

Preface

As I pen these final words of my master's thesis, I am met with a profound sense of relief and an undeniable touch of wistfulness. This work not only represents the culmination of my time as a teacher student in Physical Education and Sport at NTNU but also the close of a significant chapter in my life. Over the past five years, I have forged invaluable friendships, been inspired by dedicated teachers, and embarked on a journey of self-discovery as a person, a teacher, and an athlete. My scholarly pursuit began with a bachelor's thesis focused on injury prevention in football, yet my passion ultimately steered me back to the sport closest to my heart: track and field. Immersing myself in the professional domain I engage with daily has been enlightening. I have found it particularly rewarding to merge the knowledge and experience gained from my athletic career with evidence-based research and the authentic narratives encountered during this master's study. The support I have received from the compassionate individuals at NTNU has been instrumental in balancing my commitments as an international athlete with the demands of a full-time student. The collective effort of so many who have supported me through this endeavor is humbling—I consider it nothing short of a remarkable achievement. My heartfelt thanks go out to all. To my peers, for the myriad discussions on syllabus content, trivialities, and the essence of life. To my supervisor, Stig Arve Sæther: collaborating with you has been an absolute pleasure. I am grateful for every piece of guidance you have provided over the years, and your fervor for research is genuinely inspiring. Last but certainly not least, my deepest gratitude to my wife and son, who have offered unwavering support throughout the entirety of this master's thesis journey. You are truly my greatest support system. Thank you.

Ingar Bratseth-Kiplesund

Trondheim, December 2023

Abstract

Background: The aim of this study was to examine key factors fostering a sustainable and high-quality Talent Development Environment (TDE) in the context of the national program for track and field at Steinkjer Upper Secondary School. **Methods:** Three athletes, two coaches and the department leader was interviewed about central topics influencing their TDE. The theoretical foundation for the study was a combination of the Talent Development Environment Questionnaire (Martindale et al., 2010) and Athlete Talent Development Environment framework (Henriksen et al. 2010). Through a thematic analysis the “Athlete-Centered model” was developed in light of Martindale et al. (2010) and Henriksen et al. (2010) theoretical framework. **Results:** emphasizing the importance of social support, integrated training facilities, coaches' holistic concern, financial stability, and family networks. It advocates for a nuanced approach to nurturing athletic talent among diverse athlete needs. **Conclusion:** Incorporating a dynamic, evidence-informed strategy adapted to athletes' needs is essential for their comprehensive development. The school's commitment to continuous improvement and adaptable methodologies underpins the creation of a robust talent nurturing environment.

Keywords: Talent Development Environment, track and field, youth sports

Sammendrag

Bakgrunn: Målet med denne studien var å undersøke nøkkelfaktorer som fremmer et bærekraftig og høykvalitets Talentutviklingsmiljø (TDE) i konteksten av det nasjonale programmet for friidrett ved Steinkjer Videregående Skole. Metoder: Tre utøvere, to trenere og lederen for avdelingen ble intervjuet om sentrale emner som påvirker deres TDE. Det teoretiske grunnlaget for studien var en kombinasjon av Talent Development Environment Questionnaire (Martindale et al., 2010) og rammeverket for Athlete Talent Development Environment (Henriksen et al., 2010). Gjennom en tematisk analyse ble "Utøver-sentrert modell" utviklet i lys av Martindale et al. (2010) og Henriksen et al. (2010) sitt teoretiske rammeverk. Resultater: Viktigheten av sosial støtte, integrerte treningsfasiliteter, trenernes helhetlige omsorg, økonomisk stabilitet og familienettverk påpekes i funnene. Det argumenteres for en nyansert tilnærming til idrettstalenter i møte med ulike behov hos utøvere. Konklusjon: Å innarbeide en dynamisk, evidensbasert strategi som er tilpasset utøvernes behov er essensielt for deres utvikling. Skolens forpliktelse til kontinuerlig forbedring og tilpasningsdyktige metoder understreker dannelsen av et robust miljø for talentutvikling.

Relevant to the profession

This study is primarily directed towards discipline-specific competence in track and field and contributes knowledge to the field of talent development environment. Concurrently, this research is also relevant to the profession for teacher education in physical education and sports science, as it possesses transferable value to the specialized program in elite sports. This specialized program aims to provide adolescents with secondary education while simultaneously offering the opportunity to perform at a high level regionally, nationally, and internationally in their respective sports. The study offers insight into the experiences of athletes and educators in customizing a daily routine conducive to optimal talent development, as well as the challenges that may hinder their progression in the context of school and training. These reflections can inform the learning process in the elite sports subject by shedding light on the potential obstacles athletes may encounter during their schooling. In this light, it identifies factors that teachers and/or coaches in the field of elite sports must be vigilant of and consider. Additionally, the research provides an understanding of the school's challenges and opportunities in developing athletes, both athletically and as individuals. Talent development can also contribute to a broader comprehension of the holistic development of athletes across various aspects. Collectively, this study can enhance understanding and knowledge, which could be of valuable significance in the work of teachers and/or coaches within the school setting.

Table of Contents

1.0	INTRO.....	6
2.0	THEORETICAL FRAMEWORK	9
2.1	PRINCIPLES OF EFFICACIOUS ATHLETIC TALENT DEVELOPMENT	9
2.2	TALENT DEVELOPMENT ENVIRONMENT QUESTIONNAIRE	9
2.3	ATHLETE TALENT DEVELOPMENT ENVIRONMENT.....	11
2.4	NAVIGATING THE SOCIAL FABRIC IN A TDE	13
2.5	CORE DETERMINANTS OF ATHLETIC EXCELLENCE IN A TDE.....	14
3.0	METHODOLOGICAL DISCUSSION.....	15
3.1	PROSPECT SELECTION	15
3.2	DATA COLLECTION	16
4.0	CONCLUSION	19
5.0	REFERENCES	20
	PART II ARTICLE.....	27

1.0 Intro

The objective of this segment is to delve into facets of theory and methodology that could not find space within the confines of the main article. It would be prudent to read the article prior to engaging with the thesis as a whole, in order to ensure a more profound understanding of the thematic content. In this section, I present a general expansive theoretical discourse, emphasizing the influence of Henriksen's (2010) holistic ecological model on the talent development environment in sports and Martindale et al. (2010) Talent Development Environment Questionnaire consisting of its five key factors describing a sustainable talent development environment. This theoretical exposition will delve deeper into how social and sport performance dimensions of the athlete's daily life impacts his or hers progression, both from a sporting perspective and through a comprehensive, holistic lens.

The development of athletic talent is a multifaceted process where social factors are of great significance. Beyond the individual's physical and technical prowess, the social environment can either foster or hinder the growth of potential (Martindale et al., 2010). Within this milieu, the dynamics of training—characterized by the reciprocal interactions between the athlete, coach, and peers—emerge as critical determinants of success (Côté et al., 2009). A supportive training environment that promotes open communication and positive relationships can enhance motivation and psychological well-being, which are essential for athletes to reach elite levels (Van den Berg et al., 2021; Thomas et al., 2021; Jowett & Cockerill, 2003; Henriksen & Stambulova, 2023). The coach-athlete relationship, in particular, stands out as a vital element, influencing not only the athlete's immediate performance but also their long-term development and enjoyment of the sport (Jowett & Cramer, 2010).

