Who do the athletes interact with and what characterizes these interactions?”, “Who initiates these interactions?”, “What characterizes interactions undertaken to promote the prospective elite athletes’ development but of which the athletes themselves are not a part?” Areas of interest derived from the ESF model included: The state of the material (preconditions); the content and organization of daily activities (process); and enacted values, communication patterns, rituals and stories told in the environment (organizational culture).

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). A parent standing watching from the sidelines, a coach carrying equipment for the next drill, a press manager waiting for a quick interview, an injured athlete having finished a rehabilitation programme early or others were all willing to share their views on the environment. Open questions were posed to allow the subject’s spontaneous thoughts, and included: “Is this a good environment?”, “What do you think is the secret behind the success of this environment?” and “If I were to invite another coach/parent/athlete from a different club to come here, what would he or she find to be most different?”

During the observations two kinds of records were kept. On the one hand there were field notes, jottings of what happened, whose purpose was mainly to assist the researcher’s memory. On the other hand, the research diary consisted of memos, thoughts, questions and

observed patterns. The research diary narrowed the search, specified relevant questions for the interviews and formed a first step in the process of analyzing the data.

Archival Data

Archival material, which was the least used source of data for this project, varied in accessibility. The sources for this analysis included success statistics (results, participation in international competitions, dropout and national team selections), web pages, training programmes and official papers describing the mission and structure of the club or team.

Procedure

After an environment had been selected, preliminary contact was made as an informal inquiry to a coach within the environment. As a second step, the project was more formally presented and discussed with coaches and managers.

In all cases full anonymity was offered but not accepted by the coaches and management. Instead, 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, and that when the investigation was finished, the primary researcher would present the results to coaches, management and possibly sponsors at the environment and engage in a dialogue about the findings and potential areas of improvement.

Preliminary acceptance from the athletes was gained through their coach. Upon arrival and before the field study began, participants were informed about the aim of the study, including the fact that it was meant for publication, and about basic confidentiality issues, namely that the identity of the club would be disclosed but individual identities remain confidential. It was made clear that the club had been selected due to its success as a milieu for the development of talent. Finally they were informed that they had a right to terminate their participation at any time.

Procedure for Interviews

Interviewees who were potentially rich in information were carefully selected on the basis of informal talks and advice from people inside and outside the environment. All interviews lasted between 60 and 90 minutes and were recorded for later transcription. Interviews were conducted in the participant's natural settings and organized to provide the best possible chance for an uninterrupted session, although this balance often proved to be a difficult one. Before each interview the above-mentioned ethical issues were reiterated, including the fact that participation was voluntary and acceptance of these conditions was obtained.

In the Danish National 49er sailing environment interviews were conducted with two current 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.

In IFK Växjö athletics club interviews were conducted with four prospective elite athletes, one current elite athlete, one elite coach, one developmental coach, one coach who trained elite and prospective elite athletes, the club's manager and one board member. The interviews took place in the club's meeting room in their office facilities or sometimes in the corner of the training facility. The interview with the elite athlete took place as a shorter follow up interview after her giving a presentation on the subject of club feeling to new coaches in the club.

In Wang School of Elite Sports kayak team, interviews were conducted with five young prospective elite athletes (representing all three year groups and both genders), two elite athletes, the school coach, one of the club coaches, the head of top sports at the school and one athlete's father. The interviews took place in different settings, including at the school, in the club meeting room, in the club's weight-lifting room and next to the pool where the athletes rested between training sessions during a training camp.

Confronting ethical issues in interview research, Brinkmann & Kvale (2005) illustrate how the intimate, caring and open interview has become the prevailing and natural choice when conducting interview research. However, being caring and open in the interview setting does not make this interview form ethical *per se*. Ethical issues always arise when private issues are researched and the findings publicised (Brinkmann & Kvale, 2005), since the power to

interpret and present the story being told resides with the researcher. As an alternative to the empathic life world interview various other types of interviews are proposed, amongst them the actively confrontational interview (Bellah, Madsen, Sullivan, Swidler & Tipton, 1985), in which the interviewer detects and questions contradictions in the interview and challenges the ideas of the interviewee. Actively confronting the interviewee and questioning ideas that contradict those of the researcher forces the interviewee to make fresh considerations and to reflect upon his or her own ideas. This becomes a negotiation of meaning, in which the interviewer and the interviewee contribute to the generation of new knowledge. As such, creating new knowledge is not limited to the process of analysing the interviews but happens in the context of the interview itself (Tanggaard, 2006b). From an ethical standpoint it could be argued that this form of interview makes transparent the instrumentality and power relations of the interview and makes the role of the researcher more explicit in the relation (Brinkmann & Kvale, 2005).

The present study used both the intimate caring and the actively confrontational approach with different participants. Interviews with young prospect athletes and their parents were usually intimate, caring and open, probing for the subjective life world and not questioning the experiences of the athletes. Interviews with club administrators and the more self-confident and inquisitive coaches were often more actively confrontational, using contradictions between the coach's statements and the researcher's observations to dig deeper in a mutual hunt to understand the nature of the environment.

Procedure for Observations

The duration and organization of the observations and the role of the researcher were different in each environment. The researcher would in all cases try to make himself useful, most often to the coaches. The observations in all cases included observing practice, competition and social events. They also included a number of informal talks with people in the environment. These talks were not recorded, but as soon as appropriate after the talk, summaries were written.

In the Danish National 49er sailing environment, observation was carried out during one intensive training camp abroad, one international competition, two training sessions "at

home”, at meetings between the athletes, the coach and training partners, and at one educational seminar for all Danish National Team athletes. Altogether these observations covered about 300 hours 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 and meals. 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. Such informal conversations were carried out with parents, coaches and athletes from other types of boat, with experts and foreign training partners and with competitors. Knowing of the researcher’s background as an applied sports psychologist, some athletes would often approach the researcher to discuss performance related issues. Careful not to assume the role of consultant, the researcher used these conversations to gain insights into challenges specific to the sport.

In IFK Växjö Track and Field club, observation was carried out during three periods of training, one competition and one coach education seminar. Altogether these observations covered about 100 hours of daily routines spread over six months, from out-of-season to peak competitive season. The observed practice included sport specific training, strength training and training in alternative sports. The observed competition was away from home and lasted three days. During the observations the researcher engaged in informal talks with coaches, elite athletes, parents and staff. The researcher would offer to assist coaches in setting up drills and other practical matters but was given a less active role than was the case in the sailing environment.

In Wang School of Elite Sports kayak team, observations were carried out during one standard training week in Norway in the spring, during the Nordic Championships in Denmark in the summer, and during an intensive training camp in Portugal in the autumn. These observations included training on the water, weight lifting, running and alternative sports, competition, transportation between school and sport, and social events. During the training camp the researcher also took part in meetings, meals, relaxation and social trips. In total, observations covered about 150 hours of team practice, spread out over six months during pre-season, peak competitive season and post-competitive season. During observations the researcher assisted the coach and athletes in setting up race courses, moving buoys and

taking video, and also participated actively in a number of weight-lifting, running and cross-country bike training sessions. These practical activities laid the groundwork for productive informal conversations. Such informal conversations were carried out with athletes, parents, club administrators, the youth and senior national team coaches, the school's sports coordinator and a number of coaches from the club, from other clubs and from other nations.

Getting Access to Archival Data

Some archival data employed, such as official web pages or international rankings, are public and accessible through the internet. Success statistics, club organization charts, mission statements and training programmes were kindly provided by the environments, most often coaches, staff members or the management. Archival data was mainly used to select the environments and to formulate specific points of interest to be investigated more thoroughly during the interviews and observations.

Table 1 summarises the data collection strategies in each environment

Analyses and Interpretation

All interviews and observation notes were transcribed verbatim and coded using NVivo 8 coding-software. The transcripts were coded using a deductive-inductive approach. First, a node tree was built on the basis of the working models (deductive), but as new categories or ideas emerged, the node tree was expanded accordingly and the previously coded material was checked for any signs of the new categories (inductive). The deductive part of the coding primarily involved high-order themes derived from the working models, such as elite athletes, coaches, experts, family, preconditions (the node tree is attached as appendix 3), whereas the low-order themes and the content of the themes were inductively derived from the data. Whenever a chunk of text was coded, this always included the entire paragraph or the story of which it was a part. Next, interviews and observations were subjected to meaning condensation (Kvale, 1996), whereby the informants' statements were condensed into more precise formulations. After this each node was read several times, the main themes were listed, and a summary of each node was written. This approach bears a resemblance to a

narrative approach and is “supported by the philosophical assumptions of interpretivism” (Smith & Sparkes, 2010 p. 80). The interpretive nature of the analysis was particularly evident in the analysis of the basic assumptions of the environments’ organizational cultures. Using interview material and participant observation deriving from “living the culture” as a basis, my task was to interpret the cultures and infer their basic assumptions.

	49er	IFK Växjö	Wang Kayak
Interviews	3 prospects 2 elite athletes The national team coach The elite manager of the federation	4 prospects 1 elite athlete 1 elite coach 1 developmental coach, 1 elite <i>and</i> developmental coach 1 board member The club manager	5 prospects 2 elite athletes 1 club coach 1 athlete’s father The school coach The school’s head of elite sports.
Observation time and activities	300 hours Practice, competition, camp, meetings and athlete education seminar. From pre-season to peak season	100 hours Practice, competition, training in alternative sports, and coach education seminar. From main season to off season	150 hours Practice, competition, camps, social trips, athlete education seminar and basis championship. From pre-season to end-of-season.
Informal talks during observations	Prospects, parents, coaches and athletes from other types of boats, experts and foreign training partners.	Prospects, coaches (from club and high schools), elite athletes, parents and club staff.	Prospects, parents, club administrators, national team coaches, the school’s sports coordinator and coaches from different clubs and nations
Archival data used	Training diaries, 49er class webpage and success statistics.	Club mission statements and organization charts, success statistics and club webpage.	School and club webpage, school mission statement, training programmes and success statistics

Table 1: Summary of data collection in each environment

Rather than using either statistics to generalize from few cases to many or sampling to select representative cases, case studies often study cases that are interesting in themselves and rely on analytical generalization. Analytical generalization has been defined by Maaloe (2004) as a “tentative conjoining of fresh observations in order to create new and more comprehensive wholes (induction) with previously identified connections – expressed as theories – which are believed to relevant to the present case (deduction)...” (p. 21). In other words the findings of the case study serve to differentiate, add to or refine the theories from which the study evolved with the aim of developing an enriched theoretical framework. In this study the results of each case study served to create empirical versions of both working models that reflect in each case the unique qualities of the environment under study. As a second step a comparative analysis of three successful ATDE’s has led to a refinement of the holistic ecological approach to study talent development.

In line with the systems theory approach, it was expected that every successful ATDE would be a unique whole. Each environment will, therefore, be analysed and presented as a discrete investigation. The presentation of each environment will be summarized in the empirical versions of the ATDE and ESF working models, and central themes that emerged during the study of the particular environment will be discussed.

It was also hypothesized, however, that successful ATDE’s have common characteristics. The comparative cross-case analysis will focus on the conclusions of the individual cases, regarding both the components and structure of the environments and the factors that make them successful. On the basis of the comparative analysis I will present tentative conclusions about successful athletic talent development environments, taking due account of the particular ATDE’s embedment in a national and sport specific culture. These are then operationalized into guidelines and recommendations for creating sustainable and effective talent development environments. The results are analyzed to determine to what degree they support contemporary literature on the importance of context in talent and career development and transitions.

Establishing Trustworthiness

Several steps were taken to establish the trustworthiness of the study. In the data collection phase, it was assured that 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. Similarly, observation guides were loosely structured around a few predetermined areas of interest to allow for the unique qualities of the everyday life and organizational culture to be observed. In the coding phase inter-rater reliability (Kvale, 1996) was enhanced by using a second researcher with experience in qualitative research to code samples of interviews. When differences in coding were detected, they were discussed and an agreement was reached. Finally, communicative validity was provided through a stakeholder check (Patton, 1990), where the results of each case study were presented to the relevant participants, who were asked to reflect on the degree to which they considered the results an accurate portrait of their environment. This check was particularly relevant with regard to the basic assumptions of the environments' organizational cultures, as the analysis of these involved a high degree of interpretation on my part. In all cases major ideas were approved, and the discussions led to minor adjustments.

CHAPTER 4

CASE 1: THE DANISH NATIONAL 49ER SAILING TEAM



In the following sections I will present the results from the first case, which are then summarized in empirical versions of the two working models. In the first section I will provide a description of the most important components and the structure of the environment. This descriptive part will result in the ATDE empirical model of the Danish National 49er Sailing Team. The second section has an explanatory purpose and will outline factors that contribute to the environment's success in developing prospective elite athletes, resulting in the ESF empirical model of the team. 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 elite level and thus part of the sailing federations talent group” by “prospects”, “national team athletes” by “elite athletes”, “national team coach” by “coach” and “manager of the sailing federation elite section” by “manager”.

Introduction to the Environment: The Danish National 49er Sailing Team.

The sport of sailing consists of several different classes of boats, competing at different levels and crewed by a different number of athletes. One class of boats that competes in the Olympics is the 49er, which is a two-man trapeze boat. The 49er was introduced in 1996 with a view to being part of the Olympic programme in Sydney 2000. It is designed to be a fast and spectator-friendly boat. The 49er appeals to highly skilled athletes with an ambition to engage in a serious contest. It is described by the athletes as a boat that is fast, dynamic, technically demanding and fun. It is difficult to sail this boat and many crashes happen even at the elite level.

The Danish 49er environment consists of a coach and a group of athletes divided in two sub-groups. The national team has three crews and the talent group has four crews. All the participants are males. Apart from these two groups, Denmark has approximately 8-10 crews sailing the 49er at lower levels. The environment is virtual in the sense that it is not situated in a specific location. Instead, the athletes travel around the world and practise where major competitions are taking place or where the weather provides good training conditions.

Description of the Environment

Micro-Environment: Athletic Domain

The target group in this study comprises 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, with one or two years experience, are new to the 49er boat class.

Elite Athletes – Prospects. The elite athletes are all in their late twenties and have been sailing 49ers for five to ten 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. 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 – proximal role models – for them. They are grateful and sometimes even surprised by the help they receive.

Coach – Elite Athletes – Prospects. The coach holds his position for eight years and has obligations primarily towards the elite athletes. During training the coach's main functions towards the group include setting up race courses for training, coordinating the wishes of the elite crews in a training programme, asking about the rationale behind specific decisions during a race in order to strengthen the athletes' analytical sense, taking pictures and video of specific manoeuvres for later optimization, and constantly drawing the sailors' attention to small changes in cloud formations to heighten their awareness of this important information. During competitions coaches' boats are not allowed to be near the race course and the coach has limited communication with the athletes. The coach also helps the athletes to organize their year plan, decide what competitions to enter and prioritize financial resources. Because his job depends on a steady flow of prospects 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 mainly is

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. The cooperation was initiated by the elite athletes, but the coach sanctioned the idea. 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, which was clearly observable one morning.

One morning, with reference to the fact that the German training partner did not sign up for a Danish talent development programme, the coach suggested a specialized training programme solely for the Danish elite crews and the German crew. The Danish elite athletes did not accept this but insisted the prospects should be allowed to join. Soon after a young German crew asked permission to join the training. The coach discussed it with the German elite crew, who said ‘no way’. The German elite crew accepted the presence of the Danish talent group but regarded the young German crew an unwelcome rival.

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. The job as coach puts them in a responsible position and is seen as an enrichment of their own developmental process rather than as a competition for scarce time resources.

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 prospects reach the 49er class, parental involvement is limited to emotional support and an acceptance of the athletes’ dedication to their sport. The athletes experience no parental pressure to perform, as an elite athlete explained: “They [my parents] respect my priorities. But I am certain they would prefer that I had a ‘real life’; an education, financial security and the like”.

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 prospects therefore prioritize friendships within the world of sailing. One prospect commented on how these friends show more appreciation of their venture:

Chapter 4: The Danish National 49er Sailing Team

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 prospects. 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 and in this way they manage school well. 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, asking professional Danish sailors at the international top level to be mentors to very talented prospects, for example. It also plays a key role in the prospects' macro-environment, helping them to plan their athletic career by offering advice, for example, on which boat types to sail and which competitions to enter, or helping to prepare their further 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. Financial support is always distributed to maximise the athletes' learning, a policy that the coach explained as follows:

If prospects come down here [Mallorca] for this training camp, 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 championship 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 transparency 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. Once at a competition I saw all these coach boats owned by parents. The parents would hold their children's hands between the races. I see this as a danger because the difference once they reach our environment will be too big for them to handle.

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".

For the parents this process is sometimes difficult to understand. They see the lack of coaching resources as an invitation (or even an obligation) to continue the active involvement that was necessary when the athletes were younger.

The environment – the educational system. Every student in Denmark is eligible for a state education grant. Since the athletes are unable to earn 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 prospects to choose a higher education course with a high degree of flexibility and a low amount of compulsory attendance. The manager explains: "I find it ideal for the elite development that the athletes can get a state education grant, can drag out the education,

postpone exams and get supplementary grants”. 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 dialogue 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 the 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 and thus reducing financial concerns among the athletes. The culture of sailing is seen as hierarchical, with the national team athletes enjoying many more privileges than prospects. The elite athletes need not worry about losing status, which seems beneficial to the cooperation within the group. Sailors are also seen as spontaneous rather than as planning in advance, a characteristic that may stem from their dependency on the weather. It is explicitly recommended not to specialize too early but rather to try out many different types of boat before embarking attempting at an Olympic career. Sailors typically reach their peak in their late twenties and are able to compete internationally until late in life. This also means that the athletes can afford to be laid back. When not training, the athletes enjoy life on the waterfront, and the quality of the espresso at different cafés is a common subject of conversation.

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. However, the sport is becoming increasingly professionalized. Foreign talent programmes are seen as increasingly structured, focused on every detail, better supported financially and with access to more expert resources. The main challenge for the future is thus to find a proper balance between autonomy and professionalism, spontaneity and structure.

From the ATDE Working Model to the Empirical Model of the Danish 49er Sailing Environment

Figure 5 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 athletes and prospects. The elite athletes are the main knowledge-bearers for the prospects and become a link to an international training community and also to expertise. The coach works 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. Danish national culture and sailing culture appears to have an influence on the environment. 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.

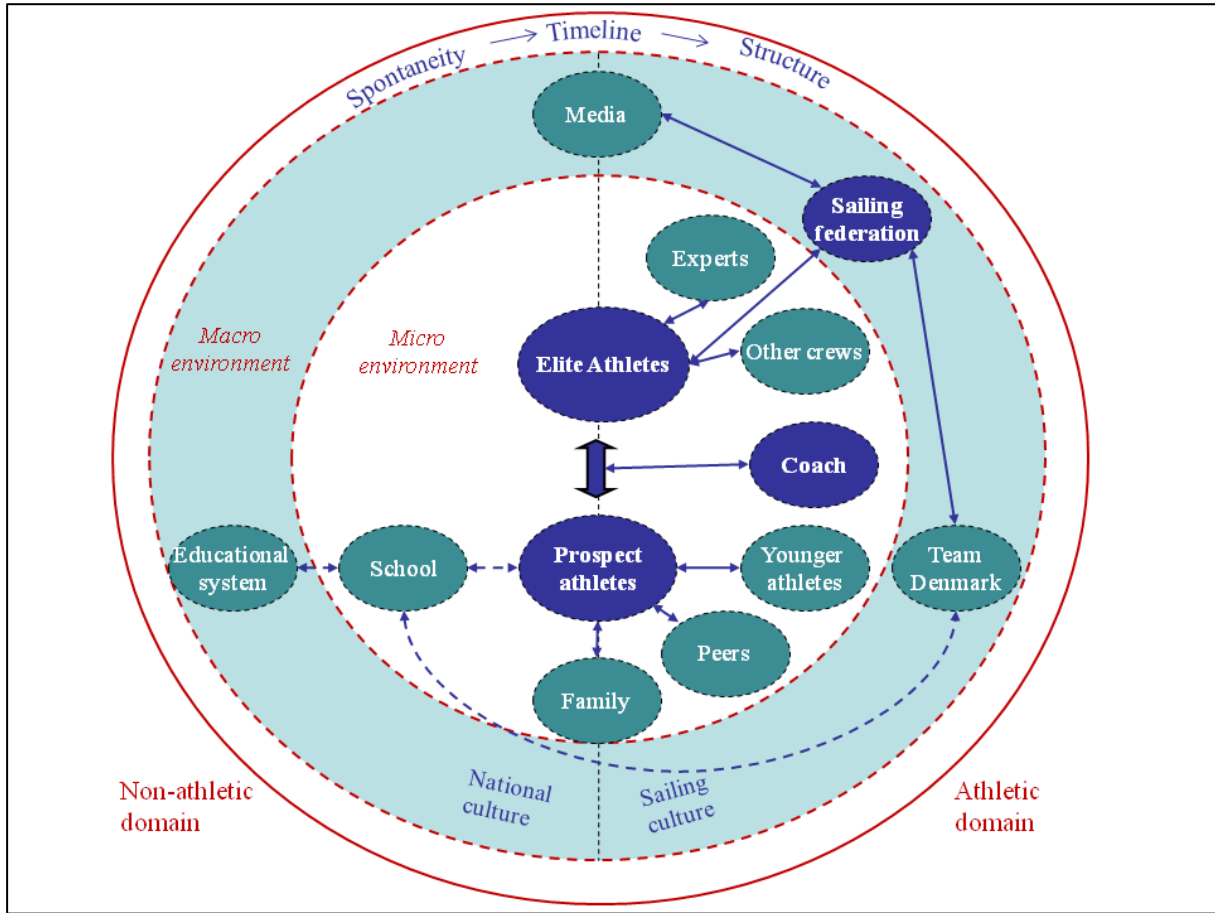


Figure 5: The athletic talent development environment (ATDE) empirical model of the Danish national 49er sailing team

Factors Influencing the Success of the Environment

The above presentation of the environment is purely descriptive and leaves us with the important question of what makes the environment successful. The factors that contribute to the success of the environment are analysed following the logic of the ESF working model.

Preconditions

In general the athletes training in the environment being studied suffer from a lack of resources in comparison with their peers from other nations. Sailing 49ers is an expensive sport, with some competitor nations having 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, without a clubhouse or home-court, material resources include cars and boats used by coaches. These resources also trail behind other nations that have hi-tech weather stations on their boats, but the difference is not seen as a problem. Coaching resources are also limited, with only one coach to handle both elite athletes and prospects. 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 the athletes pushing each other to do one's best 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 helping each other all the time and also pushing each other hard." A prospect adds: "The lack of money and coaches would probably have demotivated us, if we had not had a unique learning environment".

Process

This refers to daily life in the environment and has several subcategories: training, competitions, meetings, social events, life 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 between two and four times a week in afternoons and at 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, however, the prospects keep their boats at the site where the elite athletes are training. This often means they can only train at 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. ... We [the crew] would certainly gain more from training two days with the national team than from training seven days on our own.