Moreover, the guidance and support structures extending beyond the training ground—such as family, educational institutions, and sporting organizations—provide necessary resources, opportunities, and psychosocial support (Wylleman & Reints, 2010). Sargent Megicks et al. (2022) highlighted the influence of families in nurturing talent, noting that parents serve as critical supporters in their child's athletic journey, providing emotional, esteem-related, informational, and practical support (Côté et al., 2014). Yet, the domain of sports parenting is fraught with complexity (Wolfenden & Holt, 2005). The intensity of their involvement can sometimes exert excessive pressure on young athletes (Lauer et al., 2010) and constrain the development of the athletes' independent decision-making capabilities (Henriksen et al., 2010). Effectively, the value of parental input is largely influenced by their understanding and approach to the sporting life (Harwood et al., 2019). The psychological mechanisms

inherent to the athlete, including resilience, self-regulation, and a growth mindset, are equally pivotal. An athlete's internal psychological resources can dictate their response to adversity and their capacity for sustained effort towards improvement (Duckworth et al., 2007). The development of such psychosocial competencies has been linked to the quality of the surrounding social fabric, reinforcing the significance of a nurturing environment (Gould et al., 2002). Research on environmental and cultural factors further elucidate the complex interplay between an athlete's social setting and the broader cultural context in which they develop. The cultural narratives that define success and failure, the societal value placed on sporting achievement, and the accessibility to facilities and training all contribute to the talent development landscape (Gesbert et al., 2021; Xiang et al., 2023; Henriksen et al., 2010).

Subsequently, key sporting factors play a critical role in shaping the pathway towards athletic excellence. **Training Dynamics and Preparation:** The structure and nature of an athlete's training regimen are foundational to their success. Training must be thoroughly planned to balance the development of technical skills and physical conditioning. The concept of deliberate practice, as outlined by Ericsson et al. (1993), emphasizes the importance of structured, purposeful practice in achieving elite performance. **Psychological and Motivational Factors:** Athletes' psychological resilience and motivation are indispensable in their journey (Duckworth et al., 2007). The role of intrinsic motivation, self-efficacy, and goal-setting are well-documented in sports psychology literature (Deci & Ryan, 1985; Bandura, 1997; Durand-Bush & Salmela, 2002). These psychological assets empower athletes to persist in the face of setbacks and maintain a high level of performance under pressure (Vallerand et al., 2006; Kleinert, et al., 2012). **Resource Allocation and Infrastructure:** Access to resources, including quality coaching, medical support, and training facilities, is another determinant of athletic development (Pearson et al., 2006; Smith et al., 2007). The inequity in resource allocation often reflects the broader socio-economic context and can significantly influence the opportunities available to athletes (Coakley, 2017). **Holistic and Interdisciplinary Support:** Finally, the importance of a support system that integrates various disciplines—such as nutrition, sports medicine, psychology, and biomechanics—cannot be understated (Wylleman et al., 2004, 2010). A holistic approach ensures that the athlete's development is supported from multiple angles, contributing to a well-rounded and sustainable athletic career (Henriksen et al., 2010). In synthesizing these elements, a comprehensive framework emerges that underscores the complexity of the talent development environment in sports. By addressing these key sporting factors, stakeholders can better facilitate the growth and progression of athletes towards their ultimate potential.

Within the methodology chapter, the qualitative interview approach will be deliberated upon. The sample selection for the study will initially be discussed, followed by a consideration of the considerations required when conducting the interviews. Challenges faced by the researcher, encompassing personal, ethical, and strategic aspects of the interview process, will be examined. Concluding the analysis, a discussion will ensue regarding how thematic analysis has influenced and shaped the data derived from the interviews (Braun & Clarke, 2022).

2.0 Theoretical framework

2.1 Principles of Efficacious Athletic Talent Development

In their 2005 literature review, Martindale and colleagues delineated five key environmental characteristics that constitute an efficacious Talent Development Environment (TDE). These encompass: [1] Long-term Aims and Methods, [2] Wide-ranging Coherent Messages and Support, [3] Emphasis on Appropriate Development Rather Than Early Selection, [4] Individualized and Ongoing Development and [5] Integrated, Holistic, and Systematic Development. Extending this foundational work, Henriksen et al. (2010) underscored the critical role of socio-relational and ecological factors in effective TDEs. They pointed to the significance of the micro-macro contexts, organizational culture, and stakeholder interactions and roles. It's noteworthy that these essential attributes were initially pinpointed via a methodical scrutiny of existing research, qualitative analysis of coach perspectives (Martindale et al., 2005, 2007, 2010), and ethnographic investigations into high-performing settings (Henriksen et al., 2010). Subsequent empirical inquiries have largely been devoted to investigating athletes' perspectives on the quality of their TDEs, in alignment with these identified features.

2.2 Talent Development Environment Questionnaire

Martindale et al. (2005) proposed a model named "The Model of Effective Talent Identification and Development Procedures". Within this framework, they delineated four essential factors contributing to TDE, which facilitates athletes' performance progression. These crucial elements are listed above.

This chapter navigates the theoretical foundations of Talent Development Environment Questionnaire (TDEQ) as proposed by Martindale et al. (2010), a framework widely adopted in various studies. Evolving over time, this model initially focused on four key factors, expanding to recognize five and eventually seven components (Hauser et al., 2022). The addition of a fifth component emphasizes the importance of maintaining a long-term developmental focus, infusing daily training with purpose and fostering a sense of identity for the athlete. An important consideration arising from research on talent development is the realization that exceptional junior performance doesn't necessarily predict senior success. This perspective emphasizes the need for a focus on apt progression grounded in individual skills rather than age-based progression.

To sustain this long-term vision, systematic planning aligned with the philosophy of the TDE is crucial (Martindale et al., 2010). The philosophy's consistent application across multiple levels of talent development is highlighted as discrepancies can impede the effectiveness of the TDE. Quality preparations, spanning training, recovery, and competitive experiences, play a pivotal role in athlete development. While the importance of training quality isn't novel, the "deliberate practice" theory asserts that sport-specific training is crucial for progression (Ericsson et al., 1993). Additionally, researchers emphasize the significance of quality competitive experiences (Durand-Bush & Salmela, 2002) and effective recovery strategies (Durand-Bush & Salmela, 2002; Gould et al., 1982; Polman & Houlahan, 2004).

Effective coach-athlete communication, both formal and informal, enhances developmental prospects (Martindale et al., 2010). The inclusion of improved feedback mechanisms, development plans, and a focus on transitioning from junior to senior levels is integral to this communication. A robust coach-athlete relationship characterized by open dialogue is pivotal for effective coaching (Hauser et al., 2022; Vealey, 2005). Consistency across various influencers of talent development, from coaches to family, funding, resources, competitions, and club structures, is emphasized (Henriksen et al., 2010). Research underscores the significance of both individual and institutional influences beyond sports (Gould et al., 2002). For talent to flourish, it must be valued and nurtured by society, involving parents, educators, and coaches (Hauser et al., 2022; Csikszentmihalyi et al., 1993).

Martindale et al. (2010) introduce two additional dimensions. First, they highlight the importance of a challenging training and competitive environment for young athletes' development. However, this shouldn't foster a "survival of the fittest" mentality. A demanding environment, coupled with support and a reduced focus on immediate outcomes, can boost intrinsic motivation and commitment to long-term development (Durand-Bush & Salmela, 2002). Lastly, a profound, holistic understanding of the athlete facilitates a robust professional relationship between the coach and athlete, considering cognitive, physical, social, and performance-based factors (Hauser et al., 2022; Martindale et al., 2010). An intimate understanding of the athlete's world proves instrumental in their development.

2.3 Athlete Talent Development Environment

The holistic ecological approach developed by Henriksen et al. (2010) offers a multifaceted lens for interpreting TDE. Drawing upon Bronfenbrenner's ecological theory and other scholarly works, this model provides an understanding of how various environmental factors contribute to athletic development.

This model is divided into two main categories: Athletic Talent Development Environment (ATDE) and broader environmental contexts, both of which are further divided into sports-related and non-sports-related components, as well as micro- and macro-environments. The micro-level encompasses the immediate context in which the athlete operates daily, whereas the macro-environment incorporates broader social and cultural contexts that indirectly impact the athlete.

The academic utility of this model lies in its structured approach, enabling nuanced analysis of individual components affecting athletic development. It allows for a more organized investigation into how different elements, ranging from coaching and training facilities to family and peer groups, collectively shape the growth trajectory of an athlete. This is particularly useful for systematically identifying opportunities and constraints within TDE, thereby enabling a more effective talent environment development strategy.

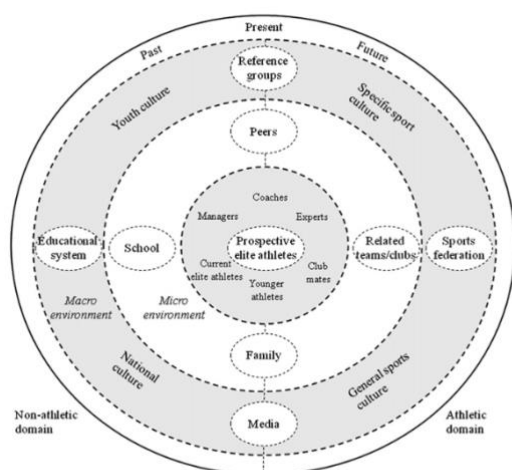


Fig. 1. The athletic talent development environment (ATDE) working model.

The Environmental Success Factors (ESF) model serves as an expansive extension of the ATDE approach, introducing a comprehensive set of metrics designed to assess outcomes throughout an athlete's developmental journey. Broadly categorized into individual athlete progression, success in team-based contexts, and the organizational culture surrounding the athlete, the ESF model provides a holistic lens into talent development.

Central to the ESF model is the recognition of environmental factors or 'preconditions,' such as coaching quality, material resources, and financial considerations. While acknowledging their pivotal role in shaping talent, it's crucial to note that these factors do not guarantee specific outcomes. The model underscores the importance of daily processes—comprising training routines, competitive experiences, and training camps—as the experiential backbone of talent development. Additionally, it delves into individual development and adaptability, considering both athletic and psychosocial perspectives. Significantly, the model accounts for organizational culture, encompassing the foundational values, norms, and elements that constitute the environment nurturing talent.

Implicit in the ESF model is the understanding that success in Athletic Talent Development Environments (ATDEs) is a synergistic outcome of a multifaceted set of factors, ranging from individual capabilities to broader cultural aspects. This framework proves especially beneficial in evaluating the effectiveness of a talent development environment during the critical transition from a junior to a senior athlete—a pivotal phase in an athlete's career (Henriksen et al., 2010). The holistic perspective of the ESF model makes it invaluable for comprehending the numerous factors collectively contributing to athletic development and success.

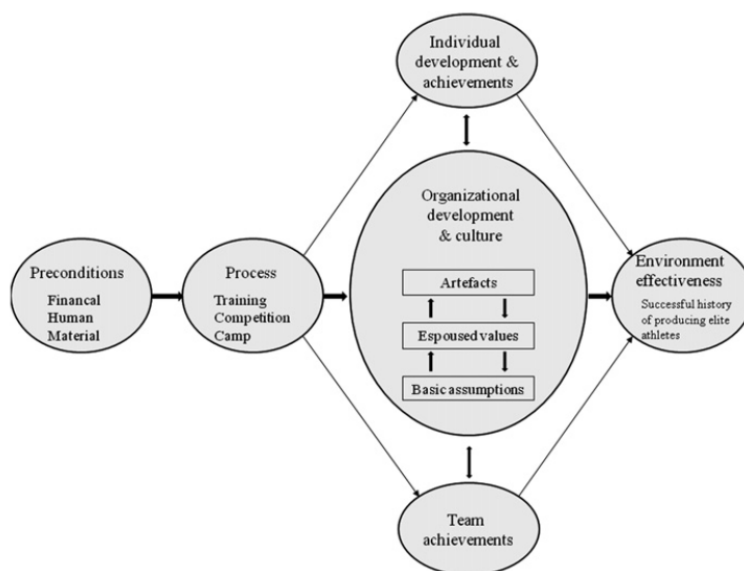


Fig. 2. The environment success factors (ESF) working model.

2.4 Navigating the social fabric in a TDE

In the complex world of sports, where individual skills often stand out, the interaction with the social environment becomes a crucial and intricate aspect of an athlete's development (Larsen et al., 2020). Even in sports typically seen as solitary pursuits, the influence of social dynamics persists as a powerful force, subtly shaping the journey of athletes (Hauser et al., 2022; Vazou et al., 2006; Weiss, 2008).

Athletes spanning various disciplines frequently engage in collective training environments, regardless of their sport's nature. This shared training milieu operates as a nuanced yet influential form of social facilitation (Zajonc, 1965). The mere presence of fellow athletes during practice serves as an intrinsic motivator, enhancing competition and becoming a potent driver for improved performance (Vazou et al., 2006; Baker et al., 2020; Henriksen et al., 2010, 2023). In the demanding quest for athletic excellence, the significance of coaches or role models becomes especially prominent, going beyond simply sharing technical knowledge (Flatgård Larsen & Sæther, 2020). Coaches play a central role by offering emotional support, strategic insights, and serving as confidantes during the various challenges athletes face (Jowett & Cramer, 2010; Mageau & Vallerand, 2003). The relationship dynamics between athletes and their coaches form a primary social element that profoundly shapes the trajectory of an athlete's growth (Hauser et al., 2022; Gould & Carson, 2008). Families, too, function as a cornerstone of support for many athletes (Côté, 1999). Particularly in sports where athletes juggle multiple responsibilities, ranging from preparation to funding, families serve as a source of both emotional and logistical backing (Hauser et al., 2022; Fraser-Thomas et al., 2005). Yet, this familial bond, while generally beneficial, can become a source of contention. Excessive involvement or a lack of respect for an athlete's autonomy may induce undue pressure, potentially leading to stress and burnout (Holt et al., 2005; Ivarsson et al., 2015; Sargent Megicks et al., 2022).

Concluding this intricate tapestry of social influences is the athlete's identity, a profoundly personal construct shaped by ambitions, self-imposed targets, and internal motivations (Hagger & Chatzisarantis, 2016). Whether part of a team or competing individually, athletes draw from an inner reservoir of motivation and self-assurance. This intrinsic identity, deeply personal in nature, is invariably influenced by broader societal narratives and expectations (Bandura, 1986; Hauser et al., 2022).