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

Nor is the coach always present during training either in Denmark or abroad. As an example he accompanies the elite athletes on 100 out of 160 annual days of travelling. The rest of the time they are on their own and depend on their ability to do quality training and competition on their own initiative. The coach respects the athletes' responsibility to plan their own training, and this was observed during a training camp:

At a meeting, the athletes decided to train at 11 o'clock the next day. After the meeting a national team crew told the coach they planned to do repairs from 10-12 o'clock and not take part in the training. Rather than prompting them to start their repairs earlier and take part in the training, the coach accepted. I found his decision odd and asked him why. 'They are responsible for their training, not me. They know what is best for them. Perhaps they need a little space'. Next morning the crew leaves only half an hour later than the rest of the group, sailing in a different direction.

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 a very important part of the talent development process. As one elite athlete explained: "The investment represented by sending talented young sailors to important international competitions with good support is invaluable in sailing. They learn so much." 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. Meetings take place wherever possible, in a hotel room, on the beach or in a café, and often while repairing gear, preparing dinner or other activities. 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. 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." Attending these meetings, the prospects are socialized in two senses. What happens at the meetings teaches them to scrutinize their own performances in order to

improve. The organisation of the meetings teaches the prospects to be responsible for their own development.

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. Every part of the daily process is organized to optimize learning. Their key ideas on the subject almost present a summary of the process category. These key ideas include: 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 so 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. The last idea suggests ‘within-sport-sampling’ as a form of sampling that might be found even on an elite level. A prospect explained how within-sport-sampling included occasionally sailing different boats with the two crew members switching places in training, and elaborated:

In January I sailed a match race competition. It is big boat and my only role was to observe the course and the winds and call the turns. I did not have a lot of ropes to think about. I learned a lot about tactics.... I think it is part of the nature of sailing. The sport is so complex that in order to gain a broad understanding it is a good idea to sail different boats.

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 organizational culture. 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 offered. 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 pass on 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.* For this reason 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.

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. In addition it 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 the 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 to be 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.

Commenting on the environment success, the manager stated:

We can establish that over a number of years this group of 49ers has been able to produce and regenerate talent. We have had competent sailors from the beginning, and the team has, beyond any doubt, been able to attract new sailors and take them to an elite level. I believe we develop resilient and intelligent young people with high self-esteem who are used to creating relations to others even internationally. They will also be in strong demand in the job market.

The Empirical Model Explaining the Danish 49er Sailing Environment's Success

Figure 6 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.

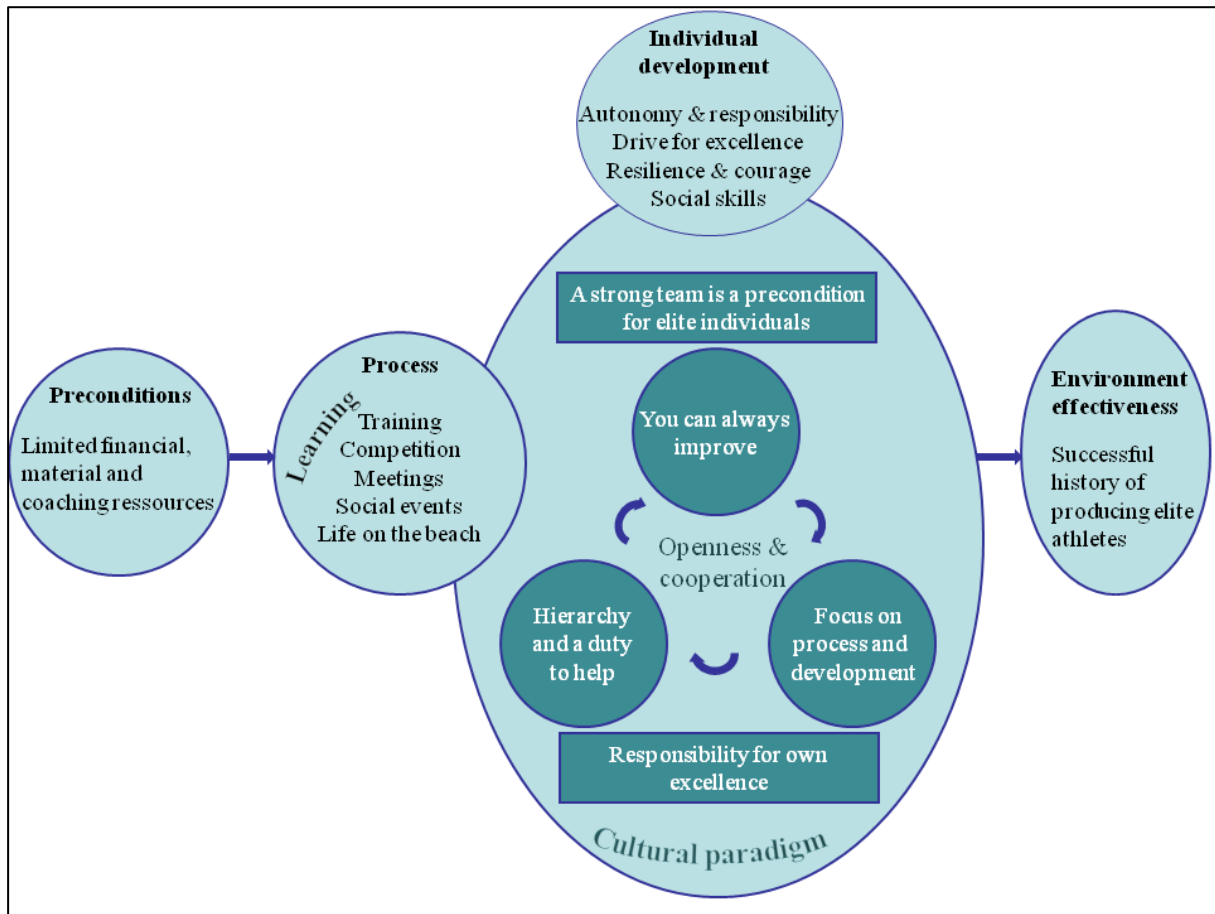
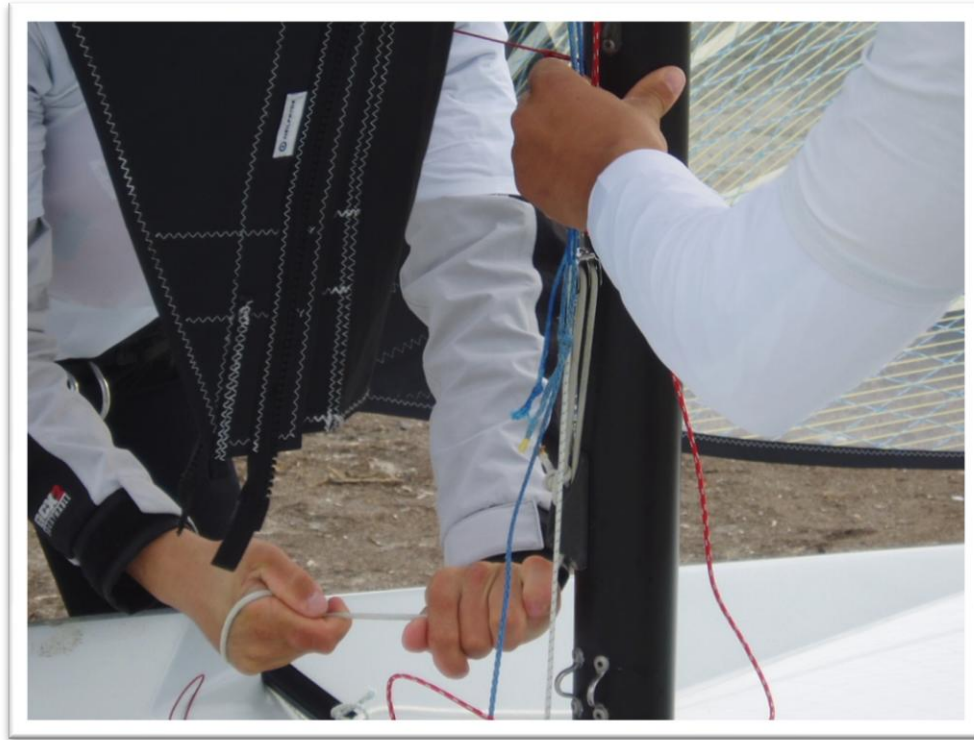


Figure 6: The environment success factors (ESF) empirical model of the Danish 49er sailing team

On the principle that a deficiency prompts a compensating strength, lack of resources leads to an increased focus on organizational culture. In the 49er sailing environment the process routine is organized so as to optimize learning and is heavily connected to its culture. This strong culture, whose central elements are openness and co-operation in a hierarchical team, focus on process, responsibility for one’s own excellence and a determination to improve, permeates the daily routine of training, competition, meetings, social events, life on the beach and learning and has a major influence on the development in individual members 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.



A summary of the Danish national 49er sailing environment provides the following characteristics:

- a) virtual, but relatively stable and cohesive,
- b) weighted towards the athletic domain but supporting athletes in their education and coaching work,
- c) hierarchical but open and sharing in all systems of communication, whether related to sport or not,
- 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.

CHAPTER 5

CASE 2: THE VÄXJÖ TRACK AND FIELD CLUB



In the following sections I will present the results from the second case, which are then summarized in empirical versions of the two working models. As with the previous case, the presentation will follow the logic of the holistic ecological framework and provide first a description of the environment and, by extension, a summary of the factors that contribute to the environment's success in developing athletes. For the sake of conciseness the term "athletic talent development environment" will be replaced by "environment", "young talented athletes" by "prospects", "the club's senior elite team athletes" by "elite athletes", "member of the group of coaches for the young prospects" by "coach", "member of the group of coaches for the senior elite athletes" with "elite coach" and "member of the clubs managing board" by "board member".

Introduction to the Environment: The IFK Växjö Track and Field Club

Established in 1919, IFK Växjö is one of the oldest track and field clubs in Sweden. It is located in Växjö, a town in the southern part of Sweden with about 80,000 inhabitants. Currently the club has about 550 athletes and 90 coaches. The majority of coaches are also parents of athletes. As has been outlined, the club has a strong tradition for developing young prospects and helping them to turn into senior elite athletes. The club has a number of indoor and outdoor training facilities, including several running tracks and a weight-training gym as well as club offices. These facilities are located in a central sporting environment, which is also home to a number of other sports, including soccer and ice-hockey. This makes it a lively place, where many young people spend their afternoons and evenings, which was observed the first evening of the study:

It is cold in the gyms. A group of athletes start their warm up wearing several layers of clothes. As they get warmer, they take off the outer layers, revealing what is perhaps their identity. Some wear sponsored track and field clothes, others a soccer jersey. They all train next to each other and the atmosphere is concentrated but relaxed. In the other end of the gym a small group of athletes train in shot putting. In the largest gym is an oval running track with a soccer arena in the centre, where a soccer team is doing the evening's training. On the running track, several athletes warm up including children and adults, soccer players and ice hockey players. In a quiet corner, the club's elite team is doing highly intensive exercises with full focus. Sometimes the younger athletes stop and look at the elite athletes, clearly impressed but also used to seeing them. All in all around 200 athletes have been training in the facilities this evening.

Description of the Environment

Micro-environment: Athletic domain

Prospects. The target participants of the study are prospects aged 15-17. They are made up of about 50 athletes representing both genders in a variety of track and field disciplines. Most of

them have practised track and field since the age of 8-10, but some are new to this sport, and others still practise other sports as their primary sports. The prospects are organized in training groups that play an important role in their activities in the club. Athletes in such groups are also friends, which keeps their athletic motivation high and facilitates their avoidance of parties and drinking alcohol with peers outside sport. Even injured athletes show up to meet with their group. The athletes in each group have different skill levels, ranging from junior national team athletes to beginners.

Groups of prospects – teams of coaches. At the centre of the environment is a relation between groups of prospects and teams of coaches. The coaches work voluntarily and are unpaid. They are organized in teams around each group of athletes, which means that athletes experience variation and are led by coaches with a variety of core competences. This helps to overcome some practical problems, such as devising convenient schedules, but its primary purpose is to allow the coaches to exchange their views and inspire each other. As one coach explained:

We always try to have at least four coaches working together in a team attached to each group of athletes. This is typical of our club. We cannot afford to put some coaches in a special position. Since we all have ordinary jobs elsewhere, we need to support each other and also make use of each other's competences. I guess it becomes sort of a competence culture where knowledge about training grows, and we inspire each other. And it works really well.

Even between coaching teams the borders are flexible. The coaches involved with the elite athletes take upon them the role of teaching the less experienced coaches, and sometimes also handle training sessions with the prospects. Generally it seems that coaching is guided more by a willingness to contribute than by rigid structures. An elite coach explains:

First of all I coach some of the elite athletes. They pay me to do so. At the same time, however, I am very involved in the club on a voluntary basis, especially in regards to developing our training environment. And often I also help other athletes or coaches. There are no clear borders.

A coach explains how the high skill level and openness of the coaches becomes a self-reinforcing process: "Skilled coaches come to Växjö to be among other skilled coaches in a positive and upward spiral".

Team and group organization involves both athletes and coaches being involved in several groups and teams. This means that “everybody knows everybody”, which facilitates an athlete’s transition into a new group or a change of coaches involved with a group of athletes. There is an open dialogue about core competences among the coaches and a recognition that the needs of the athletes change over time. During a period of observation it is announced that one of the principle coaches of the group under study has decided to stop. Another coach explains:

This coach was exceptionally good at maintaining a good group with a strong friendship among the athletes. This may have been the most important thing up until now. But now the athletes are so skilled they need some specific knowledge, which he cannot give them. We are seven coaches involved with this group so we are well prepared.

Elite athletes. With a total of 26 established elite athletes, of which 24 represented the national team on different occasions the year prior to the study, the training community of the elite athletes is clearly visible in the club’s daily life. These athletes train between eight and eleven times a week, often just alongside the prospects and are thus proximal role models pointing out the routes towards elite performance. A prospect commented:

I believe they remind us that it is possible to become best in the world when training in this club. We train besides them and see that they also get tired but manage to stay focused. Sometimes they invite other world class athletes, and we see how they interact and benefit from training together.

The elite athletes have no formal obligations towards the club yet never hesitate to support it. One athlete in particular, Carolina Klüft, is “the face” of the club. She has been a part of the club from novice to “queen” of international heptathlon. The club arranges ‘Carro’ training camps for kids and her portrait is visible in all the club materials. Her dedication to the club was observed one day by the principle researcher at a meeting for new club coaches:

Only four days prior to the meeting Carolina Klüft was married. A few of her friends and colleagues, other world class athletes, are still in Växjö visiting Carolina and training in the club. Nonetheless, Carolina is present at the meeting and gives a talk on the subject of the club feeling. The coaches are excited by her presence... I wonder what makes her spend her honeymoon talking to new coaches. As she talks, it all makes sense. The club feeling is the subject of the talk, but also her reason for

Chapter 5: The Växjö Track and Field Club

standing there. Central themes in her talk are solidarity, responsibility for the common goals and everybody contributing. This is one of her contributions.

Prospects – younger athletes. The prospects are sometimes asked to demonstrate technical drills to younger athletes and even occasionally assume the role of assistant coach. This role prompts the prospects to be responsible and aware of the knowledge and values they share. Accustoming the prospects to the coaching role, the club prepares future coaches on the assumption that not all athletes have the potential to reach the international elite but those who fail might still love the sport, identify with club and want to become coaches. All athletes are treated as possible future resources in the club, as was explained by an elite coach,

We have a responsibility to produce not only skilled athletes but also skilled coaches. I am convinced that in our training group we have five or six potentially top level coaches if we nurture them well. They are important to us in the long run.



Related teams and clubs. Both the club and particular athletes have relations to several other teams and clubs. Some prospects take part in both national team training, club training and school training. At competitions the prospects make friends within the wider track and field community. Some athletes regularly visit a neighbouring club for a week's training with their friends. A prospect explained how friendship and rivalry can go hand-in-hand:

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I never really think of them as rivals but more as friends. At competitions I hope they do well. I want to beat them, of course, but there is a big difference between wanting to win and hoping they will break a leg.

Similarly IFK Växjö invites other athletes to their club for training. The club goes to great lengths to be able to offer international elite athletes good conditions for training, including helping them organize accommodation and other practical matters. In fact, several of the elite athletes who take part in the elite training group compete for other clubs. This is accepted, since a group of strong athletes means better and more intense training for all.

Club management. Both athletes and coaches identify strongly with the club. The club management is a central organizing force in the environment with a board of elected members working voluntarily and passionately for the club. Most of these have been part of the club for a long time, assuming different roles, such as athletes and coaches. They make strategic decisions, communicate core values to parents, coaches and athletes, draft coaches and manage the club's finances. The manager explained his role thus:

I believe my most important task is to assure the overall quality of the club's progress and set its direction. I need to make sure we have a system that enables us reach our goals, which are to support the development of skilled and happy youth athletes and also world class athletes. I ensure that all persons involved have the right skills and also have a chance to grow as individuals through being part of the club. It's really about people thriving.

Experts – prospects. The elite athletes have access to a local team of experts in the areas of physiotherapy and nutrition, but access to experts is not readily available to the prospects, and the prospects are uncertain about the procedures regarding their potential access to experts. However, several of the coaches are considered experts in areas of injury prevention and physical exercise and hold paid positions as physical trainers in elite soccer and handball clubs. The club experiences very few injuries, and the prospects feel well taken care of.

Micro-environment: Non-athletic domain

School. Although the prospects have a busy daily schedule, going to school is seen as a healthy addition to life as an athlete. Several schools offer skilled and ambitious athletes the opportunity to train during school hours. Among them some of the local high schools offer

track and field as a main subject with three weekly training sessions during school hours, allowing the athletes more time for homework during the evenings. One of four national track and field high schools organized by the Swedish Track and Field federation is sited in Växjö and offers a full training schedule. This school accepts only few athletes and does so on the basis of their sporting and academic skills. Even if there are official borders between the training offered by the local high schools, the national track and field school and the club, in practice, the borders are less clear, and coaches will go great lengths to create optimal conditions for the individual athlete. A coach explained how the club cooperates with the schools in helping athletes to combine sport and studies:

We try to coordinate everything the best we can. I believe we have an open approach to the exchange of services between institutions that care about track and field. For example, some of our athletes who have time to train in the morning are allowed to take part in the training organized by the track and field high school in the daytime. In a similar manner their athletes who need extra training are welcomed in our practices in the evening.

The athletes benefit from the coordination between school and club. As an example, a local high school can only offer track and field as a main subject if a local club puts coaching resources at the school's disposal. The club coach's involvement in the schools training sessions on a voluntary basis is a particular benefit to the athletes, because it means training is well coordinated between their school and club training sessions. Although coaches report the coordination between different institutions to be an ongoing struggle, the athletes report that trainings sessions are well coordinated in terms of content, amount and intensity.

Family. Families provide emotional, practical and financial support to the prospects. Track and field is a relatively cheap sport, and emotional support is considered to be of prime importance. Athletes who moved to Växjö to train and attend the track and field high school were previously accommodated in student dormitories, which was a poor solution since there was too little supervision and too many temptations. Visiting these dormitories, the coaches would often unwillingly assume the role of "police". Today such athletes are accommodated with surrogate families associated with the club.

The club urges coaches to be mindful about how the parents support their children. It rarely happens in the club, but when parents are very ambitious on their child's behalf, the coaches

will talk to the parent. The elite coach stresses: “It is best to take this up with the parents as soon as you see the tendency. Otherwise it may quickly affect the group”.

It is an explicit value expectation that all families contribute to the club. Some parents are coaches, others handle practical tasks at competitions such as timing, measuring and listing results. A board member commented:

This community is built on the idea that, if everybody does a little work, no one has to do a lot. We strive to make the parents understand that even a small effort can have great significance. Every time we arrange a competition, we need about 100 volunteers... We want parents to have fun in this work and to value being a part of the club.

Macro-environment and related contexts

Local communities for track and field and other sports as well as the local business community are seen as resources for the club, and relations to these communities are nurtured by the club management.

The club – the track and field community. In Växjö the track and field community includes the club, the regional track and field centre, the newly established track and field performance centre as well as the high schools and the university. The club acts as a cohesive force and nurtures the close cooperation of these institutions. A board member commented: “We do not compete in creating the best possible conditions for athletes. Rather we are dependent on each other and acknowledge each other’s strengths”.

On a regional level collaboration between clubs is organized under the regional track and field centre, which has resources in several of the towns in southern Sweden. This collaboration centres around the training of coaches, the planning of competitions and the exchange of ideas and experiences concerning club development, but it also involves a dialogue about individual athletes from the smaller clubs and when to encourage them to make the transition to a bigger club.

The club – the local sport community. The club also collaborates with local clubs in different sports. For example, the prospects train at the local wrestling club once a week. Some club

coaches take part in a local cross-sport knowledge exchange group that is a forum for mutual inspiration and discussions among top-level coaches.



The club – the local corporate community. The club nurtures relations with companies that have an interest in supporting the track and field environment. This support includes but also goes beyond financial and tangible support and involves an informal forum, in which the club and the community work together to find housing or flexible jobs for talented athletes.

The federation. The Swedish track and field federation is not considered an important partner in daily pursuits to create a world class club. The federation helps and supervises when the club hosts competitions, funds the track and field high school and organizes national team training for selected athletes. A board member explains how a “rural club” experiences a lack of attention: “Their headquarters are in Stockholm and they seem focused on the big cities, unlike track and field which is actually spread all over the country”.

Related cultural contexts. Participants of the study provided comments on the sport-specific culture of track and field, the Swedish national culture and youth culture as broader contexts influencing the club’s activities and values. *The track and field culture* was described as hierarchical in two senses. Firstly, the athletes’ skill level can be measured in exact units, providing clear criteria for selection to national teams and, secondly, financial support is

available only to the very best. At lower levels the track and field culture is open and the custom is for athletes of both genders and of different skill levels to train together because training is always individual and not dependent on the skill level of the other athletes in the group. At the elite level, however, it usually becomes more closed and governed by the principle: “Here is my athlete, my methods, and my trade secrets”. When they reflected on the *Swedish national culture*, the participants characterized it by citing its demands for obedience and structure and an anxiety of failure, and the manager explained: “In Sweden, we take everything so seriously. We are quite strict. I think it would be beneficial if the athletes would sometimes take things a bit more lightly”. The prospects mention partying as a major part of *youth culture* among their non-sport peers that fits poorly with life as an ambitious athlete. The athletes appreciate their Saturday morning training session, which gives them an excuse to leave early on a Friday night and several athletes have at some point deselected friends, who were unwilling to accept their athlete life style. A coach commented on the high expectations placed on youth in Sweden: “The young athletes, particularly girls, are expected to do well in sports and school, to help around the house and even to look pretty and dress right. These are tough demands”.

Environment in the time frame. The participants’ perception of the environment’s development presented a transition from the club-as-a-family or a preferred assembly place for its members towards the club-as-an-organization. The club has always had a family quality. Everybody knows everybody and often there are family relations among coaches, board members and athletes. Whenever an elite athlete needs help with school, job or housing, that help is provided through personal networks. Based on voluntary work and driven by interest, the club is a preferred gathering point for many. An increase in the number of skilled and ambitious coaches and athletes, however, calls for a more structured organization. A need for a professionalization is discussed but voluntarism is still considered the heart and soul of the club.