2.5 Core Determinants of Athletic Excellence in a TDE

Within the realm of track and field, a paradigm shift challenges the conventional perception of an individual sport. The integration of group training methods within ATDEs not only adds complexity but introduces dynamic elements that uniquely enrich athletes' mental preparedness through simulated internal competitions (Vallerand et al., 2006; Kleinert, et al., 2012). Complementing this paradigm shift is the motivational underpinning guided by Self-Determination Theory. This theoretical framework cultivates an internal drive for achievement, aligning seamlessly with the principles of 'deliberate practice' (Deci & Ryan, 1985; Gagné & Deci, 2005; Ericsson et al., 1993). However, the pursuit of excellence in this environment may potentially lead to elevated stress levels and athlete burnout, necessitating a nuanced and balanced approach to talent development (Smith, 1986; Raedeke, 1997).

Transitioning from the motivational aspect, the operationalization of TDEs demands substantial financial investments in cutting-edge coaching and technology (Baker et al., 2012). While contributing to the advancement of the field, this investment raises ethical questions regarding access and equity. The potential limitation of the talent pool to those with sufficient resources introduces considerations that extend beyond the athletic realm (Coakley, 2017).

Acknowledging the psychological dimensions impacting athletic performance, ATDEs increasingly incorporate psychological skills training. Techniques such as mental imagery and coping strategies are employed to strengthen athletes' psychological resilience (Hayashi, 1996). Expanding the support structure, interdisciplinary systems play a crucial role in improving the TDE ecosystem. Beyond coaching, specialists such as sports nutritionists, physiotherapists, and psychologists contribute to a holistic development approach. This ensures athletes are well-rounded not only in their specific events but also in their overall well-being (Towlson et al., 2018). Transitioning seamlessly to the longitudinal perspective, talent development in ATDEs adopts structured approaches like periodization and long-term athlete development models (Gangsø et al., 2021; Li et al., 2017; Smoll & Smith, 2003). These frameworks optimize immediate performance and ensure sustainable development and athlete well-being over the long term (Ford et al., 2009, 2011).

Concluding the narrative, the pivotal role of high-quality facilities in ATDEs cannot be understated. Beyond being physical spaces for training, these venues house specialized equipment for performance analysis. Superior facilities enhance the quality of training, allowing for better simulation of competition conditions and contributing to the customization

of coaching strategies (Pearson et al., 2006; Smith et al., 2007; Gesbert et al., 2021; Xiang et al., 2023).

3.0 Methodological discussion

3.1 Prospect selection

In line with qualitative research paradigms, participant selection for this study was executed in a purposive manner, focusing on information-rich cases that could elucidate the phenomena under investigation—namely, TDE in track and field athletics (Creswell & Creswell, 2018). The study focused on six participants due to two main reasons. First, a limited number of athletes and coaches fit the study's specific criteria in the chosen research area. Second, according to Creswell & Creswell (2018), a smaller sample size can be adequate in qualitative research and adding more participants may not yield additional relevant information, a concept known as 'data saturation' (Guest et al., 2006). Therefore, six participants were deemed sufficient for an in-depth analysis without compromising data quality.

To maintain the internal homogeneity of the athlete sample, several criteria were established. These criteria, such as age range, ambition level, and event category (sprints), were strategically employed to minimize variability in extraneous factors that could perplex the analysis of TDE (Guest et al., 2006). By concentrating on athletes with similar ambitions, ages, and specialization in sprints, the study aims to produce contextually nuanced insights that resonate with this particular demographic. Due to the specific criteria set forth for the study, it was not feasible to include more than one participant from one of the genders (Creswell & Creswell, 2018). The underrepresentation of one gender in the participant selection presents a methodological limitation that potentially compromises the validity and generalizability of the study's findings. This skewed sample might not fully capture the gender-specific nuances and experiences within the Talent Development Environment, thereby limiting the scope and applicability of the research conclusions (Creswell & Creswell, 2018).

In addition to athletes, the study also seeks perspectives from adults who significantly influences the Talent Development Environment. These include coaches and organizational stakeholders who are instrumental in shaping both day-to-day training activities and broader organizational practices that impact TDE. These adults were chosen for their dual roles as immediate influencers and organizational decision-makers, aligning with Brinkmann and Kvåle's (2015) emphasis on selecting participants who can provide rich, relevant, and varied insights into the research question. These adults are expected to shed light on the multi-layered

facets of TDE—ranging from training regimes and coaching techniques to resource allocation and organizational policies.

The qualitative approach of this study favors depth over breadth, aiming to capture the complexity and intricacy of the TDE within track and field. As such, the selected participant pool is deliberately narrow but profoundly informative, capable of providing multi-dimensional viewpoints that contribute to a more comprehensive understanding of talent development in this sport.

3.2 Data collection

In qualitative research, a critical approach to one's own methodology is considered central to the production of rigorous academic work (Roulston, 2010). This notion emphasizes the importance of reflexivity, allowing researchers to question and scrutinize their methodological choices to improve the validity and reliability of their findings.

Utilizing in-depth interviews as a methodological approach can yield unique, detailed insights that may not be accessible through other methods. However, it's crucial to recognize that this approach comes with distinct and explicit ethical considerations (Brinkman & Kvåle, 2015). This highlights the need for careful ethical planning and compliance, particularly in terms of informed consent, confidentiality, and the potential impact of the research on participants.

In-depth interviews serve as an apt methodological choice for investigating Talent Development Environments (TDE) in track and field, as conceptualized by Henriksen et al. (2010). The complexity of TDE, which encompasses various interconnected factors like coaching, facilities, and organizational culture, lends itself well to qualitative exploration. Through in-depth interviews, researchers can achieve a holistic understanding, consistent with the ecological focus of TDE, while capturing the subjective experiences and aspirations of athletes. This method allows for a deep dive into the organizational dynamics by engaging with coaches, managers, and other key figures who contribute to talent development. The flexible nature of interviews accommodates unexpected, yet relevant themes, enhancing the richness of the data.

Additionally, the ethical sensitivity of the method ensures a comfortable and confidential environment for participants, aligning with ethical standards for research (Creswell & Creswell, 2018; Brinkman & Kvale, 2015; Guest et al., 2006). Especially coaches and leaders are well educated within their domain. This can lead to the phenomenon of social desirability

bias and limited participant understanding can impact the authenticity of data. Coaches, driven by a desire to present themselves and their methods favorably, may offer 'ideal' responses rather than revealing their day-to-day practices (Krumpal, 2013). Similarly, athletes may lack comprehensive insight into the Talent Development Environment, thus providing responses that may not fully align with the researcher's objectives (Creswell & Creswell, 2018). These biases and limitations necessitate critical interpretation of the qualitative data collected (Roulston, 2010). Therefore, actually ascertaining whether we obtain the answers we are seeking is a complex affair (Tjora, 2021).

Observational research can be instrumental in shedding light on the visible dynamics of TDEs (Henriksen, 2010). It allows for a direct account of interactions, behaviors, and events as they unfold in real-time. Nevertheless, while it excels at capturing external behaviors, it may not always delve deep into the internal perspectives or reflective thoughts of athletes and coaches concerning their development environment (Brinkmann & Kvale, 2015). As with any method, it's essential to consider both its strengths and areas where it might need to be complemented by other approaches.

Moreover, the subjective lens through which a researcher observes can introduce bias, potentially distorting the complexities inherent in TDEs (Creswell & Creswell, 2018). The power dynamics inherent in the interviewer's role can create an imbalance that affects the authenticity and candor of responses from both athletes and coaches or organizational leaders (Brinkmann & Kvale, 2015). For instance, the interviewer's positionality might lead coaches and leaders to frame their work in a way that adheres to established norms or expectations within the field, potentially skewing the narrative (Guest et al., 2006).

Athletes might also be affected by the power dynamics, as they could perceive the interviewer as an authority figure and thus be less inclined to provide critical or nuanced views of their training environment (Creswell & Creswell, 2018). In this scenario, as the researcher, my established reputation within the athletics community may potentially influence the responses of athletes, coaches, or leaders, who might alter their answers either to appear favorably in my eyes or, conversely, to exaggerate their responses more extremely than what is accurate to boast or 'show off'. On the contrary, the researcher's respected status might have enabled access to valuable insights, as participants could be more forthcoming and detailed in their responses, given the credibility granted to the researcher. This power asymmetry emphasizes the importance of establishing rapport and ensuring ethical considerations are in place to foster an environment where participants feel comfortable sharing their genuine

thoughts and experiences, thereby enriching the quality and depth of the data collected on TDEs (Henriksen, 2010; Brinkmann & Kvale 2015; Tjora, 2021).

Follow-up questions were recorded and posed subsequently, contributing to a smoother flow in the conversation. This approach was pivotal in preventing misunderstandings or misinterpretations of what the informant was describing (Marshall & Rossman, 2016). Gaining knowledge on the given domain enables the interviewer to ask contextually relevant questions, eliciting more nuanced responses and reducing misunderstandings (Brinkmann & Kvale, 2015). This can improve the quality and depth of the data collected. I have chosen not to disclose the interview questions beforehand for several reasons. First, this approach allows for more spontaneous and authentic responses from the participants, which can offer rich, unfiltered insights into the TDE (Brinkmann & Kvale, 2015). However, I acknowledge that this decision might also result in less considered or incomplete answers due to a lack of preliminary reflection (Guest et al., 2006). Additionally, the unfamiliarity with the questions could introduce elements of discomfort or anxiety among the respondents, potentially affecting the data's quality (Creswell & Creswell, 2018). Taking these considerations into account, Friberg (2019) argues for creating an interview situation that is perceived as safe and pleasant. The informants themselves determined the location and timing of the interviews and were afforded the opportunity to withdraw from both the interview and the study at any time. They were also informed that the interviews would be anonymous, thus ensuring that participation would not have any repercussions for them. This provided the informants with a sense of security, as they retained rights over their own interview data. Simultaneously, while aiming for a comfortable and relaxed interview setting, it was crucial to maintain a professional distance from the informants (Brinkmann & Kvale, 2015).

To ensure optimal treatment and respect for my informants, I prepared an interview guide in advance. This guide was segmented into three thematic areas: 1) ATDE, 2) ESF, and 3) Individual Development. Developed in collaboration with my academic advisor, the guide sought to employ neutral questions to minimize any bias in phrasing. A foundational level of subject-matter expertise was deemed essential for posing relevant follow-up questions (Brinkmann & Kvale, 2015). In the course of transcribing the interviews, vocal inflections, speaking speed, nonverbal cues, and any use of irony were excluded, resulting in a stripped-down version of the original dialogues (Brinkmann & Kvale, 2015). The transcription exercise made it clear that some spoken elements were not relevant and were thus selectively removed, both to enhance readability and to avoid any unintended negative portrayal of the respondents (Brinkmann & Kvale, 2015). The nature of the respondents' accounts called for a user-friendly

transcript. A priority was placed on maintaining the anonymity of respondents from the early stages of transcription.

4.0 Conclusion

In conclusion, this thesis has identified key factors in the talent development environment of track and field in the Norwegian context. A strong social milieu is cherished by athletes and coaches alike, underpinning the importance of communal relations in athletic progression. Facilities and the holistic integration of club and school training programs form the backbone of a supportive infrastructure. Coaches' concern for the athletes' physical and mental health, along with their long-term developmental outlook—although not always fully grasped by the athletes—reflects a profound commitment to nurturing talent. The imperative for financial stability emerges as a crucial enabler of consistent athlete support. Family and support networks are pivotal, providing the emotional and logistical backing necessary for athletes' dedication. Competitive settings are recognized as essential for development, while heterogeneity in athletes' abilities and ambitions presents challenges in ensuring individualized support. This thesis underscores the complexity of fostering a thriving environment for track and field athletes, advocating for a balanced and inclusive approach to talent development. From a practical standpoint, this knowledge can assist coaches, athletes and leaders in identifying and applying the various factors to enhance the team's performance and the developmental environment. The findings of this study may be relevant to talent development environments in athletics as well as in other sports disciplines.

5.0 References

- Baker, J., Cobley, S., & Schorer, J. (2012). Talent Identification and Development in Sport: International Perspectives. *International Journal of Sports Science & Coaching*, 7(1), 177–180. <https://doi.org/10.1260/1747-9541.7.1.177>
- Baker, J., Wilson, S., Johnston, K., Dehghansai, N., Koenigsberg, A., de Vegt, S., & Wattie, N. (2020). Talent Research in Sport 1990–2018: A Scoping Review. *Frontiers in Psychology*, 11, 607710–607710. <https://doi.org/10.3389/fpsyg.2020.607710>
- Bandura. (1986). *Social foundations of thought and action : a social cognitive theory* (pp. XIII, 617). Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy : the exercise of control* (pp. IX, 604). Freeman.
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology (Washington, D.C.)*, 9(1), 3–26. <https://doi.org/10.1037/qup0000196>
- Brinkmann, S., & Kvale, S. (2015). *InterViews : learning the craft of qualitative research interviewing* (3rd ed., pp. XVIII, 405). Sage.
- Coakley, J. J. (2017). *Sports in society : issues and controversies* (12th ed., pp. XVII, 656). McGraw-Hill Education.
- Côté, J. (1999). The influence of the family in the development of talent in sport. *The Sport Psychologist*, 13(4), 395–417. <https://doi.org/10.1123/tsp.13.4.395>
- Côté, J., Lidor, R., & Hackfort, D. (2009). ISSP position stand: To sample or to specialize? Seven postulates about youth sport activities that lead to continued participation and elite performance. *International Journal of Sport and Exercise Psychology*, 7(1), 7–17. <https://doi.org/10.1080/1612197X.2009.9671889>
- Côté, J., Turnnidge, J., & Evans, M. B. (2014). THE DYNAMIC PROCESS OF DEVELOPMENT THROUGH SPORT/DINAMICNI PROCES RAZVOJA PREK SPORTA. *Kinesiologia Slovenica*, 20(3), 14–26.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Csikszentmihalyi, M., Whalen, S., Wong, M., & Rathunde, K. (1993). *Talented teenagers: The roots of success and failure*. New York: Cambridge
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Springer US. <https://doi.org/10.1007/978-1-4899-2271-7>
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit. *Journal of*