Coaches and management know that no one can rest on their laurels, and they talk of many visions for future improvement, one of which was outlined by a board member:

With a modern indoor arena we could host international championships and also attract elite athletes from other countries to this training milieu. We should also further develop our collaboration with the University. Imagine if an international elite athlete could come to Växjö and train in a specific discipline and also study this discipline at

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a University level. Not just sports science but the specific discipline, like high jump. And through our relations to local companies we could help that athlete find a part time job and housing. This is my dream. A world class international track and field milieu. Why aim to be one of the best in Sweden, when we can be one of the best in the world.

From the ATDE Model to the Empirical Model of the IFK Växjö Environment

Figure 7 depicts the ATDE model adapted to the IFK Växjö track and field environment and represents a summary description of the environment. At the centre of the model is the relation between the teams of coaches and the groups of prospects. Team and group organization ensures motivation and the exchange of knowledge. The elite athletes are also organized in a training community and serve as role models for the prospects. In their relation to younger athletes the prospects serve as role models and occasionally as assistant coaches, which accustoms them to a responsible role. Athletes from other clubs are rivals but also friends and appreciated training partners. The non-athletic domain includes school and family, but even these are closely connected to the athletic domain. The family is involved in the club as a resource and school often offers training in track and field, which is coordinated with club training through a close dialogue between school coaches and club coaches. The management plays a key role in the environment organizing and nurturing relations to the prospects' school and family as well as to coaches and athletes. On the macro-level, the club cooperates with local communities in sports, track and field and business and works to ensure these are resources capable of benefitting the club. The time frame depicts a move from the-club-as-a-family towards the-club-as-an-organization.

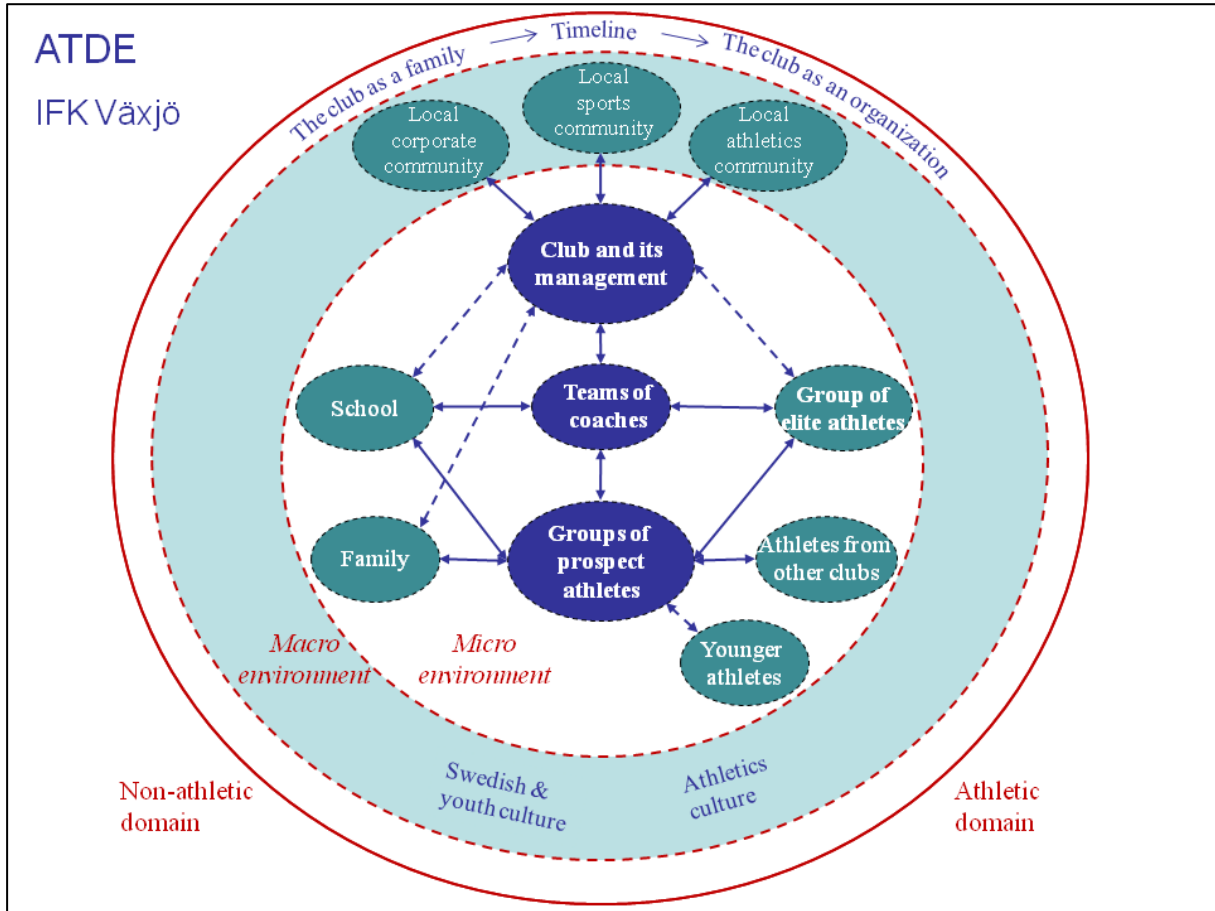


Figure 7: The athletic talent development environment (ATDE) empirical model of the IFK Växjö Track and Field Club, Sweden

Factors Influencing the Success of the Environment

The factors influencing the IFK Växjö track and field club’s success as an ATDE are analyzed according to the logic of the ESF model. Below we present major factors related to pre-conditions, process and organizational culture of the club followed by their effects on the athletes’ individual development and achievements as well as the club’s effectiveness.

Preconditions

The club’s central resources in the talent development process include a large number of skilled coaches, the number of its prospects, its good training facilities, the size and infrastructure of the town and the large number of helpful volunteers. Because athletes,

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coaches, volunteers and facilities have already been described above, we briefly here outline the role that participants attributed to the town's size. Växjö is small enough to provide a flexible daily life for the athletes but also large enough to offer them everything they need during their careers, including educational institutions at all levels. A board member commented:

Växjö is located “in the middle of the woods” far from the ocean and from bigger cities and other temptations. What else is there to do except train? [laughs] Seriously, we have all the foundation stones for developing track and field right here, including facilities, high schools and a University with sport profiles and regional resources. And everything is still really close. Växjö has an ideal town size for fostering world class athletes.



Another resource worth mentioning is the attitude of coaches and managers involved in the different track and field institutions in Växjö, clearly illustrated by the words of an elite coach:

We have managed to build an elite organization with exceptionally many and skilled coaches. In this regard I give a damn about the club. I refuse to see this in a perspective of club, high school, university or whatever. What counts is all track and field in Växjö. We need to disregard who has the main role and simply provide the

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best possible training for any serious athlete. In total we are 26 coaches involved with elite and very talented athletes. You will not find this anywhere else.

As to the barriers in the talent development process, participants of the study mentioned a lack of financial resources and the local climate causing a short outdoor season. Financial resources are very limited in the club. The club's income comes from sponsors, membership fees and activities such as fun runs. The overall annual turnover is a mere SEK 4-4.5 m. (€400,000-450,000). Limited financial resources makes the volunteer work of coaches and parents a sine qua non for the club. The club is able to provide only marginal support to athletes and coaches, as explained by a board member:

The money, even if limited, is important. We are able to support the best athletes financially, typically as help to an annual training camp in the spring. If you win a championship, you receive a little bonus. The coaches also receive a little support, but most often only enough to cover their expenses and perhaps a new training suit every once in a while. This is almost symbolic, but still an important token of support and appreciation.

Elite professional athletes have individual sponsors, and a coach commented on how they support the club using the example of Carolina Klüft:

Carolina is a professional and receives money from sponsors and from the Swedish Olympic committee. Some of this money goes to her coach, allowing him to spend a great deal of time making plans and handling training. He is part of a coaching team and thus helps the other coaches and athletes, in spite of the fact that Carolina pays his salary. She also attracts new sponsors to the club. You would expect her to be our biggest expense, but in fact she is almost our biggest source of income. She ...repays the education she received in the club.

Process

The daily routines of the prospects mainly involves training, camps and competitions. While camps and competitions offer good experiences and are good for group cohesion and forming new friendships with athletes from different clubs, the daily process revolves around training. All athletes have a structured training plan that is followed throughout their athletic career. Such plans involve gradual increases in the amount of training and the degree of specialization in track and field disciplines as well as a gradual transition towards deliberate

practice and working with new coaches on specific skills. Athletes' specialization in the chosen track and field discipline is planned when they are about 16 and starts as specialization in an overall discipline, such as running, with later specialization within that discipline, in sprint, for example. The specialization process is gradual and from the onset of the specialization at least half of the weekly training sessions will be cross-disciplinary and with the whole age group. Even the specialized training session will start out with a common warm-up, since being together in the group is considered an important motivational factor, as explained by a prospect. "I started specializing this year. I was really eager to, but in the transition from group to individual training I sometimes felt a little lonely. So it is important to stay in the group." The overall plan is often discussed among the coaches to make sure everyone understands and accepts it. This was observed clearly in a talk given by the management to a group of new coaches:

Kids must do kids training, young athletes youth training, and elite athletes elite training. Every book says so, but we actually do it in practice. This is an important message for you to take to the parents. Yes, we have a slow start, but there is a plan that we know works. And let me tell you. It is our experience that early specialization and much training is not an advantage in terms of elite sport. In track and field you can afford to mature late.

Prospects typically practise six times per week. Focus in training is on perfecting technical aspects and getting the right "feel" rather than on the athletes' performance. During three weeks of observation the principle researcher did not see a stopwatch. A coach explained that the emphasis is on encouraging athletes to run as fast as they can with the right technique and a good feeling, and that taking time will prompt the athletes to run faster than their technique allows. He continued: "We slowly build up the athletes' body strength, so they are able to handle increasing amounts of training. The young athletes perform the same basic exercises as the elite, only much fewer and with much less intensity".

Organizational culture.

In IFK Växjö, the culture of the specific training group is very closely linked to the overall organizational culture of the club. This is due to a very strong club culture and also to very

careful efforts on behalf of the club to make sure central values of the overall club culture find their way into every training group and any part of the organization.

Artefacts and espoused values. First impressions of the principle researcher of the IFK Växjö club's organizational culture were the family nature of the interactions, the high level of feedback and discussion among coaches, and the difficulty of understanding which athletes belonged to which groups. Publications and posters explicitly state the club's mission, and a special booklet presents core values of the club to new coaches, parents, athletes and business sponsors. A member of the board explained the role of the booklet: "Our blue book represents a mindset. Adopt this frame of mind and you will be able to answer almost any question... We have deliberately compiled a philosophy rather than a manual". The club's central mottos and values are printed on a number of club publications, such as annual reports or guides for volunteer helpers, and on posters hanging in the training and meeting facilities. One such motto is "A broad base makes a high summit", describing the idea that elite athletes are a natural product of focusing on inspirational youth activities for a large number of young athletes. A second motto is "Right training at the right age", describing how long-term development is more important than youth results. With such visible values the espoused values and artefacts of the club culture are thus inextricably linked.

Basic assumptions. The club's cultural paradigm is characterized by seven basic interrelated assumptions. The most central assumption is that: *Excellence can be reached through cooperation and openness*, which reflects a major principle of open knowledge-sharing in spite of a generally secretive track and field culture. This basic assumption is considered a distinctive feature of IFK Växjö in a general track and field culture where cards are often held close to the chest and is well illustrated in the story told by an elite coach:

I was called up by an American coach, who asked me about some training issues in heptathlon. I told him it was difficult to describe over the phone, but I could just send him Carolina's last seven years of training plans. He was stunned and said: "You are crazy, man. You should make a fortune on those plans". I told him it was just training, not secrets, just a lot of papers with numbers on them. What counts is what you make of it, how you make the athlete train with focus and intensity. He did not understand.

The second and the third basic assumptions relate to the club's organization. The first of these is that: *We are a family, in which everybody contributes*, which is evident in the voluntary

work of coaches and parents, the elite athletes' talks at seminars and the prospects' willingness to help younger athletes. An elite athlete used the metaphor "a forest" to present her image of IFK Växjö: "We have many branches and twigs representing different ways one can go. But the roots are intertwined and grow in the same soil". Some prospects directly refer to the club as their second home. The second assumption relating to club organization states that: *Group and team organization is a precondition for the development and continued motivation of athletes and coaches*. Here it is important to emphasize the club's efforts to maintain large groups of athletes offering friendship, a sense of belonging and fun. As explained by a coach, "...many of these athletes ...will not become elite. Still, as friends of athletes who may reach elite level, they are important members of the group". Athletes report looking forward to seeing each other during training, spending time together outside sport and attending training despite injuries or illness to meet with the other athletes. Elite athletes often stress this point, telling stories of how they would never have made it without their training group.

The fourth and the fifth basic assumptions concern the athletes. The first of these relates to the perfectible nature of talent and states that: *Attitude beats class*". Coaches expect the athletes to show focus, discipline and drive for excellence in training, and evaluate the athlete's attitude in training more often than his or her skill level. This was explained by an elite coach: "To be crude, I really don't give a damn about how good they are. I can work with any athlete as long he or she really wants this". The fifth assumption states that: *An athlete is a whole person*. This is evident in the way coaches take upon them the role of helping the athletes understand that in order to become elite athletes they have to be mindful of sleep, rest and food. The whole person approach was formulated clearly by a coach:

Sometimes an athlete has a trouble with his girlfriend or something else that belongs outside sport, and it prevents him from finding the right focus. We try to help the athletes handle this. The ability to train with focus and intensity is much more important than whether we do four or six sets of intervals. Sometimes I tell an athlete to take a week off to rediscover his or her harmony.

The sixth and the seventh basic assumptions relate to the club's goals or priorities and include: *Successful development is more important than early results* and that: *The club can always improve*. On the basis of their convictions that it is difficult to predict who will excel later and that in the long run attitude will beat class, coaches focus on long-term development.

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The management and coaches form no elite groups for especially talented young athletes, nor do they encourage athletes to focus solely on track and field. This was explained by an elite coach thus:

It is absolutely ok if they want to play the piano and do other sports besides track and field. They can be part of this group as much as their time permits. Each athlete can take part on his own level, unlike football where a bad player just doesn't receive the ball. Besides, I don't care if one of my athletes wins the Olympics in track and field or ice hockey. He is still one of mine".

The vision of constant club improvement is evident in the following quote by an elite coach:

We have now been selected as the location for one out of the two track and field performance centres in Sweden. But we should not be content with being one out of the best two in Sweden. We want to be one out of the ten in the world. Since we have shown many times that we are able to lift an athlete into the world elite, we know we can lift the whole club into the world elite. We must be no less than the world's best.

Together these two assumptions illustrate the fact that in terms of the prospects the club is ready to invest and be patient in waiting for the results, but in terms of the club's reputation and constant improvement expectations are really high.

Coherence of the culture. Altogether, the organizational culture of IFK Växjö is characterized by a high degree of coherence between its different levels. The values that are publicly displayed in mission statements are equally visible in the daily practices. Any athlete or coach is welcomed in the club, but there is a clear demand to abide by the club's philosophy as reflected in a story told by an elite coach:

Ten years ago we rejected co-operation with a set of parents. They were very skilled coaches, but they wanted to turn a group of 13-year-old kids, including their own children, into an elite group. We told them: "You are more than welcome here, but in this club we will not break up a prospect group to create an elite group. If you want to do so, find another club". They did. Three years later, all of their three sons, who were very skilled athletes, had left the sport. I talked to one of them later and he told me the experience just wasn't any fun.

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.

Individual Development and Achievements

As mentioned above, within this environment the sporting results of prospects are seen as less important than their long-term development and the acquisition of psycho-social skills that underpin this development. Through their membership of the club and through learning its organizational culture, prospects develop responsibility, drive and commitment, social skills and a structured approach to life. A coach explained how prospects are expected to show increasing responsibility for their training:

The athletes must learn to be responsible, which requires first and foremost knowledge of oneself. If they miss training, it is up to them to catch up and show me what they have been training on their own. Every day we work with their personal development finding a balance between helping and not helping too much.

Drive, commitment and a structured approach include being ambitious and planning everyday life to make it conducive to athletic development. Through struggling to make their sports career, social life and school come together, the athletes learn to structure their daily life and to focus on the task at hand, which is beneficial to them in several settings including sport and school. A board member summed up the club's goals for the prospects thus: "Our task is not only to foster good athletes, but also happy and dedicated young citizens". Being part of a large group of athletes with both male and female athletes at different skill levels, the prospects develop a range of social skills. A prospect sums up some of the basic human values she has learned:

To be able to talk to everyone, to stay positive and motivated even when training is tough and you are not doing so well, and to back each other up. We discuss these things every once in a while. And it applies to everybody, whether you are a national team athlete or a complete beginner.

The environment's effectiveness. Coaches and managers reflecting on the club's success as an ATDE used four main indicators: (a) the club helps a large number of athletes to make a successful transition into elite sports; (b) the club is highly regarded by external partners; (c)

the prospects show good results in national youth competitions; (d) the club has a large group of highly committed and happy athletes with low drop-out.

The Empirical Model Explaining the IFK Växjö Track and field Environment’s Success

Figure 8 presents the empirical version of the ESF model, summarizing the most important factors influencing the success IFK Växjö as a context for helping talented young athletes to make a successful transition into elite sports. Bearing in mind the complexity of the talent development process, certain key elements in each category have been selected for the model.

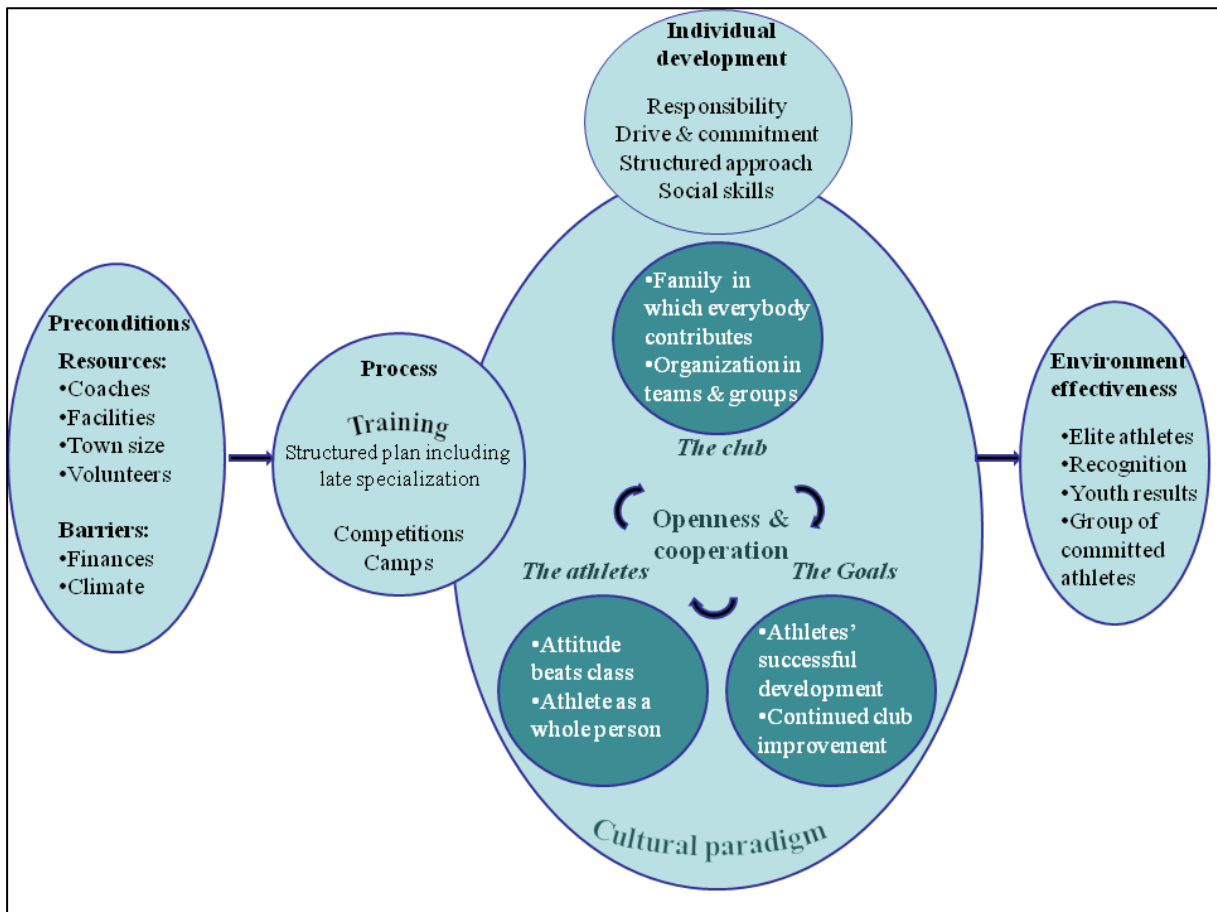


Figure 8: The Environment Success Factors (ESF) empirical model of the IFK Växjö Track and Field Club, Sweden

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The club benefits extensively from prevailing conditions such their coaches, athletes, the size and location of the town and their facilities. Limited financial resources are compensated for by a helpful attitude on the part of a large number of people involved, who all put in their efforts on a voluntary basis. The daily routines revolve mainly around many hours of training, which are structured according to an overall philosophy that involves late specialization and many playful activities. The daily routines are heavily influenced by the club's organizational culture, which has at its core a family quality, openness and cooperation in teams, a constant strive to improve, and a conviction that the athletes' long-term development and attitude in training are more important than their youth results. The culture exerts a powerful influence on the athletes, who develop responsibility, commitment and social skills and learn to structure their daily lives. These competences, along with the organizational culture, provide the groundwork for the environment's success, measured primarily against the criterion of fostering elite athletes but taking into account youth results, recognition from external partners and a large group of skilled and happy young athletes.



A summary of the IFK Växjö track and field environment in Sweden provides the following characteristics:

- a) focused on maintaining cohesive training groups and teams of coaches but also attentive to the needs of the individual athlete or coach,
- b) rooted in the local society - keeping strong ties to the local sport and business communities - but open and willing to collaborate with other clubs in the region,
- c) providing prospects with opportunities to learn from elite athletes but supportive of the elite athletes' need to focus on their own careers,
- d) having limited financial resources but a unique opportunity to draw upon the volunteer work of a number of skilled coaches,
- e) having an inclusive approach and welcoming athletes at all levels but stimulating the athletes to be responsible, to work hard and to contribute to the club,
- f) drawing upon the help of parents but rarely letting them coach their own children once the children reach the investment years,
- g) inviting new coaches but having these coaches adhere to a strong and cohesive organizational culture that emphasizes openness and cooperation, the long-term development rather than the short-term success of the athletes and considering athletes as whole individuals,
- h) conscious of the values of its current family atmosphere but also forced by its own success in attracting new athletes to professionalize the club organization,
- i) recognized for its success in talent development but far from satisfied.

CHAPTER 6

CASE 3: THE WANG SCHOOL OF ELITE SPORTS' KAYAK TEAM, NORWAY



Following the structure of the two previous case presentations, this case will be presented in two sections, of which the first has a descriptive and the second has an explanatory purpose. The results are summarized in empirical versions of the ATDE and ESF working models. For the sake of conciseness the term “athletic talent development environment” will be replaced by “environment”, “athletes that are part of Wang’s kayak team” by “prospects”, “the kayak coach employed by Wang” by “school coach”, “the coaches in Strand Kayak Club” by “club coaches”, “national team athletes” by “elite athletes”, and “head of top sports at the Wang School” by “head of sport”. The sport in question is “flatwater kayak racing”, which will be replaced by “kayaking” and “paddling” interchangeably.

Introduction to the Environment: The Wang Kayak Team

Wang School of Elite Sports is a private secondary school located in the heart of Oslo. Wang has been a “school of elite sports” since 1984 and today hosts approximately 500 students of which 360 are also prospective elite athletes. These athletes participate in approximately 20 different sports, and the school has 76 part-time employed coaches. Wang is successfully expanding, and two more Wang schools have recently opened other cities in Norway. Secondary school in Norway takes three years and is in general open for all and free of charge, but as a private school, Wang students pay tuition fees. Students must apply to go to Wang. The criteria for uptake are a mix of previous school grades and sport specific skills and performance, and generally one in four applicants is accepted. Approximately half of the students are involved in a national youth team in their sport. The athletes at Wang receive education and sports training as part of their daily school programme but remain members of their sports clubs. Training at Wang comprises 250 hours a year which equals 25-40% of an athlete’s total amount of training and is seen as a supplement to the athletes’ club training.

Kayak consists of several sub-disciplines, including wild-water, slalom, sea kayaking, kayak polo and flat-water racing. The kayak team at Wang participates in flat-water racing, a sport that places great demands on the athletes’ condition, strength, technique and sense of the water, and it entails a heavy training load. In flat-water racing events, paddlers race on a straight course, each boat in a separate lane, over three different distances: 200m, 500m and 1000m. There are kayak events for men and women in single (K1), double (K2) and four boats (K4). The World Championships also involve a number of longer distances, such as 5000 metres and marathon (between 30 and 40 km) where the athletes compete in fields instead of separate lanes. Kayak has been part of the Wang sports programme since 1999. The uptake has varied, but today the group comprises 11 athletes.

Wang training takes place from a local kayak club named Strand. Strand kayak club is located 20 minutes by train from the school. Since school training takes place in Strand, the athletes keep their kayaks in this club and train there in the afternoons. Several of the athletes come from other clubs and still represent their home clubs in competition, which is the tradition in Norway. Strand Kayak club has the air of a family, and a number of passionate adults spend many hours in the club and become the social hub of the club.



Description of the Environment

Micro-Environment: Athletic Domain.

The group of Wang paddlers comprises 11 prospects between 16 and 19 years of age with approximately four athletes in each year group. The athletes have typically started in the sport of kayak between 11 and 14 years of age. Such a late start is common because athletes at a younger age rarely have the physical strength to paddle the kayak. The athletes are good friends and spend many hours together.

The group benefits from having both genders represented, although only three of the prospects are girls. This picture is general for Norwegian paddling, where male paddlers outnumber and outperform female paddlers. Whereas the boys always have athletes that are close in skill level and thus can push each other in training, the girls express a wish for more female athletes to extend the social environment but particularly to add to the quality of the daily training. One of the female prospects explained how she had to train with the younger boys:

Chapter 6: Wang Kayak Team

The leap up to the best girls is too big and the girls nearest to me are not fast enough. I only manage to hang on to the boys in the group when I have a really hard training session and they have an easy one. I often end up training with the younger boys. They slowly overtake me, and I just try to hang on to them for as long as possible.

School coach – club coach. The school has two coaches employed. The main coach is male and has been a coach at Wang for nine years. He has been part of the Norwegian national team for 15 years, has participated at the Olympic Games, only discontinued his own elite sports career a year ago and combines coaching with a job as a school teacher. The other coach is female and also a former elite paddler. Strand kayak club has a number of volunteer coaches. Although one coach in particular is ascribed the role as a main club coach, different athletes consider different people to be their main coach. None of the coaches has a formal training as a coach, and formal training is considered less important than “having been there and knowing what it takes”. The club coaches are reluctant to be seen as coaches in a traditional sense, which is described by one club coach:

I still enjoy paddling. I can think of nothing better than being on the water, and I certainly come to the club for my own training. Still, I also enjoy helping the young prospects, following them to competitions and seeing how they manage to turn their training into results. It’s like a hobby of mine.

The coach’s role is described more as that of a mentor or sparring partner than that of a traditional coach. A prospect described the role of the coaches thus:

They do not present an exact programme. We discuss training plans, how to organize a week’s training and how often I should train with high intensity. And often they direct my attention towards specific details by asking a few questions before training.

Training is informally coordinated among the coaches. Different prospects received training programmes from five different coaches, including club, national team, and school coaches. Coordinating the programmes, which some might consider nearly impossible, required only a minimum of communication for two reasons. First, Norwegian kayaking is built around an implicit “philosophy” about training, and all coaches are former elite athletes raised within the system. This philosophy will be described in more detail below. Secondly, the programmes are general outlines rather than specific programmes, and the athletes adjust their programmes to allow them to train together. It is an implicit rule that the younger athletes adapt their programme to fit that of the more elite athletes. This coordination usually runs smoothly,

especially when it comes to the most ambitious athletes, and minor coordination problems are solved quickly and informally, when coaches meet during training and competitions.

Elite athletes – prospects – younger athletes. The flat-water racing environment in Norway is quite small but very tight. There are around 15 elite athletes in Norway, of whom eight train in Strand. They are engaged in very ambitious training regimes and most often train three times a day. These athletes are rarely able to earn a living from the sport, and although the very best have personal sponsors, most work or study. An elite athlete explained how even on the national team there are limited resources:

We do not have a club coach but are trained by the national team coach. He typically trains with us twice a week. These two training sessions are the hardest ones and the rest of the week's training is built around them. All other training sessions we are alone. The coach has other athletes to attend to, and also we do not need more than this. We are quite capable of making quality training on our own.

The elite athletes are proximal role models for the prospects. Although there are no formal obligations, the relationship between elite and prospective elite athletes is the most central factor in the development of the prospects. The current national team athletes often take part in training organized for the prospects and vice versa, and all the coaches are current or former elite athletes. All athletes and coaches mention “having someone to aspire to” as a central quality of the environment. A club coach refers to the daily exchange of knowledge and ideas as osmosis, a concept from biology that describes the diffusion of liquid through permeable membranes. Here it describes the diffusion of knowledge between athletes in a group:

The relationship between prospects and elite athletes is immensely important. The athletes learn training culture, technique, everything. There is always someone to push you and to learn from. I call it osmosis because knowledge simply diffuses. The athletes don't know who taught them what or when, but they have learned the trade. I believe all Norwegian top paddlers are a product of a little help here and a little help there rather than one coach or one programme.

Commenting on the importance of the elite athletes' presence in daily training, a prospect added:

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All sports have their role models; athletes who have made impressive results in the recent or distant past. What is unique for our environment is that I actually meet these role models every day. I try to beat them in training, I ask them questions, and I listen to their advice.

The nature of paddling contributes positively to this community learning. Paddling on someone else's wave, an athlete saves approximately 30% of his or her energy, allowing a prospect to train with a much faster athlete. From a perspective behind and to the side of the faster paddler, the prospect watches technique, stroke frequency etc. The elite athletes also occasionally invite top level athletes from other countries up for training and allow the prospects to take part in the training and to learn from an international environment.

The school actively encourages national team athletes and former Wang students to take part in the training organized by the school. Typically 2-5 such "guests" take part in each of the school's morning training sessions. The head of sport explained the arrangement thus:

The elite athletes come to be part of an environment. We let them take part in our training at no cost. Their presence raises the general level of the training. They simply add to the quality. Only athletes who contribute positively and are committed to the training are allowed to join.

Just as the national team athletes are role models for the older athletes at Wang, so these athletes are role models for the younger athletes. The head of sport stresses that this is an important role that carries with it a great responsibility:

If the group does not work well for a period of time, we are very clear in our expectations towards the older athletes; that they take responsibility for setting the right standard. If the attitude is not right, if athletes are late for training or if athletes do not commit to the programme, we look to the older athletes and expect them to lead the way.

The prospects also assume a helping role towards even younger athletes in the club, as was explained by a prospect: "Just as I stretch to reach the elite paddlers, so these young paddlers stretch to reach me. In a hard training session, I paddle the waves of the elite athletes, and in a slower session, the youngsters paddle my wave".

Experts. The school collaborates extensively with the Norwegian elite sports centre, Olympiatoppen, which is recognized for its expertise in elite sport, and some experts are

employed by both institutions. The school also occasionally arranges for experts to visit the school and give a talk on a specific subject. However, the prospects do not use experts in a systematic way. This is partly due to the fact that there is already much expertise within the environment, residing with the coaches and elite athletes, and partly due to natural scepticism towards expertise. An elite athlete explained:

We do communicate with experts. For example, we had a check from a nutritionist, but as expected we already had good eating habits. A weight training specialist designed a programme for us, but it entailed much too long training sessions. Finding the right balance between condition and strength is tricky, and quite frankly I think I know more about what my body needs than any expert. So we skipped it. I do not take anything for gospel truth but really listen to my body.

Related teams and clubs. Wang and Strand have excellent relationships with other kayak clubs in Norway. When a paddler is on holiday in Norway, he or she is always welcome to train in the local club. In fact, most athletes and coaches spoke little of the clubs and much about “Kayak-Norway”. A club coach explained how the clubs are very open and seem to agree on the overall goal of creating good Norwegian paddlers:

It is a characteristic of the Norwegian kayak environment that there are no watertight boundaries between the clubs. Many paddlers have their daily training in a club other than the one they represent in competitions, and competing in a K4 (team-boat) against your daily training partners is common. That wipes out the borders.

The Norwegian paddling environment is very small. This is how a prospect describes a tradition to seek out the best athletes in order to become best: “I came to this club to train with the best and most ambitious Norwegian paddlers. This is where I can learn the most. What is important is not where you are from but where you want to go”. The collaboration between Norwegian clubs is equally visible among coaches. The coaches meet at competitions, arrange common training camps and discuss training issues. The fact that these coaches often compete against each other in competitions at the master level lays a good basis for informal talks.

Micro-Environment: Non-Athletic Domain

Family – prospects. The importance of the family varies from athlete to athlete. Approximately half of the athletes have parents who have been involved in elite kayaking or

other sports at the elite level. These athletes typically mention that their parents nourish an elite mentality, for example by demanding commitment to training. The other half of the athletes have parents with no prior experience of elite sports. These athletes find their parents back them up but are not particularly involved. Common for all athletes is the fact that they rely on the parents' financial support to pay for tuition fees and new equipment. A club coach recounted how the sport of kayaking is good at getting families involved, because all age groups like to paddle:

We often see that parents and siblings join the club. When parents come to see their kids, they try out an easy kayak and quite often end up as members of the board or as active recreational paddlers. Unlike alpine skiing or tennis, where parents invest large sums of money and may have ambitions on behalf of their kids, we rarely experience over-ambitious parents.

When parents follow the athletes to competitions, they are most often assigned a role, attending team leader meetings, for example, coordinating meals or driving the bus, and they have a responsibility towards the whole group. At these competitions coaches and parents communicate about any relevant issues, and neither coaches nor parents expressed a need for more frequent communication.

Peers. The prospects all report having friends from inside and outside the world of elite sport. Although most of their sports friends are paddlers, going to an elite sport school and training alternative sports in the winter means that the prospects have a number of friends who are committed to other sports. With these friends they discuss sporting issues such as basic training principles. The prospects also have friends who are not involved in sports, with whom they unwind mentally from the sport and relax. Membership of such groups of friends is considered to be important but also taxing, and the athletes must continually negotiate the terms of their membership of the group, for example that they attend activities less frequently than other members and rarely participate in parties or activities that involve staying up late. The school coach explained that the best athletes have most of their friends among the paddling fraternity: "Between school, rest and training, the most committed athletes do not have time for friends outside sport. It is very important that they satisfy their social needs in training".

The athletes also have many friends from other clubs. Once an athlete reaches a national youth team, he or she starts racing in team-boats with the best paddlers in the age group. For a team-boat to succeed, the athletes have to meet and train every once in a while, and friendships arise along the way. Friendship comes before rivalry and even friendships between paddlers from the different Nordic countries are common.

School. The school is a central part of the athletes' lives. The school organizes the group and its three weekly morning training sessions, employs the school coach, and has working relations with the club, as explained by the head of sport:

Wang is not a primary training environment. The clubs are. We are a high quality supplement. We make an agreement with the club about the nature and content of our training to make sure we supplement their training as best we can. In some sports this means we only do strength training, injury prevention or coordinative training. In kayaking, however, Wang's training is of such high quality that the clubs adapt to fit our training.

The school has a reputation not only for having a good talent development programme, but also for providing good education. A parent explains why he chose this school for his son:

Wang's basic philosophy is to be a good school. Their success as an elite sports school depends not only on the sporting performance but also on the academic performance of their students. It would be really easy to just focus on sport and not give a damn how the students manage school. But they don't. Rather they have a classical pedagogical approach and make up for time spend on training by having classes until late in the afternoon. And the students do well in school. (From observation material)

From the perspective of the prospects, coordination between the academic and sporting part of school works well. The school teachers have a good understanding of elite sport and adjust school to fit the needs of the students. This includes small but important things such as letting the athletes eat during class and arranging extra classes rather than expecting them to do much homework. The head of sport underscores the same point by explaining how the school is very clear on the fact that their reason for being is the sport, and that coordination between school and sport must work on the sport's premises:

The academic teachers must adapt to the sport, not the other way around. To achieve this, the teachers must understand and accept the nature of elite sport. When an athlete applies for days off for camp or competition, a teacher's first expression must never

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be “not again”, but rather “well done”. We have to want our athletes to do well, go to competitions and be selected for camps with the national team. When I talk to the teachers about these matters, I always use the example of a tennis player going to a competition. The teacher’s first impulse must be “I hope you will be gone for a long time”. That would mean the player had done well rather than being knocked out in the first round. In my view we are not good enough at this yet, but compared to any other school we are probably fantastic. To reinforce the connection between academia and sport, we often discuss particular challenges of being a teacher at an elite sport school and we invite our teachers to visit the athletes in training.

The paddlers are seen by the school as serious and well-structured in school and generally score above average grades. The fact that many different sports are represented in the school is seen as a resource, as explained by a prospect: “I know which athletes are competent in what areas of expertise. I talk to the javelin throwers about strength training and with the sprinters about speed training and I learn a lot”. The athletes find the common sporting mentality very important and find it disruptive when other students lack commitment. The school is aware that there is a delicate balance between allowing space for individual differences and ensuring an elite environment. Therefore athletes who are no longer motivated in sport and who disrupt fellow students are asked to change school, unless this happens near the end of the three years.

Macro-environment

Federation. The federation is responsible for all national team training. National teams include the senior team, a challenger team that trains with the seniors but receive less support, and youth national teams. Almost all Wang paddlers are members of a national team. Being part of the challenger or youth national teams involves attending 3-5 weekend training camps and some competitions. The athletes mention that being part of such a team is motivating and a good learning opportunity. They also find, however, that it is often too poorly coordinated with their overall training plans, as explained by a prospect: “I am actually unsure about the role of the federation. All of the sudden we are invited to a camp. I fail to see an overall plan. But I learn a lot from training with other skilled paddlers”.

The culture of kayaking. The specific sports culture of kayaking is distinct, and attending a school with many other sports makes this fact clear to the athletes. Athletes and coaches

mention openness, patience, discipline and ambition as major characteristics of the kayak culture in Norway. The culture is strong and is not affected by the athletes' socializing with athletes from many other sports. The culture of Norwegian kayaking and the organizational culture of the group are intertwined and more emphasis will be put on this issue in the coming sections on group culture.



Youth culture. Athletes rarely commented on youth culture when explaining why their environment is successful. Perceived as involving parties almost every weekend, drinking alcohol and “not too serious about anything”, youth culture is seen as inconsistent with the demands of elite sport. However, in a school where the majority of students are involved in elite sport, the problem is not so evident. The school coach is confident the will to do without the parties is part of an elite mindset: “It is a problem for some athletes that their friends go to a lot of parties. Some athletes feel they have to renounce too much and therefore skip paddling. I am convinced these athletes would have stopped anyway”.

National culture. Norwegian national culture is considered a resource for the development of talent in sport. Athletes and coaches mention determination and independence as central qualities of Norwegian national culture. A club coach explained how Norwegian culture is linked to the country's history:

We are very individualistic. It all goes back to our history as independent farmers in the mountains and fishermen alone at sea. In many European countries feudal systems have meant that farmers were subordinate but also protected by the landowner, and these people have learnt through centuries that someone will protect them. We laugh about this when Danes and Germans come to paddle white-water on our rivers and do all kinds of stupid things. They expect a regulated system and a big signpost if something is dangerous. A Norwegian mindset dictates responsibility for one's own life. We also celebrate people who are successful in doing things their own way rather than being a product of a system. This is also evident in kayaking, where you do receive some support but the ideal is for the paddlers to manage on their own.

When asked about the national culture, a prospect simply paraphrased a former Norwegian prime minister and said: "It is very Norwegian to be good at what we do," and added, "At least we like to think so". Clearly, the paddlers were all proud to be Norwegian. Coaches and managers also described a specific Norwegian sports culture, in which the will to do what it takes to win is strong. As the head of sport explained, "Norwegian elite sport is characterized by a strong winner's mentality. Winning is more important than how you win. Statistics will tell you that when matches are tight in the last seconds, we often win."

Time – Towards an Even More Uncompromising Approach

The participants generally expressed belief in the current state of affairs and found it more important to hold on to central values than to make changes. Maintaining an elite mindset and an inclusive community of practice in which the paddlers can learn from each other were mentioned as the most important ideas to hold on to. At the same time, several participants mentioned that a future challenge was to become even better at what the environment was already good at. One such challenge should include developing an even more uncompromising approach to the nurturing of the athletes' potential. This was explained by the head of sport:

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We are a secondary school, but we should not restrict ourselves to think in such narrow terms. Some of our athletes actually perform worse in August than they do in June, because the school does not arrange training in the holiday. That is not good enough, and I would love to expand our service to include quality training throughout the year. This is also true of finishing school, when some athletes start training less. We have to create some University courses with an elite sport profile. Actually I would also like Wang to create an elite sport school at lower secondary level in order to start earlier. I believe we need to make our young athletes train more from a younger age if we want to create elite athletes. To sum up, our system is very good and the athletes benefit immensely from their three years at this school, but the whole system should be more complete. Of course it all comes down to resources.

Another challenge is to strengthen the will and ability to learn from other sports. Norway is a small country and has ideal conditions for breaking down barriers and systematizing the common quest for excellence, which a coach explained like this:

We are already good at this, but I still believe that in the future, knowledge and expertise will flow among sports to an unseen degree. The strengths of each sport will be the subject of research, and cross-sport teams of experts will develop programmes for building athletes' basic athletic skills and competences.

From the ATDE Working Model to the Empirical Model of the Wang Kayak Team

Figure 9 displays the empirical version of the ATDE model adapted to present the Wang kayak 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 are the relations between the prospects and a community of current and former elite athletes, a community that includes the school, club, and national team coaches and also a number of mentors. The interaction with this community is the main driver of the prospects' development. The prospects are highly dependent on support from the community, and coaches more often join training or act as mentors than they assume a classic coach-role. The prospects do have friends outside the world of elite sports, but the majority of their friends come from inside that world, from paddling and from other sports, and many of their sporting friends go to the same school. With family and non-sporting friends being the only components in the non-athletic domain to which any importance is attributed, the

environment is skew to the athletic side, a fact that is reinforced by the school’s elite sport profile. The athletes’ daily training is located at Strand, but the community of clubs referred to as “Kayak-Norway” allows the prospects to train in any club in Norway. On the macro-level acting as a cohesive force, the school management organizes relations with the club and with Olympiatoppen’s team of experts and works to assure that everyday school activities are conducive to the talent development process. The federation selects athletes and organizes training camps for the national teams. The time-frame depicts a basic belief in the current state of affairs but also a willingness to develop an even more uncompromising approach to the talent development process, for example by making elite sport schools for younger athletes and organizing training in school holidays.

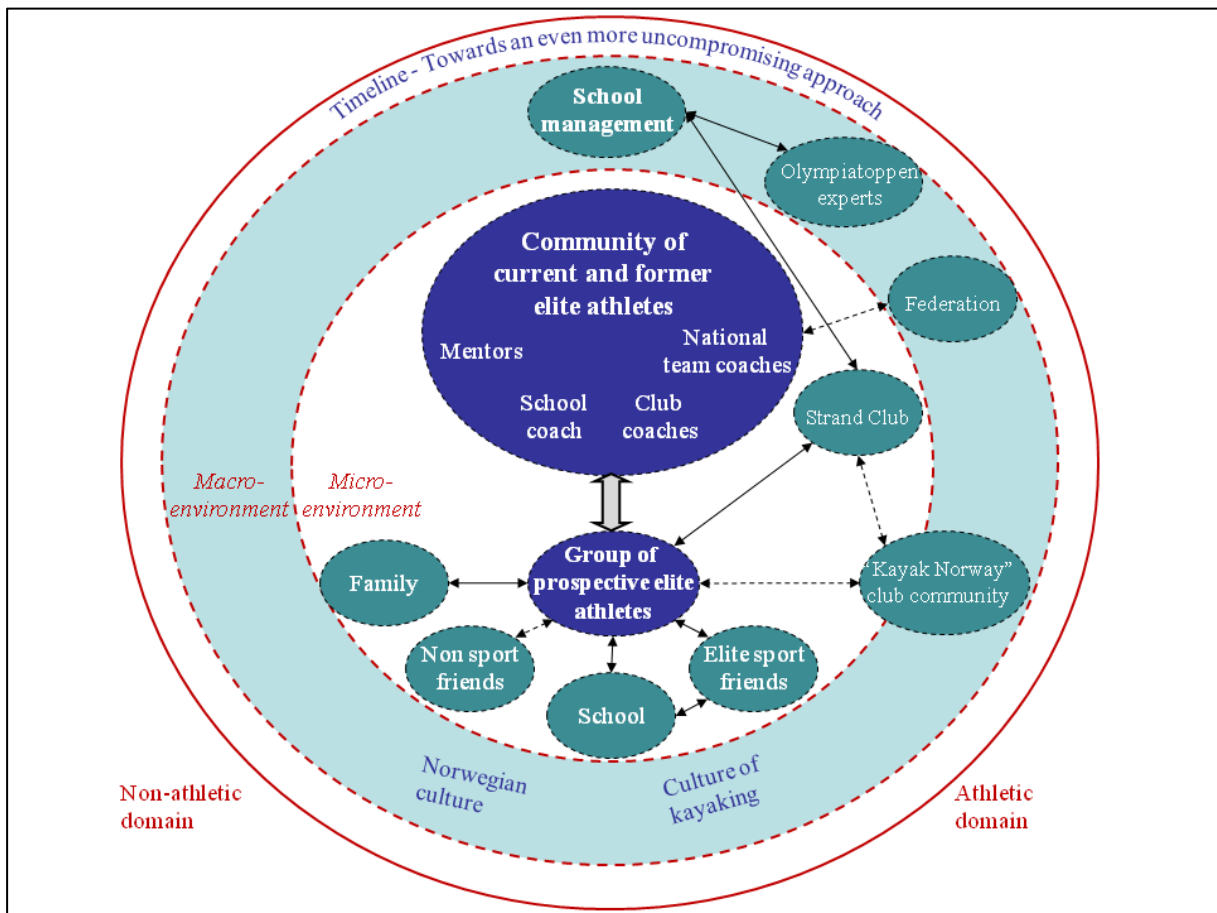


Figure 9: The athletic talent development environment (ATDE) empirical model of the Wang kayak team

Factors Influencing the Success of the Environment

The factors that contribute to the success of the environment are analysed following the logic of the ESF working model and will result in its empirical version.