- Personality and Social Psychology*, 92(6), 1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Durand-Bush, & Salmela, J. H. (2002). The Development and Maintenance of Expert Athletic Performance: Perceptions of World and Olympic Champions. *Journal of Applied Sport Psychology*, 14(3), 154–171. <https://doi.org/10.1080/10413200290103473>
- Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363–406.
- Flatgård, Larsen, & Sæther. (2020). Talent development environment in a professional football club in Norway. <https://doi.org/https://doi.org/10.7146/sjsep.v2i0.114470>
- Fraser-Thomas, J. L., Côté, J., & Deakin, J. (2005). Youth sport programs: an avenue to foster positive youth development. *Physical Education and Sport Pedagogy*, 10(1), 19–40. <https://doi.org/10.1080/1740898042000334890>
- Friberg, J. H. (2019). Tvilsumme informanter, troverdig forskning? *Norsk sosiologisk tidsskrift*, 3(2), 119–136. <https://doi.org/10.18261/issn.2535-2512-2019-02-02>
- Ford, P. R., Ward, P., Hodges, N. J., & Williams, A. M. (2009). The role of deliberate practice and play in career progression in sport: the early engagement hypothesis. *High Ability Studies*, 20(1), 65–75. https://doi.org/10.1080/1359813090286072_1
- Ford, P., De Ste Croix, M., Lloyd, R., Meyers, R., Moosavi, M., Oliver, J., Till, K., & Williams, C. (2011). The Long-Term Athlete Development model: Physiological evidence and application. *Journal of Sports Sciences*, 29(4), 389–402. <https://doi.org/10.1080/02640414.2010.536849>
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331–362. <https://doi.org/10.1002/job.322>
- Gangsø, K., Aspvik, N. P., Mehus, I., Høigaard, R., & Sæther, S. A. (2021). Talent Development Environments in Football: Comparing the Top-Five and Bottom-Five-Ranked Football Academies in Norway. *International Journal of Environmental Research and Public Health*, 18(3), 1321. <https://doi.org/10.3390/ijerph18031321>
- Gesbert, V., von Roten, F. C., & Hauw, D. (2021). Reviewing the role of the environment in the talent development of a professional soccer club. *PloS One*, 16(2), e0246823–e0246823. <https://doi.org/10.1371/journal.pone.0246823>
- Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough? *Field Methods*, 18(1), 59–82. <https://doi.org/10.1177/1525822X05279903>

- Gould, D., & Carson, S. (2008). Life skills development through sport: current status and future directions. *International Review of Sport and Exercise Psychology*, 1(1), 58–78. <https://doi.org/10.1080/17509840701834573>
- Gould, D., Dieffenbach, K., & Moffett, A. (2002) Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14, 172-204.
- Gould, D., Feltz, D., Horn, T., & Weiss, M. (1982). Reasons for attrition in competitive youth swimming. *Journal of Sport Behavior*, 5(3), 155.
- Hagger, M. S., & Chatzisarantis, N. L. D. (2016). The Trans-Contextual Model of Autonomous Motivation in Education: Conceptual and Empirical Issues and Meta-Analysis. *Review of Educational Research*, 86(2), 360–407. <https://doi.org/10.3102/0034654315585005>
- Harwood, C. G., Knight, C. J., Thrower, S. N., & Berrow, S. R. (2019). Advancing the study of parental involvement to optimise the psychosocial development and experiences of young athletes. *Psychology of Sport and Exercise*, 42, 66–73. <https://doi.org/10.1016/j.psychsport.2019.01.007>
- Hauser, Harwood, C. G., Höner, O., O'Connor, D., & Wachsmuth, S. (2022). Talent development environments within sports: a scoping review examining functional and dysfunctional environmental features. *International Review of Sport and Exercise Psychology*, ahead-of-print(ahead-of-print), 1–27. <https://doi.org/10.1080/1750984X.2022.2129423>
- Hayashi, C. T. (1996). Weinberg, R. S., & Gould, D. Foundations Of Sport And Exercise Psychology. Champaign, IL: Human Kinetics, 1995. *Journal of Sport & Exercise Psychology*, 18, 336–338
- Holt, N. L., Hoar, S., & Fraser, S. N. (2005). How does coping change with development? A review of childhood and adolescence sport coping research. *European Journal of Sport Science*, 5(1), 25–39. <https://doi.org/10.1080/17461390500076915>
- Henriksen, K., Diment, G., & Kuettel, A. (2023). The Team Denmark applied model of athlete mental health. *International Journal of Sport and Exercise Psychology*, 1–17. <https://doi.org/10.1080/1612197X.2023.2281525>
- Henriksen, K., & Stambulova, N. (2023). The social environment of talent development in youth sport. *Frontiers in Sports and Active Living*, 5, 1127151–1127151. <https://doi.org/10.3389/fspor.2023.1127151>
- Henriksen, K., Stambulova, N., & Roessler, K. K. (2010). Successful talent development in

- track and field: considering the role of environment. *Scandinavian Journal of Medicine & Science in Sports*, 20(s2), 122–132. <https://doi.org/10.1111/j.1600-0838.2010.01187.x>
- Ivarsson, A., Stenling, A., Fallby, J., Johnson, U., Borg, E., & Johansson, G. (2015). The predictive ability of the talent development environment on youth elite football players' well-being: A person-centered approach. *Psychology of Sport and Exercise*, 16, 15–23. <https://doi.org/10.1016/j.psychsport.2014.09.006>
- Jowett, S., & Cramer, D. (2010). The prediction of young athletes' physical self from perceptions of relationships with parents and coaches. *Psychology of Sport and Exercise*, 11(2), 140–147. <https://doi.org/10.1016/j.psychsport.2009.10.001>
- Jowett, S., & Cockerill, I. M. (2003). Olympic medallists' perspective of the athlete-coach relationship. *Psychology of Sport and Exercise*, 4(4), 313–331. [https://doi.org/10.1016/S1469-0292\(02\)00011-0](https://doi.org/10.1016/S1469-0292(02)00011-0)
- Kleinert, J., Ohlert, J., Carron, B., Eys, M., Feltz, D., Harwood, C., Linz, L., Seiler, R., & Sulprizio, M. (2012). Group dynamics in sports: An overview and recommendations on diagnostic and intervention. *The Sport Psychologist*, 26(3), 412–434. <https://doi.org/10.1123/tsp.26.3.412>
- Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: a literature review. *Quality & Quantity*, 47(4), 2025–2047. <https://doi.org/10.1007/s11135-011-9640-9>
- Larsen, Carsten Hvid & Storm, Louise & Sæther, Stig & Pyrdol, Nicklas & Henriksen, Kristoffer. (2020). A world class academy in professional football: The case of Ajax Amsterdam. *Scandinavian Journal of Sport and Exercise Psychology*. 2. 33-43. 10.7146/sjsep.v2i0.119746.
- Lauer, L., Gould, D., Roman, N., & Pierce, M. (2010). Parental behaviors that affect junior tennis player development. *Psychology of Sport and Exercise*, 11(6), 487–496. <https://doi.org/10.1016/j.psychsport.2010.06.008>
- Li, C., Wang, C. K. J., & Pyun, D. Y. (2017). Impacts of talent development environments on athlete burnout: a self-determination perspective. *Journal of Sports Sciences*, 35(18), 1838–1845. <https://doi.org/10.1080/02640414.2016.1240370>
- Mageau, G. A., & Vallerand, R. J. (2003). The coach-athlete relationship: a motivational model. *Journal of Sports Sciences*, 21(11), 883–904. <https://doi.org/10.1080/0264041031000140374>
- Martindale, R. J. J., Collins, D., & Abraham, A. (2007). Effective Talent Development: The