Preconditions

In general, the environment has limited financial resources, a fact that is compensated for by excellent natural conditions, a good infrastructure and skilful volunteer coaches. Kayak is a relatively cheap sport. Kayaks are expensive, but most prospects buy them used and sell them on later for almost the same price. Membership fees are small and not much equipment is needed. Most of the prospects train too much to have time for after-school jobs and are dependent on the parents for financial support.

The school has the financial means to employ coaches, but not as many as it would like, and the head of sport finds himself working hard to persuade politicians to increase the financial support for elite sport schools. Whereas budgets are tight, the school management cites a skilled staff with enthusiasm for elite sport and good working relations with institutions of expertise as primary resources in its activities.

The club receives most of its income from membership fees. The club has more than 400 adult members who pay membership fees and who mainly undertake paddle tours along the coast. These members entail little cost and subsidize the club's youth activities. The young athletes also occasionally contribute to the club's finances by collecting garbage in the local area, for which the clubs receives payment from the city council. The financial means are not overwhelming, yet they are important to the club, as explained by a club coach:

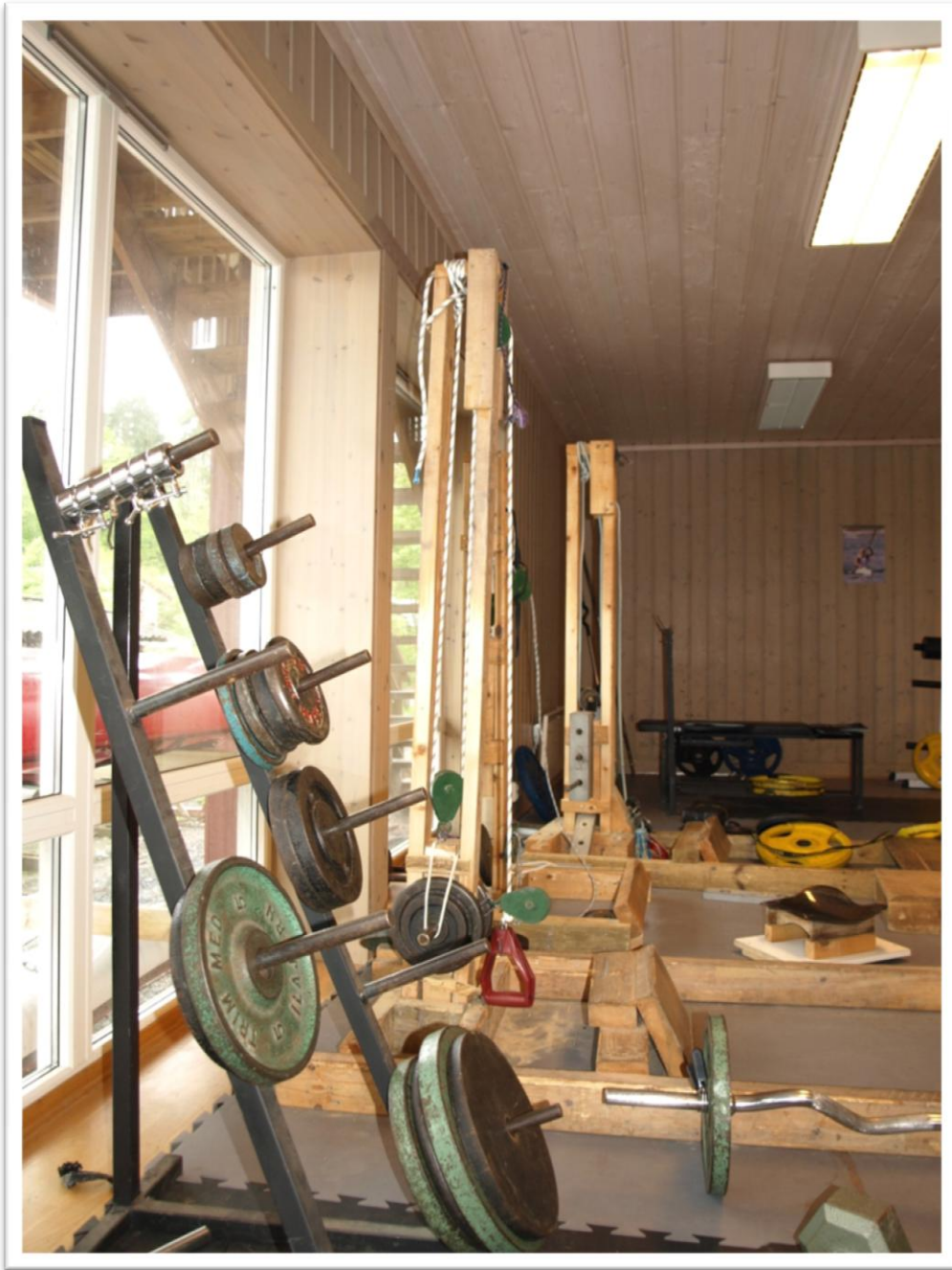
We have no means to employ coaches. But we pay for any young paddler who wants to go to a competition, regardless of whether he is good or bad, newcomer or longstanding member. In the same manner all new athletes can borrow a decent racing kayak until they decide to buy their own. This goes well with our overall wish to be an inclusive club with a focus on competitive youth paddling.

The low budget air of the sport was observed at a competition:

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During the rain, the athletes gather in the tents. Each nation has a big tent on a lawn. In the tents are a few tables and benches. Inconceivable quantities of wet clothing are hanging from any hook, chair or table available. In the corner are several boxes of bananas. Last night athletes from all participating nations slept in the same two gyms, one for boys and one for girls. Usually each nation has their own two classrooms, but no one complains. Two coaches slept in the tent, sleeping mats directly on the moist grass, to watch over the equipment. (From observation material)

The club has good facilities, including changing rooms, a meeting room and kitchen, a well-protected space for kayaks and so on. The weightlifting room is threadbare and filled with homemade exercise machines, but it works. The most important resources, however, are the bay and the infrastructure for training. The club is easy to access by car, train, bus and bicycle. The bay has many coves and peninsulas providing protection from the wind and is perfect for kayaking. In the winter, there are good cross-country skiing conditions nearby. A club coach explained how even the jetty is important as a natural social gathering point: "This jetty hasn't changed since the year dot. People come here to paddle, to talk and to barbecue. There are always people here and I think the social environment is an important part of the club". As a final resource, a large number of tireless volunteers are committed to the club. They build equipment, coach young athletes, follow athletes to camps and competitions and teach newcomers basic skills.



Process

The major categories of the daily routines, as mentioned by coaches and athletes, were training, test, competition and camp, but social events also played a role.

Training and tests. The prospects have approximately 12 weekly training sessions. Three sessions are in the morning and are organized by the school, about six are in the late afternoon or at weekends in the club, and the rest are supplementary training such as weight lifting and

running, which is often carried out alone or in small groups directly after school or club training. The elite athletes do about 18 weekly sessions that are also longer and harder than those of the prospects. The prospects gradually increase the number, duration and intensity of their training sessions. A prospect explained how the structure of daily life leaves little time:

Usually we train in the morning. On the train ride to school we do a little homework. School finishes around four o'clock and after school I have an hour at home to rest and get something to eat. Second training session is around six. That means dinner at eight. After dinner I am tired and usually go to bed early. Sounds tough, but I like the fact that I don't waste my time.

The prospects take part in training organized by the school, by the club and, in the case of most prospects, also by the national team. Despite little formal communication and planning, training is well coordinated due to an integrated philosophy of Norwegian kayaking, which goes back more than thirty years. This philosophy determines the focus of training, for example that condition is more important than strength; the nature of the individual training session, for example that all training should be in the form of intervals; and the structure of the overall week plan, for example that the week should be built around three very hard main sessions and every week should finish with a test. Since all coaches are raised "in the system" and so agree with this philosophy, training in a number of different settings appears largely unproblematic. The school coach explained how the general plan was accepted: "We [club, national team and school coaches] agree that Wang's three morning sessions should be the hardest sessions during the week and that the week is built around these three main sessions". The philosophy leaves room for individual adaptations and the athletes are responsible for making sure the training fits with their own overall plans and needs. In general, training in a group, pushing each other hard, and being able to ride the waves of a better paddler and watch his or her technique is considered more important than the exact content of a training session. Therefore, the prospects often make slight changes to their plans in order to accommodate and be able to train with other (typically better) paddlers.

On average the athletes train approximately half their sessions without a coach, typically in a group but sometimes alone. This means the athletes have to be self-motivated, autonomous and reflective regarding their sport. Therefore coaches aim to develop these characteristics in the athletes. This was explained by a club coach: "We do not have a professional setup. We

rely on our ability to teach the athletes to do quality training on their own". The school coach adds:

My priority is to teach them a good training philosophy, which includes training the right amount of sessions at the right intensity, but also not to be a slave of the programme but adapt to the group and the state of their bodies.

Supplementary training, such as weight-lifting, running and cross-country skiing is organized under the name "basis training". This training is considered a Norwegian invention and includes programmes and exercises for training balance, strength, endurance, speed, mentality and other areas that are common to many sports. Basis training is inspired by sports that are highly developed within specific areas. For example, balance training involves a number of exercises from gymnastics. Being a good all-round athlete is prestigious and annual Norwegian championships are held in basis training. Basis training is organized to be flexible, and the athletes are used to training without specialized equipment. This was observed on several occasions, for example during a training camp, where a weight-training programme was designed to be carried out in a children's playground. The kayakers have adopted the idea that all-round capabilities are important, and during an autumn training camp they held their own basis training championship, which included walking in chest-high water, mountain biking, moving heavy rocks, precision mini-golf shots and so on. Although this was also a social event, winning these championships is very prestigious and the athletes competed hard.



Tests are an integrated part of the weekly training plan, and the athletes are tested every Saturday. The coaches rarely spend time following up on the tests, because the prospects know how to evaluate the results. The purpose of frequent testing is to adjust the training, to monitor progress and to motivate the athletes to train hard. Testing also serves as mental training, which was explained by the school coach one morning after a hard test in extremely windy conditions, during which several athletes fell into the water:

Today they will not produce good test results. But it will make them tough. It is important for them to learn to complete training and push hard, even when the odds are against them. In the hardest tests, the athletes develop the will to see the training through to the end.

The year plan is dictated by the weather. In the summer focus is on ‘primary training’ on the water. In the winter, when the fjord is frozen, morning sessions involve the paddle machine, weight-lifting and swimming, and the afternoon sessions include a large amount of cross-country skiing.

Competitions. The prospects take part in 15-20 competitions every year, of which a handful are particularly important. Competitions are also important social events, where athletes from different clubs and nations meet and socialize. The junior national team coach explained the policy on selection of athletes for competitions as follows:

At this Nordic Championship we are represented by 40 athletes. Norway probably could have won more medals by having fewer athletes compete in more races, because many of these athletes surely won't win. But it is important to invite them anyway. We cannot predict who will become best later in life, and we do not want to discourage anyone. The athletes learn a lot and make many friends at these competitions, and it is important to have a big cohesive group, because it keeps everybody motivated. Finally, it is simply a good signal to send a young athlete to invite him to race for his country. (From observation material)

Camps and social events. The prospects go on training camps with the school and with the national teams. A ten-day training camp is organized by the school once a year in the autumn to prolong the season. The federation organizes shorter and more frequent camps, typically leading up to a competition and with the purpose of training the team boats (K2 and K4). These camps are also seen as social events and as a treat by the athletes.

Regular social events are not common but do take place, such as barbecues on the jetty, the occasional bowling night and the traditional Christmas gathering at the coach's. As one prospect put it: "We are together every day, and I feel it is a very social thing when we go to competitions and camps. Even the bus rides are a lot of fun. We don't need more".

Group Development and Culture

Artefacts. Artefacts represent the visible tokens of the culture. One such artefact is the low budget look of the weight-training facilities. The weight-lifting room is threadbare and basic. Most machines are homemade and constructed out of wood. An old racing kayak hangs from the ceiling. On a homemade weight-lifting machine someone has written "Pain is fun". On the walls are a number of posters, typically displaying the heroes of the sport. One of the club's athletes is on such a poster. Another poster is an advert for a particular brand of kayak, displaying an athlete who has won international medals in numerous sports including kayak, surf and triathlon. On the wall next to the door, a number of newspaper clips show the latest

results of the club paddlers, and results from recent tests display a clear hierarchy among the paddlers.

Verbal artefacts are stories told in the environment that serve to maintain the culture. One such story, which athletes and coaches told on several occasions, was the story of a current World and Olympic champion's lack of natural giftedness, told here in the words of a prospect:

In his early years he was not very skilled and certainly not among the best. But he managed to train hard, stay motivated and improve a little bit every day, and today he is among the best in the world.

Another such story was told by the school coach during a camp, one evening after dinner when several athletes felt exhausted:

Once I was at a camp for several weeks, and one of the weeks I was by myself. The lake was more than ten km away and I did not have money for a taxi. So every morning I ran to the lake, did a training session, ate and rested in the grass and did another session. Then I ran back to the hotel. I did this every day for ten days.

Such stories clearly support the basic assumptions that are described below. Verbal artefacts also include accounts of how all Norwegian athletes from different clubs socialize and are accommodated during competitions, as described in the section on preconditions.

Espoused values. The values espoused by the school and club are different. The club's most salient value is to be an inclusive community that is open to all motivated young paddlers, as described by a club coach:

Our main goal is to create a good training milieu, in which paddlers can develop both as athletes and as people and which is a good and safe place for a young person to spend his or her spare time. This is written down among the club's aims and objectives. Further down the text, funnily enough, we have added in parentheses that "this will allow us to create good paddlers". And of course we do take pride when one of our paddlers wins a competition.

The school, on the other hand, clearly espouses a philosophy of elite sport. The homepage displays the athletes' latest results and selections for national teams. Part of the school's vision is to cater for motivated and result-oriented student athletes. The elite sport philosophy

is clearly visible in the daily work, where school activities are organized to allow the athletes to excel in their sport, for example by not counting sport-related absence as absence, by allowing students to eat during class and by minimizing homework. The school officially adopts the *Norwegian model of elite sport*. This includes central concepts such as *the 24-hour athlete*, which encourages the everyday life of the athlete to be organized in such a way as to underpin elite sport; *mindfulness*, which proposes that athletes must learn to be physically, mentally and socially present and mindful in every training session; *knowledge base*, which insists that coaches and athletes must always be curious and open to new knowledge; *autonomy and responsibility*, challenging athletes gradually to learn to take responsibility for their own career including their training plans and coordination with non-sport areas.

For the paddlers in the Wang-Strand training group these different values go well together. The paddlers adopt an elite mindset and are very disciplined and organized. This mindset is learned in the sport but resides within the person and manifests itself in other domains, such as school. The paddlers also manage to build and maintain an inclusive training community in which they train their hard sessions with more skilled athletes and also find time to pass their knowledge on to less skilled athletes during easier sessions.

Basic Assumptions

The Wang-Strand group of paddlers is naturally embedded in the school and club and thus affected by the culture of these broader organizations. The analysis revealed that the group is characterized by a culture consisting of nine interconnected basic assumptions that can be grouped into assumptions about the group, the athletes, the goals and the system.

As a fundamental governing principle, openness and co-operation within an open training community are at the core of the group's cultural paradigm, a fact reflected in the first three assumptions, all relating to the group. The first assumption reads: *An open training community is a fundamental precondition for creating high level athletes*. This assumption is reflected in the way training is coordinated to allow for athletes at different skill levels to train together and in the fact that skilled and motivated athletes are allowed to take part in the training organized by the school. In the words of the school coach: "We can see that medals have always grown out of a community of athletes that train together". Closely related to this

assumption is the assumption that: *Athletes must have proximal role models to aspire to in daily training.* Elite athletes are role models because of their results, skills and mindset, and they must be readily accessible in daily training. Training is organized to allow for the prospects to ride the waves of more experienced paddlers. Athletes willingly travel to the training venues of the best athletes to learn the trade, while former elite athletes remain willing pass on their knowledge to younger athletes in an informal learning process. This was stressed by an elite athlete:

The Norwegian success in kayaking has always been against the odds. In spite of the climate and in spite of a very small number of paddlers. Our success is due to the fact that talented paddlers have been willing to move to train with the best. This means we have always had a training community with high level athletes and hard competition.

The prospects seek knowledge from a number of skilled paddlers in the environment (not just from the coach), all coaches are former elite athletes, and coaches often join training and assume the role of setting the pace in the group. One of the terms most often mentioned in the interview material was the idea of having “someone to aspire to”.

The third assumption relating to the nature of the group states that: *Successful training communities are hierarchical.* Hierarchy provides stability to the group, and the respect and recognition associated with being in the top of a hierarchy plays a part in motivating the elite athletes to include younger athletes into their training. A third year prospect explained how the hierarchy manifests itself: “The older athletes get to shower first, pick seats in the bus and choose kayaks first at a camp. Simple things. I did not mind when I was youngest, and I still find it quite ok”. The hierarchy is dynamic and built on several parameters, age being the most salient, and this assures a natural advancement. The school coach explains how other parameters are part of the equation:

Besides age, the hierarchy is clearly related to your efforts in training and to whether you have a ‘determined look’. Let me name an example. Recently, a 14-year-old girl started at the club. She trained with the boys, attended every training session and always saw training through to the end, even when it was cold and rainy. Now, that is the kind of thing that is noticed in the group. She quickly rose in the hierarchy because she is tough and has drive.

Two basic assumptions relate to the athletes. The first of these states that: *A versatile sport profile is beneficial to elite performance*. This assumption is reflected in the way late specialization is common and several athletes are ambitiously engaged in several sports even up to the age of twenty. Diversification is supported by the coaches, as explained by the school coach:

We never tell them to focus solely on kayak. Several athletes train and compete in cross-country skiing in the winter. As an extreme example, we have an athlete who last year achieved good youth results in four different sports including kayak and cross-country skiing. Training hard and competing all winter is perfect for his development. It makes him mentally tough. He turns twenty soon and I expect he will make a choice before long. I hope he will chose kayak, but it is up to him.

This assumption is also reflected in the way the off-season training in both school and club involves swimming, running and skiing. Finally the prestige associated with the championships in basis training clearly shows that the all-round skilled athlete is a governing ideal.

The second assumption relating to the athletes regards the nature of talent and states: *Motivation, discipline and autonomy are more important than innate potential*. Although anthropometry and physical factors are important in kayak, they are emphasized neither in training nor in the selection of paddlers for the school programme, as explained by the school coach.

I look mostly to their attitude towards training. Some of the boys are very slight of build, but this may even be an advantage. These boys have to develop a very refined technique to be able to follow the bigger boys, and once they grow bigger and stronger they have the whole package, whereas some of the naturally strong boys may rely solely on physical strength in the early years and so miss perfecting their technique.

Motivation, discipline and autonomy, on the other hand, are important aspects in the development of future elite athletes. The prospects are expected to engage in many hours of self-organized training, and the ability to complete hard training sessions and tests is considered a marker of future excellence. Deep down, the athletes must appreciate the grind. A prospect explained why he often engaged in training beyond what was demanded of him in the programme: “The best athletes do not just follow programmes but always attempt to reach further.” This basic assumption is also visible in the story (artefact) about the Olympic

champion who lacked natural talent but trained hard and improved little by little through hard effort. A club coach explained how it is part of the group psychology that the athletes have to be alert and keep up.

A good example is just before training, where we all sit on the jetty and everything seems quiet. All of the sudden someone takes the initiative and gets into his or her kayak. Everybody follows within moments. If you are too slow, the group is gone and you have to train on your own. It takes a while for newcomers to learn, but they learn eventually.



Finally, this basic assumption is reflected in the way athletes are not expected to follow training programmes slavishly but to adjust the programmes to optimize their gains.

A third set of basic assumptions relates to the goals that govern daily activities. The first of these assumptions states that: *Sport is about winning, but to win you need to be patient and smart.* Daily training is competitive, and the prospects do not hesitate to admit that every training session has a winner. The competitive nature of the culture is visible in any number of ways. Test results are saved for statistics and displayed on the walls in the club. Home pages proudly display the latest results. Running to and from training becomes a competition. And the athletes even take part in competitions in their off-season sports. Coaches mention

the competition between the athletes as a positive feature of training in a community and explain that this competition serves to make the athletes mentally strong. At the same time, winning demands patience, foresight and a focus on performance process, as explained by the head of sport:

Our goal is to be world best, and it's true we applaud good results. But when a result comes, we help the athletes to ask themselves why the result came at this moment. What were the steps that led up to the result? We try to teach a mastery focus; a focus on the skills and qualities needed to develop in daily training rather than a focus only on results. But we do this because we firmly believe this approach yields results.

The school coach further explained how kayak is a sport that demands patience:

In kayaking you need many years of hard training and you will not reach the world elite until your mid or late twenties. And only very few can earn a living in the sport. It is no use shooting your bolt when you are 15 or 16 years of age. You need to be patient, have a long-term focus and prioritize school.

The second basic assumption about goals relate to the goals of the system and states: *An elite sport environment must have a clear elite sport philosophy*. This assumption is primarily visible in the school's mission statements and everyday activities. The school manager stresses that the name "elite sport school" carries with it an obligation to make sure every part of daily life is organized to support the students' athletic development as well as possible: "We should not justify our existence by the health or social benefits of sport. Developing elite athletes is our reason for being." It is an inherent idea in the school and club that before an athlete makes the existential decision to embark on an elite career, coaches or school personnel have an obligation to discuss the implications of this decision with the athlete. The goal and its consequences must be clear to all those involved.

The final set of basic assumptions relates to the talent development system. The first reads: *Never change a winning system*. This assumption dictates a pragmatic approach to the nature of truth. Any elite sport programme proves its worth only when it produces results, and if it does, there is no need to change it. The rooted philosophy of Norwegian kayaking has produced good results, and the participants believe in the system and are reluctant to change it. An elite athlete explained how tendencies to disregard important values in the current system are a danger to future elite results:

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There is a tendency these days for Norwegian paddlers to look to other countries for inspiration rather than to trust our own model. At the same time some of the next-best athletes are reluctant to move here in order to be part of this training community. These tendencies undermine the very basis of our success.

The final basic assumption, which is also related to the overall system, reads: *The training group must be complemented by a larger and coordinated environment.* This assumption is visible in the way clubs are open to athletes from other clubs, in the coordination of training camps and competitions between clubs, in the dialogue between school and clubs and in the coordination between coaches from school, clubs and national team.

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.

Individual development. Besides becoming very skilled paddlers, the Wang/Strand kayak paddlers develop a number of characteristics that are helpful to them both in sport and life. Analysis of data revealed that social skills, autonomy and responsibility, intelligence and a strong work ethic were the main categories of individual development.

Psychosocial skills include the ability to build and maintain a functional community with athletes on very different skill levels. Going to a school with top level athletes from other sports allowed them to develop a curiosity towards other domains and a willingness to seek knowledge and learn from others. Autonomy and responsibility are developed through training in many settings and without one main coach, through training without a coach, and through having to learn the most important lessons through informal learning process in a community of paddlers.

Training, school, social obligations and the need for much rest make the athletes learn to get the most out of their time. These features entail the need for a certain degree of intelligence, as explained by the club coach: “You have to be able systematize all the inputs and choose what is right for you. If you need constant leadership, you do not stand a chance.” Intelligence also involves knowing yourself and taking your body seriously, as explained by a prospect:

“You learn to listen to your body and know its limits. After all, your body is the most important expert in the system.”

Finally, the paddlers’ strong work ethic is clearly evident in their everyday routines. The athletes always complete their training regardless of whether a coach is present, whether it is raining, or whether they are tired. The self-motivated nature of these athletes was observed four days into a training camp:

In the morning the athletes had done the week’s only long-distance session of approximately 40 km (three hours). After lunch they competed in the basis training championships, which took longer than expected. Now they were lying exhausted on the lawn as the sun set. Weight-lifting was on the programme, and the athletes slowly began to pick themselves up to go to the gym. Impressed, I asked the coach if he would ever let them take the rest of the day off. He answered that it would make no difference. As if to prove a point he tells the athletes they are free to do what they want. A few exhausted athletes go to their rooms to rest, as does the coach. The majority do a one-hour programme. (From observation material)

An elite athlete summed up by saying: “They learn to acknowledge that there are no short cuts, only hard training; no money, only sacrifices for the sport; and never enough time, only efficiency and discipline.”

The environment’s success.

When the school evaluates its success, the primary parts of the equation are results, school grades, developing coaches and recognition. Results are most important. Wang is an elite sport school, and creating elite athletes who win medals is their reason for being. The school has statistics on all results created by their athletes while enrolled and also all senior results created by former students. The school’s webpage clearly boasts the impressive results and draft of the students.

It is important for the school not just to achieve good sport results by neglecting school, but to manage a successful combination of school and sport. Therefore, the students’ academic level is also important, and the school’s grade average is among the best schools in Norway.

A large proportion of those athletes who prove to be unable to make the elite level as athletes or lose interest hold on to their love of the sport and become coaches. The school is proud of its production of motivated and knowledgeable coaches.

Finally, the school is recognized by its surroundings. This recognition is evident in the recommendations from sports federations that young talented athletes apply to Wang, in its impressive waiting lists and in the prestige associated with being a student at the school. As for the kayak team, the school coach concludes:

When I look at my colleagues – Wang coaches from other sports - I used to be embarrassed. They had a huge number of applicants whereas I had a handful. But I realize that we really manage to get the best out of our few paddlers. We achieve results on an international level, and kayaking is a big sport internationally with more than a hundred nations competing in the world championships. We must do something right.

The Empirical Model Explaining the Success of Wang Kayak Team

Figure 10 presents the empirical version of the ESF model, summarizing the most important factors influencing the success of Wang kayak team as a talent development environment.

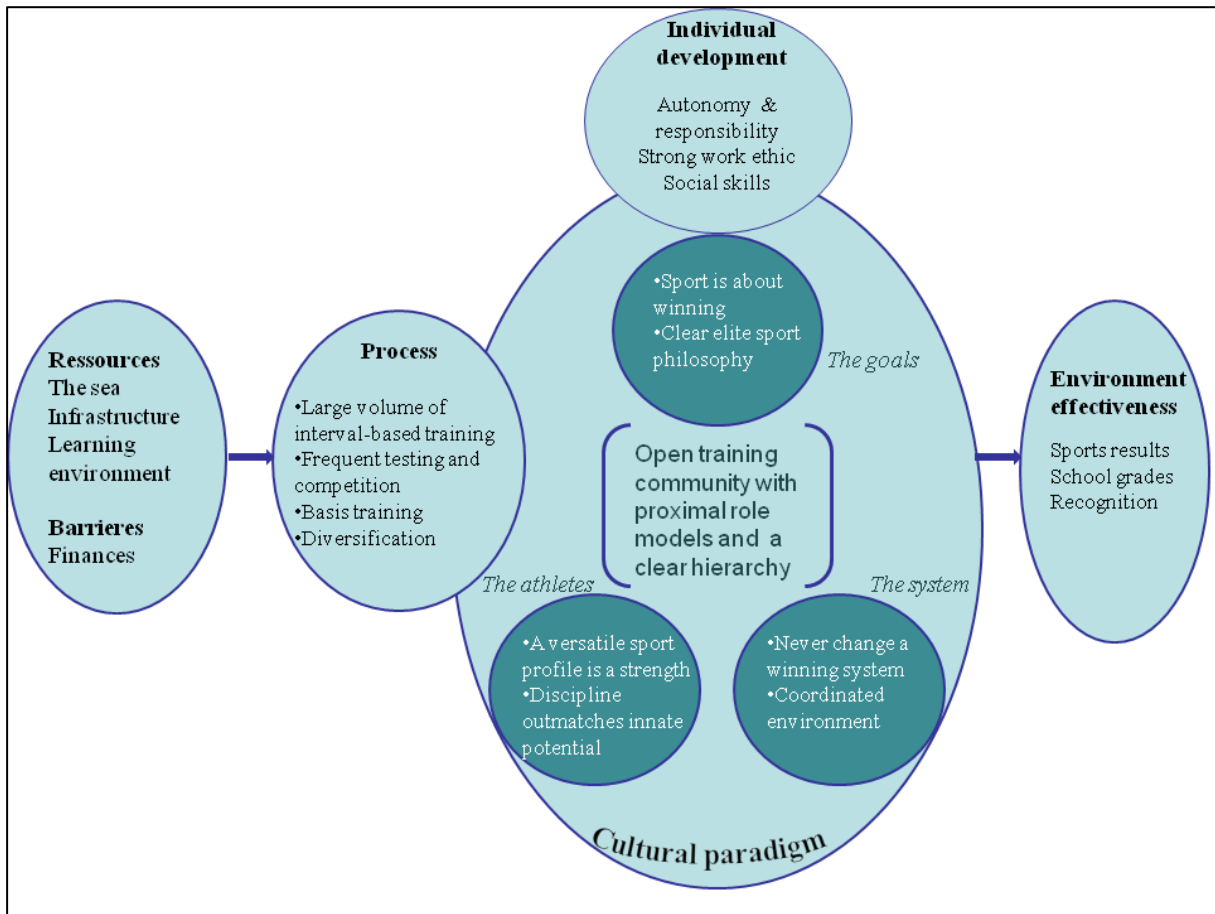


Figure 10: The environment success factors (ESF) empirical model of the Wang kayak team

The team has limited financial resources but benefits from a world-class natural environment in a fjord that is easy to access and provides perfect conditions for flat-water racing, along with a good learning environment in which skilled paddlers and volunteer coaches willingly pass on their knowledge to the prospects. The daily routines revolve around a large volume of hard interval-based training and frequent tests and competitions, as dictated by a rooted Norwegian philosophy about kayaking. This philosophy also dictates training all-round sport skills in basis training and training several sports rather than focusing on only one sport from an early age. The group has a distinct organizational culture with an open training community, proximal role models, a clear elite sport philosophy with a focus on winning, a conviction that the athletes' discipline and autonomy are more important than their innate skills and a pragmatic trust in its own system as its central elements. The daily routines work in combination with the organizational culture to develop athletes who are autonomous and responsible for their own development and have social skills and a strong work ethic. These

elements of the environment (preconditions, process and group culture) unite to provide the basis for the environment's success, which is measured mainly in terms of sport results.



A summary of the Wang kayak team provides the following characteristics:

- a) officially organized only as a team of prospective elite athletes but in fact centred around the relationship between these prospects and a community of former and current elite athletes,
- b) officially organized as a *school* team but helping the athletes to focus on their sport goals,
- c) a small, tight environment but open and enrolled in 'Kayak Norway', which allows athletes to train in any club in Norway,
- d) teaching the athletes to be autonomous and responsible for their own training but supportive in helping the athletes acquire the skills necessary to take on that responsibility,

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- e) limited in financial resources but a world-class natural environment with a good infrastructure,
- f) deeply rooted in a philosophy that demands large volumes of training but also teaches the athletes to listen to their body,
- g) intent on winning but acknowledging that a strong work ethic is more important than innate potential and therefore supportive of the athletes' long-term development,
- h) fragmented in that it offers training in a variety of settings but perceived as very integrated due to a strong and cohesive organizational culture,
- i) confident in the current state of affairs but willing be uncompromising to meet future demands.

CHAPTER 7

FEATURES OF SUCCESSFUL ATHLETIC TALENT DEVELOPMENT ENVIRONMENTS: A CROSS-CASE ANALYSIS

In this chapter I will present a cross-case analysis and outline a number of shared or unique characteristics found among the three environments presented in the previous chapters. The analysis will follow the logic of the study's overall framework and focus both on those features that describe the environments and on those that contribute to their success, as these features are summarized in the empirical versions of the ATDE and ESF models of each environment. The major features shared by the environments emerging from the cross-case analysis were as follows: (a) their organization in training groups with proximal role models; (b) the integral quality of the environments' efforts; (c) environments weighted towards sport in which the family was at the periphery; (d) limitations in resources leading to compensation elsewhere; (e) training that allows for diversification; (f) the development of psychosocial skills and competences for life; (g) a strong and integrated group culture; and finally (h) the environments' embeddedness in cultural and temporal contexts. I will discuss these features with an eye on whether they lend support to existing literature.

The Environments at First Glance

At first glance the three environments may seem rather different. The environments were in different sports and different countries, and this situated them in different cultural contexts. The nature of the groups and their organization was also different, with the sailing group being a national team, the track and field environment being a club, and the groups of paddlers being organized in an elite sport school. The number of participants varied from small groups in sailing and kayaking (8-11 prospects) to a much bigger group in track and field (40 prospects). And, finally, the age of the target group varied from 16-19 for kayak and track and field to 18-21 for the sailors.

Taking a closer look, however, the environments also show a number of similarities. The environments were all successful athletic talent development environments, that is, clubs or teams that have a successful track record in developing prospective elite athletes into elite athletes in their chosen sport. The environments were all Scandinavian, and it has been argued that the national cultures in Scandinavia are alike. The sports, although different, were all Olympic sports, which means the international competition is strong and the athletes must be very skilled to succeed. They were also individual sports or sports in which the athletes competed in very small teams – although sailors compete in two-man crews, they consider their sport to be closer to an individual than to a team sport. Finally, although the age of the athletes varied, all athletes were in the transitional phase from successful junior to elite senior athlete, which has been described as one of the most difficult and important transitions in an athlete's career (Stambulova et al., 2009). This transition simply comes later in sailing than in kayaking and track and field.

Features of Successful ATDE's: An Analysis of the Common Themes

In the following sections I will provide an analysis of the unique and shared features of the three environments. As my hypothesis proposed, each successful ATDE was unique in a variety of ways, and the previous three chapters have been dedicated to the in-depth presentation of each environment. At the same time the environments also shared a number of features and in many ways employed the same principles in their work. These principles were, however, not implemented in the same way across the environments. Therefore, the uniqueness of each environment was often expressed in how they implemented the common principles.

In this chapter I will focus mainly on the common themes. Bearing in mind that the environments are complex and that no studies have been made involving less successful environments in the same sports, I will conclude the chapter with a summary of the features that are characteristic of successful talent development settings.

Group Organization and Proximal Role Models

Organization in training groups was regarded as a virtue in all three environments. Although the prospects would differ in skill level, being a member of a training community was preferred to individual training. Training groups offered friendship, motivation, fun, a sense of belonging and challenging competition in training. In all environments prospects and elite athletes alike stressed the point that they would never have made it without the group. The athletes experienced a high degree of group cohesion, which in sport psychology has been defined as “a dynamic process reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (Carron, Brawley & Widmeyer, 1998). The literature emphasizes that cohesion involves the individual member’s attraction to the group and of team integration and it contains both task and social orientations (Paskevich, Estabrooks, Brawley & Carron, 2001). Although research on cohesion in sport has focused mainly on team sports, literature and research on group psychotherapy has shown the importance and dynamics of cohesion in small groups in which members have their individual goals, as described by Yalom (1995):

Those [groups] with a greater sense of solidarity, or “we-ness”, value the group more highly and will defend it against internal and external threats. Such groups have higher rates of attendance, participation, and mutual support and will defend the group standards much more than groups with less esprit de corps. (p. 55)

Yalom further points out that group cohesiveness results in greater impressionability of the members. In the ATDE’s investigated here, the high cohesion and resulting impressionability were key characteristics of the group as successful learning environments for the prospective elite athletes. The prospects accepted and defended the group values and were very open to being influenced by the elite athletes.

The relationship between the group of prospects and the elite athletes was a distinctive feature of all three environments. In the 49er team the elite athletes were informal coaches and even main knowledge providers for the prospects. The prospects trained with the elite athletes on a regular basis, and in an informal learning community the prospects would learn not only technical and tactical aspects of training but the “trade” as a whole, including how to manage study activities, finances and personal life. In IFK Växjö the same principle was visible although implemented differently and to a lesser degree. The prospects trained next to the

elite athletes and elite athletes would occasionally demonstrate drills and technical details for the prospects. In other words, the elite athletes, though far from being coaches, were very visible as role models. In Wang kayak team the relationship between prospects and a community of current and former elite athletes was at the heart of the environment. Elite athletes trained with the prospects, set the pace in hard training sessions and were even sparring partners in daily practice. The prospects learned the trade through osmosis in a community of practice and were able to ride the waves of better paddlers. The elite athletes were referred to as proximal role models to aspire to in training. In all three environments, the role of the elite athletes towards the prospects was reproduced by the prospects in their relationship with even younger athletes.

This finding supports the concepts of community learning and situated learning (Lave & Wenger, 1991; Barab & Plucker, 2002) and a resource-oriented coaching role (Hansen & Henriksen, 2009). In the development process the prospects grow as individuals and become not only the same people with different skills but ‘different people’ with new opportunities for interaction having been enculturated into the specific practice. Teaching and knowing are not monopolized by the few – the coach, for example – but are distributed across the community. Arguably, training with the elite level athletes may prepare the prospects for the next phase in their athletic career and so ease their transition, preventing any “cultural shock” (Green, 2005) they might experience on reaching the elite level.

The applied perspectives of this finding are clear. ATDE’s should encourage elite athletes to play an active role in the development of talented younger athletes. The benefits of this relationship for the prospects are clear, and even the elite athletes in the three environments seemed to find that the time they spent on this task was outweighed by the advantages of maintaining an effective training group and learning through formulating their tacit knowledge.

The community organization was not limited to the athletes but was also true for the coaches, who in all cases cooperated and openly exchanged knowledge with other coaches. This was most noticeable in IFK Växjö, where coaches would always work in teams and the high level of skill and the openness of the coaches became a self-reinforcing process in which skilled coaches actively sought the club to learn from other skilled coaches. This result supports Culver, Trudel and Werthner’s (2009) argument that although communities of practice are a

rare sight in competitive sports because coaches are reluctant to share knowledge, such communities hold the potential to develop the coaches. In fact, such communities may even be a marker of successful ATDE's.

Integrated Environment with a Visible Cohesive Force

In all three environments I found that athletes experienced living in an integrated and coordinated environment. The athletes did not feel trapped between conflicting demands and desires from parents, school, club coaches, national team coaches and so on. Rather, they experienced an integrated set of “pulls”, which they attributed to a high level of coordination and communication among the different components in the environment. An example of the importance of an integrated environment is provided by school. School played a very different role in the three environments, yet in all cases it was perceived as being important. For the sailors, school was seen as a barrier. School showed little appreciation of their venture, and a school system in Denmark with a tradition for extensive group work made it hard for the prospects to keep up at school and gain a footing among school peers. However, athletes mentioned their state education grant and possibility of postponing exams as fundamental prerequisites of their venture. At IFK Växjö the local high school offered track and field as a school subject for talented athletes. The national track and field high school situated in the town attracted high-level athletes and coaches. And the athletes were allowed flexibility in taking part in the training organized by the different schools that best fitted their schedule. This made the athletes consider school as closely allied to their sport. For the kayakers, who attended a school with a clear elite sport profile, school was a great help. School teachers showed appreciation of the demands being met by the athletes and supported their going to camps and competitions. School involved little homework. Training sessions with competent coaches were planned in the morning during school hours to allow for two sessions a day. And being among students who are involved in a variety of sports at the elite level provides a range of opportunities to learn from other sports. From an applied perspective this latter case points to the value of elite sport schools that manage an integration of academia and sport in a way that allows athletes a flexible everyday schedule with a focus on their sports.

Although a common feature, the principle that efforts should be integrated was implemented differently in the three cases, and in each case a different agent acted as an organizing force.

In the 49er team the federation encouraged relations with top-level sailors, organized media coverage and sponsorships, and helped athletes communicate with school in order to postpone exams. At IFK Växjö the club management communicated core values to coaches and parents, coordinated efforts to improve the sport within the track and field community in town, engaged in a continuous dialogue with the local sports and corporate communities, and even played a major role in creating an open track and field community on a regional level. At Wang the school management acted as a cohesive force in organizing fertile relationships with the club, with the federation and with experts at Olympiatoppen, while working to assure that academic and sporting aspects of the school were well integrated.

Weighted Environments

An overall glance at the empirical versions of the ATDE model for each environment clearly shows that all three environments are skewed in the sense that they are weighted towards the athletic domain. Importance was attributed to more components in the athletic domain than in the non-athletic domain. It could be argued that this is a natural consequence of looking at the environment through the lenses of “talent development”. It could also be argued, however, that it is evidence of the natural and perhaps necessary weighting of successful elite development environments.

The weighted structure meant the environments stimulated a high degree of athletic identity in the athletes. Athletic values were clearly a resource for the athletes in making a transition from one stage to the next in their sports career, in this case the transition from junior to senior sports. This was most evident in Wang, where the athletic identity of the kayakers involved taking much pride in their membership of the group. Their athletic identity also involved being ambitious, well-structured and serious, and these qualities were useful for the athletes not only in sport but also in school and other settings.

Although a resource for the sports career, a predominantly athletic identity has been criticised for putting the athletes at risk of jeopardizing a successful transition away from elite sports in the case of a planned or unplanned career termination (see for example Lavalley & Robinson, 2007; Petitpas, Brewer & Van Raalte, 2002). However, all the three environments supported the prospects in their education and helped the athletes structure their everyday activities and

pursue other life goals. In this way the environments can be said to stimulate high athletic identities, while allowing some space for the athletes to have other identities. As will be described in more detail below, the environments also stimulated the athletes to develop skills that were transferable and useful outside sport. In this way the risk of a crisis transition out of sport is diminished.

Skew environments can also be criticised for preventing the athletes from leading a normal adolescent life, and the increased time demands of sport in combination with increased desire for peer interaction in adolescence sets up a potential conflict (Csikszentmihalyi, Rathunde & Whalen, 1993). In all the three environments the prospects were required to undertake rigorous training. They had most of their friends in the world of sport and felt that they took less part in social events outside sport than their non-sport peers. This was considered to be a natural consequence of aiming at a career in elite sport. However, the environments focused on maintaining cohesive groups of athletes who were also friends. This strategy is supported by a finding in swimming that, compared to drop-outs, competitive swimmers were more often kept with peers of their own age group and more often reported to have their best friend within the sport (Frazer-Thomas, Côte & Deakin, 2008).

The fact that the environments supported the athletes' study activities, stimulated them to develop transferable skills and provided opportunities for close friendships made the natural weighting within the structure of the environment less problematic.

Linked to the weighting of profiles towards sport is the fact that in all cases the family was at the periphery. Sport psychology research has overwhelmingly demonstrated that family plays an important role in athletes' careers and that this role changes as the child progresses through his or her career (Bloom, 1985; Côté, 1999; Fredricks & Eccles, 2004; Fredricks & Eccles, 2005; Harwood & Knight, 2009; Wuerth, Lee & Alfermann, 2004; Wylleman et al., 2007). All prospects underscored the importance of emotional and financial support from parents, but in none of the environments did parents play a direct role in the daily routines nor was substantial importance attached to them. This was most notable in the 49er team, where proactive steps were taken to minimize the influence of the family. Exceptions include cases where coaches were, in fact, also parents, but only in one case did a parent coach his own child.

This finding is not surprising. According to the developmental model of transitions faced by athletes (Wylleman & Lavallee, 2004) the prospects were in the “mastery phase”, where parental involvement is diminished in the psychosocial development of the athletes. According to the developmental model of sports participation (Côté et al., 2007) the prospects were in their “investment years”, a phase during which parents are not actively involved in giving sports coaching or instruction but have a range of other roles that facilitate their child’s sporting development (Côté, 1999). In the kayak and track and field environments the parents often did voluntary work in the club or even became members, which supports Côté’s (1999) finding related to the investment years that, “By showing great interest in their child’s sporting activities, parents show a special kind of companionship or “network support” which facilitates their child’s engagement in sport” (p. 410).

The finding that the three successful environments are weighted to the athletic side stimulates a research interest in tracking drop-outs from such environments in order to learn more about how being a member of these environments has influenced them, both with regard to positive gains, such as positive psychosocial non sport-specific skills, and with regard to costs, such as crisis transition and identity loss.

Compensating for Limited Resources

Common to all three environments was the perception by participants that there were limited financial resources. Set alongside this was a shared reluctance to let this fact be a barrier accompanied by a positive focus on other available resources. In the 49er team the prospects did not have a coach of their own, financial resources for talent development were scarce and the state of equipment was well below that of their international competitors. These factors were compensated for through open collaboration and sharing databases. IFK Växjö did not have the financial means to employ coaches, but management focused instead on the helpful attitude of a large number of skilled volunteer coaches and helpers. For the kayakers the fact that the club employed no coaches was abundantly outweighed by the open training community with elite athletes; the low budget accommodation at competitions was perceived as promoting close friendships; and the dilapidated weight-lifting room became a reminder that high quality training depends on the athlete and not on the equipment.

All three environments pointed, furthermore, to the help provided by the natural environment as a resource in their efforts – the long coastline of Denmark, for example, or the town size of Växjö, or for the Wang athletes the easy access to the club and to well-protected waters.

Training that Allows for Diversification

While there were clear similarities between the daily routines in the three environments there were also clear differences. In all three environments the athletes attended camps, competitions and social events, but training was the most essential element of the daily routine. The athletes had heavy training loads, which supports the notion that many hours of practice is a necessary precondition for elite performance (see, for example Ericsson, 1996a; Helsen et al., 1998). However, the organization of training differed. Whereas the training of the track and field athletes and kayakers was integrated into their everyday lives, typically before and after school, the sailors tended to organize intense training periods at camps and at weekends and had little training on school days.