- Elite Coach Perspective in UK Sport. *Journal of Applied Sport Psychology*, 19(2), 187–206. <https://doi.org/10.1080/10413200701188944>
- Martindale, R. J., Collins, D., & Daubney, J. (2005). Talent Development: A Guide for Practice and Research Within Sport. *Quest (National Association for Kinesiology in Higher Education)*, 57(4), 353–375. <https://doi.org/10.1080/00336297.2005.10491862>
- Martindale, R. J., Collins, D., Wang, J. C., McNeill, M., Lee, K. S., Sproule, J., & Westbury, T. (2010). Development of the talent development environment questionnaire for sport. *Journal of Sports Sciences*, 28(11), 1209–1221. <https://doi.org/10.1080/02640414.2010.49599>
- Marshall, C., & Rossman, G. B. (2016). *Designing qualitative research* (6 ed.). SAGE.
- Pearson, D. T., Naughton, G. A., & Torode, M. (2006). Predictability of physiological testing and the role of maturation in talent identification for adolescent team sports. *Journal of Science and Medicine in Sport*, 9(4), 277–287. <https://doi.org/10.1016/j.jsams.2006.05.020>
- Polman, R. C. J., & Houlahan, K. (2004). A cumulative stress and training continuum model: A multidisciplinary approach to unexplained underperformance syndrome. *Research in Sports Medicine: An International Journal*, 12, 301–316.
- Raedeke, T. D. (1997). Is athlete burnout more than just stress? A sport commitment perspective. *Journal of Sport & Exercise Psychology*, 19(4), 396–417. <https://doi.org/10.1123/jsep.19.4.396>
- Roulston, K. (2010). Reflective Interviewing. In *Reflective Interviewing: A Guide to Theory and Practice* (1st ed.). SAGE Publications, Limited. <https://doi.org/10.4135/9781446288009>
- Sargent Megicks, B., Till, K., Rongen, F., Cowburn, I., Gledhill, A., Mitchell, T., Emmonds, S., & Lara-Bercial, S. (2022). Examining European Talent Development Environments: Athlete, Parent and Coach Perceptions. *Journal of Sports Sciences*, 40(22), 2533–2543. <https://doi.org/10.1080/02640414.2023.2172800>
- Smith, R. E. (1986). Toward a Cognitive-Affective Model of Athletic Burnout. *Journal of Sport Psychology*, 8(1), 36–50. <https://doi.org/10.1123/jsp.8.1.36>
- Smith, R. E., Smoll, F. L., & Cumming, S. P. (2007). Effects of a motivational climate intervention for coaches on young athletes' sport performance anxiety. *Journal of Sport & Exercise Psychology*, 29(1), 39–59. <https://doi.org/10.1123/jsep.29.1.39>
- Smoll, Frank L., & Smith, Ronald E. *Children and Youth in Sport: a Biopsychosocial*

- Perspective.(Brief Article). (2003). *Adolescence*, 38(150), 404.
- Thomas, C. E., Gastin, P. B., Abbott, G., & Main, L. C. (2021). Impact of the talent development environment on the wellbeing and burnout of Caribbean youth track and field athletes. *European Journal of Sport Science*, 21(4), 590–603. <https://doi.org/10.1080/17461391.2020.1775894>
- Tjora, A. H. (2021). *Kvalitative forskningsmetoder i praksis* (4. utgave.). Gyldendal.
- Towson, C., Cogley, S., Parkin, G., & Lovell, R. (2018). When does the influence of maturation on anthropometric and physical fitness characteristics increase and subside? *Scandinavian Journal of Medicine & Science in Sports*, 28(8), 1946–1955. <https://doi.org/10.1111/sms.13198>
- Vallerand, R. J., Rousseau, F. L., Grouzet, F. M. E., Dumais, A., Grenier, S., & Blanchard, C. M. (2006). Passion in sport: A look at determinants and affective experiences. *Journal of Sport & Exercise Psychology*, 28(4), 454–478. <https://doi.org/10.1123/jsep.28.4.454>
- Van den Berg, L., Jonck, P., & Surujlal, J. (2021). Investigating the Youth Sports Development Pathway Within a South African Context. *Frontiers in Psychology*, 12, 694548–694548. <https://doi.org/10.3389/fpsyg.2021.694548>
- Vazou, S., Ntoumanis, N., & Duda, J. L. (2006). Predicting young athletes' motivational indices as a function of their perceptions of the coach- and peer-created climate. *Psychology of Sport and Exercise*, 7(2), 215–233. <https://doi.org/10.1016/j.psychsport.2005.08.007>
- Vealey, R. (2005). *Coaching for inner edge*. Morgantown, WV: Fitness Information Technology.
- Weiss, M. R. (2008). 2007 C. H. McCloy Lecture. *Research Quarterly for Exercise and Sport*, 79(4), 434–449. <https://doi.org/10.1080/02701367.2008.10599510>
- Wolfenden, L. E., & Holt, N. L. (2005). Talent Development in Elite Junior Tennis: Perceptions of Players, Parents, and Coaches. *Journal of Applied Sport Psychology*, 17(2), 108–126. <https://doi.org/10.1080/10413200590932416>
- Wylleman, P., Alfermann, D., & Lavallee, D. (2004). Career transitions in sport: European perspectives. *Psychology of Sport and Exercise*, 5(1), 7–20. [https://doi.org/10.1016/S1469-0292\(02\)00049-3](https://doi.org/10.1016/S1469-0292(02)00049-3)
- Wylleman, P., & Reints, A. (2010). A lifespan perspective on the career of talented and elite
- Xiang, C., Dong, W., Kamalden, T. F. T., Ismail, N., & Luo, H. (2023). Structural analysis of environmental factors of sports talent development. *Current Psychology (New Brunswick, N.J.)*. <https://doi.org/10.1007/s12144-023-04803-x>

athletes: Perspectives on high-intensity sports. *Scandinavian Journal of Medicine & Science in Sports*, 20(s2), 88–94. <https://doi.org/10.1111/j.1600-0838.2010.01194.x>

Zajonc, R. B. (1965). Social Facilitation. *Science (American Association for the Advancement of Science)*, 149(3681), 269–274. <https://doi.org/10.1126/science.149.3681.269>

PART II ARTICLE

“There is No Fast Track to Success”

- What factors are pivotal in fostering a sustainable and high-quality TDE in the context the national program for track and field at Steinkjer Upper Secondary School?

Ingar Bratseth-Kiplesund¹ & Stig Arve Sæther^{1*}

Corresponding author: Stig Arve Sæther

1. Department of Sociology and Political Science, Norwegian University of Science and Technology (NTNU), Trondheim 7491, Norway.