An important similarity is the fact that training in all the three environments left room for diversification and deliberate play. While the athletes were all in their investment years (Côté et al., 2003) and already specialized within their sport, training was still organized to allow for some measure of diversification. The sailors in a sense 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 track and fielders were encouraged to sample different sports and, when they did specialize in track and field, they only slowly and gradually specialized into a sub-discipline. The prospective elite kayakers raced distances from 200 metres to 40 km and had swimming and cross-country skiing as part of their off-season programme, even entering competitions in these sports throughout their careers. This kind of sampling, undertaken to support the athletes' development in sailing, track and field and kayak, could be termed 'intra-sport diversification' and supports 'elite performance through sampling' as a trajectory towards elite performance, as outlined in the developmental model of sport participation (Côté et al., 2007).

The findings regarding the athletes' daily routines are also of relevance to the debate about deliberate play versus deliberate practice. In all three environments, while the prospects were

engaged in serious training and invested the majority of their time and energy in their sport, deliberate play activities were still evident in the process. The sailors were engaged in activities such as mountain biking, surfing and sailing different types of boats; the track and fielders had wrestling as an integrated part of their weekly training programme; and the kayakers had championships in basis training, which involves drills from a number of sports. Although different from street soccer, these activities share certain features with deliberate play activities, in particular the fact that they are motivated not primarily by their training value but because they are stimulating and fun.

Early diversification and participation in deliberate play activities during the sampling years has been linked to longer sports careers, positive youth development and the building of a solid foundation of intrinsic motivation (Côté et al., 2009). The results of this study allow me to suggest that diversification and deliberate play activities may support development even in the specializing and investment years, and that this approach does not necessarily conflict with the club's wish to retain the athletes, because diversification and deliberate play activities can have a role in daily routines within a sport's training programme.

Psychosocial Skills and Competences for Life

In order to link the parallel fields of research into talent development on the one hand and career development on the other, there has been a suggestion that the purpose of talent development is to build up the athletes' resources in order to overcome the demands of career stages and transitions, most notably the transition from junior to senior sport (Stambulova, 2009a). These resources are not restricted to sport specific skills and competences. Rather they include psychosocial skills and the ability to structure life as an athlete and make the sport career a capital for the life career. The Life Development Intervention perspective (e.g., Danish, Petitpas & Hale, 1993; 1995; Lavalley, 2005), which focuses mainly on assisting athletes in their transition out of sport, emphasizes the importance of the athletes' acquisition of life skills during their athletic careers, which will be of life-long value and ease their career termination.

In all the three environments the coaches and management were conscious of the sport's potential to foster positive youth development and aimed beyond fostering good athletes. The

athletes developed a range of psychosocial skills that would be of benefit both in their athletic careers and in their lives in general. The exact nature of these skills varied but not much.

Perhaps the most important of these skills was autonomy. The coaches in all cases aimed at stimulating the athletes to be autonomous, to be increasingly able to take responsibility for their own training. In the 49er team the prospects did not have a coach of their own, and the national team would mainly ask questions to heighten the prospects' awareness of technical and tactical details. The prospects were expected to arrange travelling, organize training and "kick the door in" at meetings. At IFK Växjö the principle of autonomy was equally important yet implemented at a more gradual pace. The prospects were slowly accustomed to taking responsibility for their own training, beginning with warm-up sessions and an obligation to train at home if they missed a training session. In the Wang kayak team the prospects would train approximately half their weekly sessions without a coach, adjust their programmes to fit with the group and learn through "osmosis" rather than through a strict programme determined by the coach. In all three environments developing autonomous athletes was partly a consequence of limited coaching resources but had become integrated into the group culture as a value.

Beyond autonomy, the prospects in all cases developed social skills that allowed them to contribute positively to the training group. Among these were a high degree of structure in their approach to sport, school and life that allowed them to maximise the gains from their efforts, time/energy management skills and a high level of commitment in the form of the pursuit of excellence and a strong work ethic. These were all considered indications of future experts in the sport, and in that sense must be seen as resources for the athletes' overall athletic careers - as well as for their lives outside sport. The findings thus support the importance of developing life skills that are transferable to everyday life. In a recent study of the life skills needs of young British athletes, Jones and Lavalley (2009) found the need for both personal skills and interpersonal skills. Although none of the environments employed experts to do life intervention programmes, the environments managed to help the athletes develop these skills by virtue of their daily routines.

The primary aim of the present study is not to investigate psychosocial competencies that distinguish future elite from future sub-elite athletes, but it is worth noting that the findings lend some support the findings of Holt and colleagues (Holt & Dunn, 2004; Holt & Mitchell,

2006) and of Elbe and colleagues (e.g., Elbe & Beckmann, 2006; Elbe et al., 2005). These authors have highlighted discipline, commitment, volitional behaviour, determination to succeed and the ability to actively search for social support as important intra-personal determinants of successful development. The importance of these competences was supported by the present study. However, in addition the present study found autonomy to be very important, which was not a skill that featured in the aforementioned studies. This finding could perhaps be explained by the individual nature of the sports and the lack of coaching resources in the environments.

The Group's Organizational Culture: A Foundation for Successful Environments

The group's organizational culture is central to the ESF model, and results confirmed that the organizational culture was pervasive and affected all other levels of the model, including how the environments dealt with the lack of financial resources, what happened in the daily routines, and what psychosocial competences were valued and developed. In that sense organizational culture was a main factor in explaining the success of the environments.

The nature of organizational culture is still under debate within the literature (Nielsen, 2008; Schultz, 1990). According to a symbolic approach with roots in anthropology (e.g., Alvesson, 2002), organizations *are* culture. Culture cannot be measured or deliberately changed, and it is not possible to distinguish between more or less functional cultures. According to a functionalist approach with roots in psychology (Schein, 1990; 2004), organizations *have* a culture that is created and maintained by its members, especially by the management. Culture is measurable, and it is possible to distinguish between more or less functional cultures in relation to the task of the organization. The results of this study are most easily understood through the lenses of the functional approach. Organizational culture turned out to be an important factor contributing to the success of an ATDE – suggesting that it can be more or less functional – and it was deliberately maintained by coaches and managers.

Organizational culture guides the socialization of its members, becomes a stabilizing force for the group and determines how the group deals with its two basic tasks: internal integration and external adaptation (Schein, 2004; Schein, 1990). At the core of the organizational culture are the basic assumptions that have become integrated to the point at which they are no longer

questioned. They are organized in a “cultural paradigm” and guide the thoughts and actions of the members. As a result of his studies in corporate organizations, Schein suggests a list of key questions an organization’s culture must provide an “answer” to. These questions concern, for example, the organization’s relationship with its surroundings, the nature of human beings, the nature of reality and truth, or the nature of time (see chapter two for a more detailed description). These key questions must be adapted to fit the study of successful athletic talent development environments. On the basis of the results of this thesis and of the literature on social and environmental aspects of talent development (e.g. Carlson, 1991; Côté et al., 2009; Henriksen, 2008; Henriksen et al., 2010; Henriksen, Stambulova, & Roessler, in press; Martindale et al., 2007; Martindale et al., 2005; Stambulova, 2009a), I propose a number key questions that the organizational culture of an ATDE must provide answers to. These key questions are:

- Are the members of the group encouraged to compete or to cooperate, to keep secrets or to share knowledge? (The group’s internal integration).
- Does the club or team value openness and cooperation with its surroundings, for example other clubs, or does it stick to itself and remain closed? (The team and its surroundings).
- Is talent fixed or perfectible? (The nature of talent).
- Should athletes focus on one sport or discipline or do they benefit from broader sports profiles? (The tightness of the sport profile).
- Should a club or team always look ahead, focus on the present or cling to the past? (Time orientation).
- Does the club focus on early success or on long-term development of the athletes? (Goals).

The answers on behalf of each environment are summarized in table 2.

	49'er team	IFK Växjö	Wang kayak
Group integration	“The Danish model”. Prospects and elite athletes cooperate and share knowledge in a community of learners.	A tight group is a precondition for success. Coaches and athletes are organized in teams and groups and share knowledge. Sense of family.	Open training community with proximal role models is the most important factor in the prospects’ development.
Club/team and its surroundings	Cooperation with international teams. Self-perception as underdogs on the international scene.	Cooperation with local and regional track and field institutions, other sport clubs and the local corporate community.	“Kayak Norway”. Open cooperation between all clubs. Athletes come to train with the best but compete for their home club. School cooperates with clubs and experts.
Nature of talent	A complex sport renders talent detection impossible. Psychosocial skills that underpin long term improvement are more important than innate potential.	“Attitude beats class”. Discipline and drive are more important than current skill level. Inclusive approach, since future experts cannot be identified.	Autonomy, responsibility and discipline outmatch innate potential. Inclusive approach, since future experts cannot be identified.
Tightness of sport profile	Athletes sample boat types. Doing other sporting activities is seen as a learning opportunity.	Tradition for late specialization within track and field. Weekly wrestling is a part of the training.	Tradition for late specialization and for training and competing in other sports throughout the career.
Time orientation	Acceptance of the need to follow future trends but also a preference for own traditions. Basic values must not change.	Pride in the club’s history, but this is combined with a desire for continuous club development.	Never change a winning system. Focus on the virtues of the system. Desire to do even more of the same.
Goals	Focus on long-term athlete development	Focus on long-term athlete development	Focus on winning – in every training session. But acknowledgement that high level senior results demand patience and long-term focus

Table 2: Basic cultural paradigms in the three environments under study

As can be seen in table 2, the cultural paradigms in the three environments are quite similar. Although the principles are implemented in different ways in the three environments, many basic assumptions are shared. Organizational cultures can be more or less functionally effective in the light of their purpose. Arguably these organizational cultures support the environment's success in developing elite athletes.

Cooperation and openness within training groups were central features of the environments' organizational cultures, and in all cases these attributes were also extended to the environment's surroundings. Group organization stimulated learning, supported friendships within the sport and allowed prospects to learn from the elite athletes, all of which may have helped the athletes to stay motivated and committed to the sport. In all the three cases, innate prerequisites for excellence were considered less important than training and the acquisition of the psychosocial skills that underpin training. In combination with the fact that the environments focused patiently on long-term development rather than short-term success of their athletes, this provided a basis for an inclusive approach in which athletes of all skill levels felt welcome, and may have helped to prevent less skilled athletes from being discouraged and dropping out before realizing their potential.

Another common feature was the fact that athletes were encouraged to specialize late within the sport, and that the athletes' engagement in different sports was not seen as competing with their specialist sport but rather as enriching and supporting of the development of skills pertinent to it. This provided the athletes with the opportunities to develop a broad range of psychosocial and sporting skills.

Finally, while conscious of their current success in talent development and of the value of maintaining past traditions, all three environments were conscious of the need to adapt in the future to international developments within the sport. This provided all those involved with a basic sense of stability and continuity, which is a fundamental human need, and laid the foundation for a solid confidence in the system.

As described in chapter two, organizational culture consists of three layers: cultural artefacts, espoused values and basic assumptions. A distinct common feature of all three environments was a high degree of coherence between its different levels. Artefacts, the values espoused and expressed by the participants and their basic assumptions, derived from analysis of actual

behaviour, were highly consistent. In other words, visible tokens of the culture such as mission statements, what people ‘said they did’ and what they ‘actually did’ corresponded. For example, IFK Växjö espoused an inclusive approach and a focus on large training groups, a token of which was the club motto that “a broad base makes a high summit”. When a couple of skilled and ambitious potential volunteer coaches wanted to form an elite group out of a few extraordinarily talented athletes, these potential coaches were asked to abide by the club philosophy or take the elite group to another club, which ended up costing the club both the coaches and athletes but allowed it to maintain its cultural values. This story in itself became a verbal artefact, as it was told often and sent a strong signal. In all, this coherence between the levels of the culture allowed the culture to be an effective stabilizing force in the environments.

Contextual Embedment and the Dynamic Nature of ATDE’s

A final common feature that I find worth noting is that the environments were clearly situated in socio-cultural context as well as in a time frame, as was predicted in the ATDE working model.

Although it was rare for participants on their own initiative to mention broader cultural layers, such as youth culture, national culture, general and specific sport cultures, they often attributed great importance to cultural aspects when asked about these matters in interviews. National culture influenced all three environments. As argued, Scandinavian cultures are individualist and horizontal (Triandis, 2004), and this was evident in all three environments. Individualism was most evident in the tales of the Norwegian kayakers, who described how an individualist Norwegian national culture stimulated independence, determination and a will to win. The horizontal aspect became most clear in the Danish sailors, who described the Jante law, according to which modesty is a virtue and people claiming to be the best are disliked. In this sense the Danish national culture was emphasized as a barrier to talent development.

In all cases youth culture was described by labelling it as focused on parties, drinking too much and frivolity. This culture was seen as incompatible with development as elite athletes, and the participants viewed their group as influenced more by the cultures of their specific

sport than by a general sporting culture. While being embedded in and affected by these larger cultural layers, the three environments had very strong organizational cultures that worked as a buffer to potentially problematic aspects of the overall cultures. For example and with regard to youth culture, all prospects formed friendship groups within sport and had experienced deselecting friends who would not accept their elite sports venture. As another example, the culture of track and field was described as secretive, but IFK Växjö managed to maintain a club culture of openness and sharing.

The environments were also situated in a time frame and came across as dynamic and in constant change. Central components changed, as was witnessed in IFK Växjö where the group's main coach was replaced during the case study. The international sports scene evolved, which was witnessed in the 49er team, as international competitors became more and more professional, forcing the group to search for a balance between sticking with its values on the one hand and following the international trend on the other. The basic preconditions for the team or club changed, which was witnessed in IFK Växjö where a growing number of athletes forced the work of the club administration to become professionalized. And the level of the international competition increased, stimulating the groups to think innovatively, as in the case of Wang elite sport school that aspired to extend and expand the range of its services.

However, common to all environments was a confidence in the *status quo*. All three environments were conscious of their current success in talent development and of the importance of holding on to a number of central values and routines in their daily work. This meant that changes in their systems were experienced more as a slow ongoing adaptation than as abrupt and sudden processes of accommodation (Patton & McMahon, 2006).

Features of Successful ATDE's: A Summary

A number of features have been identified in the area of community programmes unrelated to sport that are believed to characterize settings in which positive youth development is maximized (Eccles & Gootman, 2002). Basing their work on ecological psychology, current research in child and youth development and experiences from a number community programmes, Eccles and Gootman present a provisional list of eight features of positive development settings. The features include physical and psychological safety, age-appropriate

structure and monitoring, warm and supportive relationships, opportunities to belong, positive social norms and obligations, empowerment practices that allow youth to make a difference and develop autonomy, opportunities for skill-building, and finally synergy and integration among school, family and community. While theoretically and empirically supported and certainly of relevance in all youth settings, these features are also formulated too broadly to provide guidance for the creation and maintenance of successful athletic talent development settings in sport. As a summary of the comparative analysis, I suggest, therefore, in table 3 a list of features of successful ATDE's and their descriptors. With due consideration to the cultural context of the study, it is worth stressing that these features may not define successful environments in other sports and other cultures outside Scandinavia. I also consider the list as provisional and expect it to be elaborated and clarified with further research. The features become more visible in contrast to their opposites, and for that reason I include the descriptors' *opposite poles* to further clarify the meaning of each feature. These opposite poles are meant as examples. However, they are not only inferred logically but also grounded in my impressions from working as an applied sports psychologist in a variety of elite athletic environments.

Features of successful ATDEs	Descriptors	Opposite Poles
Training groups with supportive relationships	Opportunities for inclusion in a training community; supportive relationships and friendships within the group, despite performance level; good communication.	Individualised training programmes at an early stage; training alone; low cohesion in the group; inter-group rivalry; performance as a criterion for inclusion.
Proximal role models	Community of practice includes prospective and current elite athletes; opportunities to train with the elite athletes; elite athletes who are willing to pass on their knowledge.	Airtight boundaries between athletes at different levels. Elite level athletes keep their secrets and regard prospects as future rivals.
Support of sporting goals by the wider environment	Opportunities to focus on the sport; school, family, friends and others acknowledge and accept the athletes' dedication to sport.	Non-sport environment shows lack of understanding of elite sport and the demands involved.

Support for the development of psychosocial skills	Opportunities to develop skills and competences that are of benefit outside the sporting domain (such as autonomy, responsibility and commitment); considering athletes as ‘whole human beings’.	Focus solely on sport and winning at any cost; excessive control from coaches; focus not on personal improvement but on relative performance level, which devalues learning and development.
Training that allows for diversification	Opportunities to sample different sports during early phases; integration of different sports in the daily routines; appreciation of versatile sport profiles and basic sport skills.	Promoting early specialization; focus solely on developing sport specific skills; considering athletes’ interest in trying different sports to be rivalry and a potential threat.
Focus on long-term development	Focus on long-term development of the athletes rather than early success; age-appropriate amount and content of training.	Focus on short-term success; kids are seen as miniature elite athletes; no time to heal when injured.
Strong and coherent organizational culture	Organizational culture characterized by coherence between artefacts, espoused values and basic assumptions; culture provides stability to the group and supports a learning environment.	Fragmented culture in which espoused values do not correspond to actions; uncertainty and confusion among coaches, athletes and others; lack of common vision.
Integration of efforts	Coordination and communication between sport, school, family and other components; athletes experience concordance and synergy in daily life.	Lack of communication; conflicting interests; athletes experience many and contradicting pulls in daily life.

Table 3: Features of successful athletic talent development environments

CHAPTER 8

ECOLOGY OF TALENT DEVELOPMENT IN SPORT: REFLECTIONS AND IMPLICATIONS

In this thesis I have proposed and outlined a holistic ecological approach to the study of talent development in sport. This approach consists of: (a) proposed definitions of athletic talent, athletic talent development and the athletic talent development environment (ATDE); (b) criteria for successful ATDE's; (c) a framework, which is based on system's theory, ecological theory and cultural perspectives and has the form of two working models; and (d) methodological considerations.

The approach has been tested in a multiple case study of three successful athletic talent development environments in Scandinavia. In this final chapter I review the approach, its definitions and criteria, the framework and its theoretical underpinnings, and the method used. The approach is reviewed with regard both to its applicability in the study of ATDE's and to the support and contribution it offers to the research and the applied fields of talent development in sport.

Definitions and Criteria Revisited

In chapter two I introduced working definitions of athletic talent, athletic talent development, and athletic talent development environments and presented criteria for successful ATDE's. In the light of the holistic ecological framework and after testing this framework, an ecological definition of *athletic talent development* can be proposed:

Athletic talent development is the progressive mutual accommodation that takes place between an aspiring athlete and a composite and dynamic sporting and non-sporting environment that supports the development of the personal, psycho-social and sport-specific skills required for the pursuit of an elite athletic career.

Chapter 8: Reflections and Implications

This definition emphasizes the acquired part of talent and thus reflects the primacy of what I referred to in chapter one as the *psychological perspective*. In all the environments investigated, the athletes' innate potential is acknowledged but focus is on long-term development and the acquisition of skills. This, I believe, is not a coincidence, as environments must believe they can develop the athletes. It might even be said that the more seriously the environments take their task of development, the less importance they will attribute to innate potential. Otherwise their efforts would be in vain. The definition also stresses the interaction between athlete and environment. This suggests that an important part of talent is the athlete's ability to use the benefits that the environment provides and to compensate for any lack of resources in the environments. Finally, it became clear in the environments that the athlete's ability to contribute positively to the continuing development of the environment was considered a marker of his/her future excellence. Along this line, I thus suggest an ecological definition of athletic talent as:

A set of competences and skills developed on the basis of innate potential and of multiyear interactions with the environment – for example training and competitions – as well as the ability to exploit the strengths and compensate for the weaknesses of the environment and to contribute to its development.

Coaches who adopt this perspective will (a) acknowledge innate potential but consider it less important than the athletes' motivation to work hard, and (b) work to ensure the entire environment is conducive to the athlete's psychosocial, personal and athletic development and teach athletes to interact positively with their environment.

The working definition of *athletic talent development environment*, which I proposed in chapter one, should also be revised. As a definition more in line with the holistic ecological approach, I propose:

An ATDE is a dynamic system comprising a) an athlete's immediate surroundings at the micro-level where athletic and personal development take place, b) the interrelations between these surroundings, c) at the macro-level, the larger context in which these surroundings are embedded, and d) the organizational culture of the sports club or team, which is an integrative factor of the ADTE's effectiveness in helping young talented athletes to develop into senior elite athletes.

This definition stresses that the ATDE must be considered holistically – that is, as consisting of both micro and macro-levels, of both athletic and non-athletic domains, and it attributes importance to the organizational culture of the particular sports club or team, which is at the environment's core.

ATDE's have varying degrees of success in nurturing talented athletes. In the introduction I suggested that a successful ATDE is an environment that holds a successful track record of producing elite senior athletes from among its juniors. This criterion has proved adequate to define more specific criteria for the selection of the environments. However, it also became clear that such criteria must be sport specific.

A relevant addition to the overall criterion is the environment's success in developing competences and skills that support athletes in meeting the challenges and coping with the demands of the transitions they face both in the athletic domain and in other spheres of life. However, this criterion is too vague and would have to be further specified, if it is to be used as a selection criterion in future studies of successful ATDE's.

The Framework and its Theoretical Underpinnings Revisited

Prior to the present study, empirical investigations of existing ATDE's have been uncharted territory. To anchor the empirical investigation, a framework was suggested with a solid theoretical basis (of ecological psychology, systems theory, and cross-cultural and cultural psychology) that consisted of two working models. Below I revisit the background theories and working models in the light of the present study.

Ecological Psychology

Ecological psychology (Bronfenbrenner, 1979; Bronfenbrenner, 2005; Krebs, 2009) emphasizes that development is influenced by the context in which it takes place. The results of the present study confirm that in order to understand the complex nature of talent development, researchers must look beyond the individual athlete and include the environment in their investigations. The three cases confirmed that the environment was an influential factor in the development of the athletes, and that such an environment can

potentially be an important facilitator of development. More specifically, the study confirms the following basic notions of ecological psychology

- Athletes are embedded into their environments and cannot be regarded as separate from these environments.
- The environment must be seen as a series of nested structures. Development is influenced not only by the immediate micro-environment of, but also by the interrelated system of micro-environments – the coordination between school and club, for example – by settings in which the athletes are not actively involved, such as sports federations, and by larger cultural patterns.
- Proximal processes (Bronfenbrenner & Morris, 1998), consisting primarily of many hours of hard training, are a primary driver of athletes' development
- The talent development process is situated in a timeframe (micro, meso and macro-time). All three environments were continually negotiating their efforts in the light of past traditions and future challenges. When explaining their efforts to develop the team or club, coaches and administrators referred mainly to meso-time – the Olympic cycle of four years, for example.

Systems Theory

A basic tenet of systems theory (see, for example Bateson, 1973; Patton & McMahon, 2006) is that a phenomenon such as a talent development environment is an organised whole that is complex and cannot be understood by investigating its parts one by one, and systems theory researchers are mainly interested in such complex phenomena. In that respect an ATDE is an appropriate object of investigation from a systems theory perspective. The environments were all truly complex and contained a large number of components and interrelations between components. The present study confirmed several basic tenets of systems theory:

- The relationships between different components in the environment – between prospects and elite athletes, club and school, club and other clubs – often turned out to be more important than the components themselves.
- Successful environments appear to the participants as integrated and coordinated wholes.

- Interaction between all the people in an environment is patterned. One such pattern, derived from the ATDE model, was the structure of the environment, which was weighted to the athletic side. Another pattern, derived from the ESF model, was the organizational culture that pervaded all aspects of the environments and guided athletes, coaches and others in relation to how to think and act in daily life.
- Social systems are open and permeable to information from the outside, and a change somewhere in the system will be likely to create changes elsewhere in the system. In the cases studied, examples would be the introduction of new athletes or a new coach, increased media attention, or heightened international competition, which in all cases led to adjustments, but in no cases to major revolts.

Cultural and Cross-cultural Psychology

Cultural and cross-cultural psychologies agree on the basic recommendation of cultural sensitivity, which implies that researchers should not neglect the cultural context into which their objects of investigation are embedded. In the present study, cultural perspectives were integrated from the very beginning. The cross-cultural perspective, focusing on the comparison of cultures, was integrated into the ATDE model as part of the macro-level, and it was expected that specific cultures – national, youth, sport specific and general sports cultures – would influence the talent development process. The cultural perspective, focusing on revealing the unique qualities of a culture, was integrated in the ESF model in its focus on the group's organizational culture. A number of tenets from cross-cultural and cultural psychology were relevant to the present study:

- Participants attributed importance to cultures described as national, youth, general sport, and sport specific, but only when specifically asked about culture during interviews. Culture is part of our mental software and thus not something we readily think about unless prompted to do so.
- Culture acts on a number of levels. Of the wider layers of culture, most importance was attributed to the sport specific and to national cultures.
- But most salient was the group's organizational culture. This culture is a key to understanding successful ATDE's. In all environments the group culture was very strong and visible. Values were clearly espoused by coaches and management; the

culture was internally coherent (from artefacts to basic assumptions); and prospects were readily socialized into the culture.

- Organizational culture took the form of a ‘paradigm’ that pervaded the group’s life and guided its members in relation to how to feel, think and act. Athletes developed psychosocial competences and characteristics that were dictated by the culture.
- The organizational culture of a group is always unique. However, organizational culture can be more or less functional in regard to the group’s task (athlete development, for example), and the organizational cultures of successful ATDE’s have important features in common, among them openness and a focus on long-term development.

Framework: The Working Models

The framework was specified in two working models – the ATDE and the ESF models. The ATDE model was developed first, but it soon became clear that this model alone did not provide a basis for explaining why the environments were successful. The inclusion of the ESF working model as a help in summarizing factors that influenced the environments’ effectiveness turned out to make the framework more complete and applicable.

Both working models were tested in the three case studies that were presented in the previous chapters, and in each case they appeared helpful in the investigation of the environments. In terms of data collection, the models served to guide my attention when designing instruments as well as when working in the field. This proved very important, as the all-encompassing nature of the research subject might be expected to lead to overwhelming amounts of data. In terms of analysis the two working models proved a good foundation for creating empirical models that captured the unique features of the environments under study and served as summaries of the cases. Since they turned out to be different but also to share a number of features, these empirical models also provided a good vantage point for comparing cases. Overall, the working models served to translate the background theories into a manageable framework and provided a good basis for the case studies.

Talent and Career Development Research Revisited

The present study supports several findings of contemporary literature on the importance of context in athlete development. Several of these links were emphasized in the previous chapter. Below I will point to a number of important connections.

The study reinforces the relevance of the developmental model of transitions faced by athletes (Wylleman & Lavallee, 2004) through demonstrating the importance of considering athletes in the context not only of sport but also of their psychological, psycho-social and academic/vocational development. The athletes experienced peers gradually becoming central social relations as the role of the parents diminished, which is typical of the mastery stage.

The present study supports the general notion that talent development and career development are linked in such a manner that the purpose of talent development is to build up the athlete's resources to cope with the demands of career transitions inside and outside sport. The introduction described how the transition from junior to senior often involves high life stress and the risk of identity foreclosure (Lavallee & Robinson, 2007; Pummell et al., 2008; Lavallee et al., 1997), and that athletes making this transition face challenges that impinge on all aspects of their lives, such as sport, studies, work and relationships (Stambulova, 2007; 2009b). More specifically, athletes face demands of balancing their time and energy, finding their own path, managing relationships and balancing life inside and outside sport.

In fact, all the three environments did a good job in helping their athletes develop resources to cope with these demands. A diminished focus on the athletes' performances limited the potential life stress and helped athletes to put their athletic development in perspective. Coordination with school that allowed athletes simultaneously to pursue their education and their sporting ambitions minimizes the risk of one-sided development. The athletes all felt they learned to be structured in their approach to sport and life and to balance their time and energy. In the same way the environments emphasized the athletes' autonomy and this gave them the personal freedom and the chance to find their own path. Finally, all three environments laid emphasis on maintaining groups of athletes that were also friends, and no athletes mentioned team rivalry or problems in regard to having meaningful relationships.

The study found that the three environments allow room for diversification and deliberate play, and this is of relevance to the debate about sampling versus specialization (Côté et al.,

2003; Côté et al., 2007; Côté et al., 2009; Ericsson et al., 1993) and supports the notion that early specialization in one sport and one sub-discipline is not a prerequisite for expert performance. However, it is important to bear in mind that all three ATDE's studied were in sports with a late peak in performance. In sailing, track & field and kayaking, senior elite athletes typically reach their peak in the late twenties, which makes long-term commitment more important than rapid progress and allows the environments to be patient in their approach.

Comparing this study with the previous research on talent development environments (Martindale et al., 2007; Martindale et al., 2005; Ronglan, 2000; Ronglan, 2007), several parallels can be made. Martindale et al. 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 integration and coherence of the three environments were particularly evident in the high degree of coherence between the teams' espoused values and their enacted values.

The talent development environment approach introduced by Martindale and colleagues represents an important step towards an ecological perspective in talent development research, but it also has its limitations. Firstly their investigation relies solely on the perspective of the coach, while the perspectives of the athletes, parents, managers and others are missed. Secondly, the coaches refer to an ideal, talking about factors that they believe to be of importance in effective talent development but which are not currently practised. It remains to be established whether the coaches' ideas would be successful if they are carried out in practice. Thirdly, Martindale and colleagues employed an ecological but not holistic approach to their study of talent development, because they focused exclusively on the sporting domain and coaching.

Investigating the Norwegian national women's handball team, Ronglan (2000; 2007) identified three social systems of communication: "the performance system" that was mainly found on court and involved efforts to improve performance, "the friendship system" that was mainly found off court, and "the union system", that revolved around issues of salaries and the players' market values. The first two of these were also found in this study, while the third was largely missing, arguably because none of the prospects were professionals in the sense

that they earned money on doing sports. Interestingly, a fourth system was also evident in the environments, which I will refer to as “the learning system”. This learning communication system is built on basic cultural assumptions about openness and sharing knowledge and is characterized by a focus on the performance process rather than results and by a dialogue between unequals, where elite athletes are expected to pass on their knowledge. This study highlights the fact that the learning communication system is a key aspect of the talent development process established by the environments.

Applied Perspectives

The holistic ecological approach taken in this study has important practical implications. Most importantly, 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. This view is supported by career assistance literature that emphasizes that athletes in transition face demands covering various spheres of life. It recommends a holistic view of the athlete and recommends not limiting assistance to the athletes’ sporting life but supporting the development of multiple identities (e.g., Lavallee, 2005). These are relevant considerations for all people involved in talent development systems, including coaches, managers and the applied sport psychologists. As regards the latter, recent publications (Henriksen & Diment, 2010; Wylleman, Harwood, Elbe & de Caluwé, 2009) has highlighted a number of challenges to the field of applied sports psychology, including the formulation of integrated professional philosophies and the creation of unified definitions and of opportunities for the professional development of consultants. I propose yet another challenge, namely that applied sport psychologists must be ready to use the holistic ecological approach to optimize the entire environment around athletes. This is particularly relevant in the case of environments that are less successful in developing athletes. Here, the holistic ecological approach can guide applied sport psychologists in their efforts to help the environments to reappraise their methods and become more successful.

Although each ATDE is unique, the present multiple case study has demonstrated that successful ATDE’s also share a number of features and has presented a list of these features (see chapter 7). This list is provisional. It may be narrowed, extended or refined through further research. And it should be applied with due consideration of the socio-cultural and

sporting contexts of the environments from which the list has evolved. However, the list may provide support for the applied work of optimizing environments.

As a third application a presentation of the research findings may inspire members of the specific environments under study to further improvement. This was most clear in the 49er case. When the principal researcher presented the results to the coach and sailors, this led to several new initiatives on the part of the environment, which were 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. Coach, manager and athletes voiced their content at the fact that the focus was on the totality of the environment and commented that the complexity of the discussion mirrored the complexity of their reality.

Methodological Reflections

Recent reflections on the applicability of ecological approaches to sport psychology and talent development (Araujo & Davids, 2009; Beek, 2009; Krebs, 2009) have voiced a need for theory-driven research that is ecological in nature and also adapted to the world of sports. There has been a suggestion that, due to the relatively unexplored nature of the field, this research should have an exploratory rather than a confirmatory design, or in the words of Bronfenbrenner (2005), be in the *discovery mode* rather than in the *verification mode*.

Indeed, the present study has been exploratory and has aimed to develop and test a concrete version of a theory-driven framework for the holistic ecological study of ATDE's in sport. I have suggested that an adequate methodological approach to the study of ATDE's should have the design of a case study, use qualitative methods, look at the real-time functioning of the environment and use multiple sources of evidence. ATDE's could be studied in a number of ways, and it is worth making some observations as to the strengths and weaknesses of the method used.

To ensure ecological validity there was an emphasis on investigating ATDE's as real-life phenomena within a real-life context. To do so, I selected a multiple case study approach, and chose to look at the real-time functioning of the environments rather than to rely on retrospective accounts. This approach has appeared suitable for providing an insight into the

actual existence 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.

In cultural psychology studies, Ryba, Schinke, & Stambulova (2010) make a case for qualitative methods to gain in-depth knowledge of particular sporting cultures. In this context it is worth dwelling on the importance of participant observation. The authors stress the importance of “living the culture”, and I personally found that taking part in the everyday cultural activities alongside the athletes and helping the coaches with practical tasks provided a good foundation for grasping the environment’s unique cultural characteristics. This was especially important in allowing me to interpret the basic assumptions of the groups’ organizational cultures. A purely passive “outside” observation point would not have provided the same opportunities.

Three limitations of the study are worth mentioning. First, it is difficult to prove the uniqueness of each environment. Only three environments have been studied using the same approach, and these environments relate to different sports and are situated in different countries. It is not possible to know for sure if unique features of each environment are a function of the particular environment or of a cultural setting determined by the sport or the country. On the other hand, the fact that the environments function in different sports and countries makes it all the more convincing that the similarities are, in fact, common features of successful environments and must not just be ascribed to the sport or country.

Second, the qualitative methodology used in this study did not allow us to establish a rigorous causal relationship with respect to the factors influencing the environment’s success. Creating the related empirical models, I relied mainly on the causal relationships emphasized by the participants as well as on interpretations of observational data and of the documents analysed. This should not be considered simply a weakness in design, however, but a natural consequence of the complexity of ATDE’s and of the theoretical framework. Ecological psychology opts for explorative designs, systems theory promotes a reduction of attention given to causality, and researchers in the field of organizational cultures (Schein, 1992) stress that: “...gathering valid data from a complex system is intrinsically difficult, involves a variety of choices and options, and is *always an intervention into the life of the organization if the research involves any contact with the organization*” (p. 203, italics in original). It may be

that establishing rigorous causal relationships within such a complex environment is, in fact, unrealistic.

Third, looking at the environment in its real time functioning rather than retrospectively, the researcher is granted a more direct access to the environment and recall bias is reduced. However, sporting environments are in a constant flux as they adapt to developments in the international sport scene. As a consequence of this, strictly speaking, we cannot know whether the environments were good talent development environments at the time of the study, until the prospect athletes have actually made it to the elite level. However, environments were selected that have a successful history of producing elite athletes and where central components (coach, elite athletes amongst others) have been part of the environment for a long period of time. This fact makes it highly likely that the environment at the time of the study will be similar in structure and culture to earlier, when it is known to have been successful, and that it will still be successful at the time of the study. On that note it is worth mentioning that one of the prospective elite crews in the 49er team, which was the first case and therefore the first to be completed, has just won its first World Cup division. The benefits of being able to investigate existing environments in their real time functioning were found to clearly outweigh potential problems. A longitudinal approach that followed a number of environments over a period of time would eliminate this uncertainty.

In relation to ethical aspects of the study, it is worth mentioning that the holistic ecological approach is subject to potential problems. As is recommended from an ethical perspective, all participants in the study were informed that they had a right to drop out at any time. No participants elected to do so. If any participants had decided against participating in the study, however, the researcher would have faced a dilemma, since the study involved observations of daily routines in which all participants (at least athletes and coaches) took part. Any participants no longer wishing to continue would not be interviewed, but it would be difficult not to include them in the observations, at least if they were athletes. For future research a more specific contract regarding participation in different parts of the study would be beneficial.

Future Research

The description of three successful ATDE's in Scandinavia naturally points to the value of studying further environments from a holistic ecological perspective. More such studies may reveal the degree to which highly successful environments have similarities in structure, role of components, organizational culture etc. One future research direction is to investigate successful ATDE's in a variety of sports. There are clear gaps especially as regards the classic team sports, such as soccer, handball, and ice-hockey, and it is very likely that successful team environments will vary in nature from those in individual sports. In none of the cases did the category "team achievements" find its way into the empirical versions. This was part of the ESF working model and studying team sport environments will likely prompt the researchers to investigate this category further. I must also stress that only sports that allow for a late athletic peak were investigated. We have yet to establish what characterizes successful ATDE's in sports where athletes typically peak early such as figure skating, gymnastics and diving, and how such environments compensate for the disadvantages and potential problems that are inherent in these sports.

Another challenge is to investigate ATDE's outside Scandinavia. Results confirmed that successful environments are embedded in a larger cultural context and cannot be understood without reference to this culture. For example, successful environments in larger countries and in countries with national cultures that are collectivist rather than individualist and tight rather than loose (Triandis, 2004) would be expected to yield different results. Results have confirmed the hypothesis that each ATDE is unique but also that the successful ATDE's observed share common features. It is hoped that studying more ATDE's will allow researchers to strengthen and extend our understanding of successful environments in different socio-cultural and sporting contexts, of their unique and common features, and of the influence of context on these features.

The participants in the present study were all in their investment years and on the verge of a transition from the junior to senior elite sports. It is conceivable that successful environments vary with the age and level of the athletes. Applying the holistic ecological framework to the investigation of environments that successfully foster development in athletes of different age ranges provides an important challenge to the field of talent research. This challenge extends to the application of the holistic ecological framework to the study of environments in which

senior elite athletes continually manage to produce top level results. Investigating successful elite performance environments (EPE) would constitute an important contribution to sport psychology and may also reveal to what degree successful ATDE's differ in essence from successful EPE's. This would increase our understanding of the particular challenges facing athletes on the verge of a transition from junior to senior elite athlete and thus from an ATDE to an EPE.

The perspective and the frameworks presented in this paper can also be applied to the investigation of problematic sport environments that, despite favourable preconditions, have limited success in helping prospect athletes to develop. A description of such an environment, complemented by an analysis of the factors contributing to its low effectiveness, could help to suggest additional resources within the talent development process. Intervention research would be a natural continuation of such efforts. Designing a programme to develop and strengthen talent development environments in sport and measuring the effects of such an intervention provides a challenge for future research and may be of great benefit to practitioners in the field.

Finally, I have now advocated for a holistic ecological approach that is in many ways in opposition to traditional individual perspectives in talent development research. I hope, however, that future research will be able to link the two perspectives more closely within one research project. From the individual perspective, such a project could adopt a longitudinal approach in which individual athletes are followed over time and in which the demands and challenges of different career phases and transitions are mapped. From the ecological perspective, such a project could maintain a focus on ways in which the environment helps athletes develop the resources to cope with demands and challenges, and also on ways in which it manages to adjust to the ongoing development of the athlete.

In a brief concluding statement, I will borrow the words of W. Clement Stone, American businessman and philanthropist: "You are a product of your environment. So choose the environment that will best develop you toward your objective".

Remember. You never walk alone...

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Appendix 1: Interview guides

- For the prospective elite athlete³

Interviewee's background	<p>Tell me about yourself and your association to this environment</p> <ul style="list-style-type: none"> • How long have you been in the club/team? • How did it come about, that you started in this club? • How do you feel about being a part of this environment? <p>What do you think are the keys of your personal success?</p>
Introduction	<p>Do you think the environment is a successful talent development environment?</p> <ul style="list-style-type: none"> • What tells you that it is successful? • What do you consider the secrets of its success?
<p>Description of the environment based on the ATDE model</p> <p>Micro-environment</p>	<p>Who helps you in your efforts to make it to the elite level? Who hinders you?</p> <p>How would you describe your coach?</p> <ul style="list-style-type: none"> • What is his role and tasks? • What are his values? <p>What do you think about the older elite athletes in the club?</p> <ul style="list-style-type: none"> • Do you have contact with them? • What characterizes this contact? <p>In terms of your daily sporting life, what can be said of the role of:</p> <ul style="list-style-type: none"> • Younger athletes in the club? • School • Your family • Experts in the club [such as physiotherapist and sport psychologist] • Your friends inside and outside sport?
Macro-environment	<p>Are there persons, inside or outside sport that you look up to?</p> <p>How would you describe youth culture?</p> <ul style="list-style-type: none"> • What do you feel are predominant values among youth in general? • How do you feel youth culture influences your daily sporting life? <p>How would you describe your national culture?</p> <ul style="list-style-type: none"> • Can you put a few words to what it means to be [Danish, Swedish, Norwegian]? • How do you feel national culture influences your daily sporting life
Relations within the environment	<p>How do you see the way in which the club interacts with the environment around it?</p>

³ In this appendix I provide two examples of interview guides. Specific interview guides were developed for the young prospective elite athletes, current elite athletes, coaches and managers. To illustrate how the guides were adapted to fit the perspective of the interviewee, two examples are provided: the guide for interviewing prospective elite athletes and for interviewing managers.

Appendixes

	<p>Please provide examples of the club's working relations with:</p> <ul style="list-style-type: none"> • School • Your parents • Other clubs and teams [national team]
<p>Success factors based on ESF model</p> <p>Preconditions</p>	<p>How would you describe the club or team's main resources?</p> <p>In daily training, do you feel the club/team has sufficient resources in terms of money and coaches, for example?</p>
<p>Process</p>	<p>Please, describe daily life in this team</p> <ul style="list-style-type: none"> • Training – how much do you train? How is it organized? • Competitions • Camps • Do you have social events outside sport? Provide examples. • Other?
<p>Organizational culture</p>	<p>What characterizes the culture [team values] in this environment?</p> <p>Please tell me [a story] about specific episodes that you feel describe your team values.</p> <p>Do you have specific symbols such as logos or styles of clothing that are salient to your team?</p> <ul style="list-style-type: none"> • What do they mean to you? <p>Do you have specific traditions? Please provide examples.</p> <p>What are the goals of your season?</p> <ul style="list-style-type: none"> • Who sets these goals? • How much influence did you have on the goals? <p>Does the club have a specific motto/vision/mission-statement?</p> <ul style="list-style-type: none"> • What does it read? • How do you experience this motto/vision in your daily routines in the team? <p>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?</p>
<p>Individual development</p>	<p>Tell me about what you learn in this environment</p> <ul style="list-style-type: none"> • 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?
<p>Time frame</p>	<p>What can be done to make this environment even more successful?</p> <p>What traditions would be wise to keep on to?</p>

Appendix 2: Interview guides

- For club administrators/managers

Interviewee's background	<p>Tell me about yourself and your association to this environment</p> <ul style="list-style-type: none"> • How long have you been in the club/team? • What is your role/task in the club? • How did it come about, that you started in this club? • How do you feel about being a part of this environment?
Introduction	<p>Do you think the environment is a successful talent development environment?</p> <ul style="list-style-type: none"> • What tells you that it is successful? • What do you consider the secrets of its success?
<p>Description of the environment based on the ATDE model</p> <p>Micro-environment</p>	<p>In terms of persons and institutions around the athletes, what are important resources in your efforts to develop the athletes?</p> <p>And what are barriers?</p> <p>In terms of the junior elite athletes' athletic development, what can be said of the role of:</p> <ul style="list-style-type: none"> • The coach? • The club's elite athletes? • Experts? • Younger athletes? • Friends inside and outside sport? • Family? • School?
Macro-environment	<p>Let's take a look at the wider environment. In relation to the athletes' athletic development and chances of making it to the elite level, what can be said of the role of</p> <ul style="list-style-type: none"> • The educational system – does it support the athletes' sport careers? • The federation? • The media? <p>In terms of being a barrier or a resource in the athletes' athletic development, how would you describe:</p> <ul style="list-style-type: none"> • Your country's national culture? • The predominant youth culture? • The culture of your specific sport? • The general sporting culture? <p>Which of these cultures is most visible in the daily routines in the environment?</p>
Relations within the environment	<p>How do you see the way in which the club interacts with the environment around it? Please provide examples of the club's working relations with:</p> <ul style="list-style-type: none"> • School • Parents/family • Related team or clubs • Federation

Appendixes

	What do you do to maintain good working relations?
Success factors based on the ESF model Preconditions	<p>Please, tell about the history and current structure of the club/team</p> <p>How would you describe the club or team's main resources?</p> <ul style="list-style-type: none"> • Facilities • Coach education level • Other staff • Financial resources • Other?
Organizational culture	<p>What characterizes the culture [predominant values] in this environment?</p> <p>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?</p> <p>Please tell me [a story] about specific episodes that you feel describe the team's values.</p> <p>Do you have specific symbols such as logos or styles of clothing that are salient to your team?</p> <ul style="list-style-type: none"> • What do they symbolize? <p>Do you have specific traditions?</p> <p>Does the club have a specific motto/vision/mission statement?</p> <ul style="list-style-type: none"> • What does it read? • Please, describe the efforts you undertake to live in accordance with these visions and values? <p>What do you do to maintain this culture?</p>
Individual development	<p>How does being a part of this particular environment affect the talented athletes?</p> <ul style="list-style-type: none"> • Sport specific skills • Attitude towards training • Skills that could be of use for the athletes outside sport
Time frame	<p>What future challenges do you foresee for this team?</p> <p>What can be done to make this environment even more successful?</p> <p>What traditions would be wise to keep on to?"</p>

Appendixes

Appendix 3: The node tree in its original form before it has been adapted to a specific environment

Background information

Description of the environment based on the ATDE model

Micro-environment

Coach(es)
Club mates
Elite athletes
Younger athletes
Experts
Managers
Related teams & clubs
Family
Peers
School

Macro-environment

Sports federation
Specific sports culture
General sports culture
Reference groups
Media
Educational system
National culture
Youth culture

The environment in the time frame

Success factors based on the ESF model

Preconditions

Financial
Human
Material

Process

Training
Competitions
Camps

Organizational development and culture

Artefacts
Espoused values
Basic assumptions

Individual development and achievements

Team achievements

Environment success