Abstract

Background: The aim of this study was to examine key factors fostering a sustainable and high-quality Talent Development Environment (TDE) in the context of the national program for track and field at Steinkjer Upper Secondary School. **Methods:** Three athletes, two coaches and the department leader was interviewed about central topics influencing their TDE. The theoretical foundation for the study was a combination of the Talent Development Environment Questionnaire (Martindale et al., 2010) and Athlete Talent Development Environment framework (Henriksen et al. 2010). Through a thematic analysis the “Athlete-Centered model” was developed in light of Martindale et al. (2010) and Henriksen et al. (2010) theoretical framework. **Results:** emphasizing the importance of social support, integrated training facilities, coaches' holistic concern, financial stability, and family networks. It advocates for a nuanced approach to nurturing athletic talent amidst diverse athlete needs. **Conclusion:** Incorporating a dynamic, evidence-informed strategy attuned to athletes' needs is essential for their comprehensive development. The school's commitment to continuous improvement and adaptable methodologies underpins the creation of a robust talent nurturing environment.

Keywords: Talent Development Environment, track and field, youth sports

Intro

In the dynamic world of sports education, talent development has emerged as a critical area of focus, especially in disciplines such as track and field (Henriksen et al., 2010; Thomas et al., 2021). Globally, educational institutions play a pivotal role in nurturing athletic talent, balancing academic rigor with sports training (Nikander et al., 2022; Morris et al., 2021). In Trøndelag (the county situated in the middle of Norway), this balance is exemplified in the comprehensive approach taken by some upper secondary schools, particularly in fostering promising athletes both in sports and school (Haugan & Østerås, 2022). Steinkjer Upper Secondary School stands out in this landscape. With its rich history in advancing track and field talents and a unique educational philosophy, the school represents an intriguing case for studying talent development environments. It can be argued if a successful TDE are simply defined by performance outcomes as medals and records, or if a more holistic consideration of the athlete's wellbeing and personal development is considered (Henriksen et al., 2023; Ivarsson et al., 2015; Sargent Megicks et al., 2022).

In the scholarly examination of TDEs, Martindale and colleagues' 2005 literature review stands as a cornerstone, articulating five principal characteristics that underpin an effective TDE. These are: [1] Long-term Aims and Methods, [2] Wide-ranging Coherent Messages and Support, [3] Emphasis on Appropriate Development Rather Than Early Selection, [4] Individualized and Ongoing Development and [5] Integrated, Holistic, and Systematic Development. Building upon these fundamental insights, Henriksen et al. (2010) highlighted the importance of the socio-relational and ecological aspects within TDEs. Their work emphasized the nuanced interplay between micro and macro contexts, the pivotal nature of organizational culture, and the complex web of stakeholder interactions and responsibilities. This comprehensive framework was distilled from a meticulous analysis of the extant scholarly literature, qualitative insights from coaching professionals (Martindale et al., 2005; Martindale et al., 2010), and ethnographic explorations of high-achieving sporting milieus (Henriksen et al., 2010). Following studies have primarily focused on examining coaches and athletes' perceptions of their TDEs, seeking to understand the real-world application of these identified characteristics.

Given the critical importance of physical and physiological factors in track and field performance, it is reasonable to anticipate that coaches would focus both on identifying the essential attributes necessary for athletic prowess and on formulating targeted training strategies

(Thomas et al; 2021). It is recognized that the preconditions of the environment, which include human, material, and financial resources, are necessary but not sufficient for success on their own (Gesbert et al., 2021; Xiang et al., 2023). In athletic environments, particularly those encompassing a diverse range of skills and a large number of athletes, the emphasis on creating a sustainable social environment is crucial. This involves fostering positive relationships, promoting a supportive culture, and implementing structures that encourage long-term development and well-being among athletes. Weiss (2008) and Vazou et al. (2006) emphasize the importance of social environments in athletic development, highlighting that they can significantly influence an athlete's experience and progression. A nuanced understanding of athletes' needs, motivation, and social surroundings, including the proactive involvement of coaches and parents, is key to driving inclusivity in sports settings (Fraser-Thomas et al., 2005; Sargent Megicks et al., 2022). Complementing the traditional individual-focused talent identification and development. This ecological approach posits that the mutual accommodation between athletes and their social context fosters talent development (Larsen et al., 2020; Martindale et al., 2010). Moreover, a supportive social milieu within a team is instrumental in nurturing athletic abilities and stimulating athletes' motivation and interest in sports (Vazou et al., 2006; Baker et al., 2020; Henriksen et al., 2010, 2023). To nurture this, research shows that the concept of Long Term Athlete Development is foundational to the cultivation of athletic prowess, emphasizing the progressive development of athleticism over time to enhance health, fitness, performance, and to instill confidence and competence in all youth (Ford et al., 2011). This approach advocates for prioritizing the athlete's well-being throughout their life instead of focusing merely on short-term achievements and early success (Hauser et al., 2022; Henriksen & Stambulova, 2023; Van den Berg et al., 2021). Long term development frameworks are instrumental in promoting physical fitness and psychosocial well-being for youth across all levels of ability or aspiration (Hauser et al., 2022; Henriksen et al., 2023; Gangsø et al., 2021; Li et al., 2017; Ford et al., 2011). To support this development, the role of role models and organizational structures cannot be overstated. Role models in sports provide an exemplar pathway for athletes, illustrating the behaviors, attitudes, and practices necessary for success and longevity in their respective fields (Martindale et al., 2010; Flatgård Larsen & Sæther, 2020; Henriksen et al., 2010).

Organizational structures ensure that these values and practices are systematically embedded within the training and development programs, providing a clear blueprint for athletes to follow (Passaportis et al., 2022). An effective organizational structure within sports is critical for the establishment of a developmental model that strategically approaches training

youth. This model aims not only to maximize sporting talent but also to ensure the overall well-being of the athlete (Henriksen et al., 2023). To follow this through, a financial stability within a TDE is paramount, as it enables the provision of necessary resources and support systems that are crucial for the holistic development of athletes (Hauser et al., 2022). In practical terms, financial stability within a TDE allows for the implementation of science-based support systems, which are essential for the pursuit of excellence in sports (Baker et al., 2012). It also provides the means for talent identification and development systems that are resource-intensive and require substantial financial investment to be effective in converting youth athletes into elite performers (Rongen et al., 2018). This research aims to delve into the intricate dynamics of the environment at the national program for track and field at Steinkjer Upper Secondary School, seeking to understand the elements that contribute to the nurturing and growth of athletic talent in this environment (Nikander et al., 2022; Martindale et al., 2010; Hauser et al., 2022; Henriksen et al., 2010, 2023). The intricate dynamics of Talent Development Environments (TDEs) are scrutinized by assessing the viewpoints of athletes, coaches, and a department leader. Employing in-depth interviews, the study aims to elucidate the elements contributing to what they think are the most important factors to their TDE, as well as to identify the potential challenges it faces moving forward. The investigation adopts a qualitative lens to capture the rich, complex experiences of those immersed in the TDE at Steinkjer Upper Secondary School. This approach allows for a textured understanding of the socio-relational fabric that underpins the micro environment of this TDE.

Central to this study is the research question: "What factors are pivotal in fostering a sustainable and high-quality TDE in the context of the national program for track and field at Steinkjer Upper Secondary School from a athlete and coach perspective?". Through this exploration, the research aspires to generate insights that can inform the development of TDEs across similar educational and athletic landscapes.

Method

The selection of Steinkjer upper secondary school as TDE

The National Program for Track and Field at Steinkjer upper secondary school in Norway was chosen for this study due to its notable track record in nurturing top-tier junior athletes. The program has consistently produced athletes who have been a part of the Norwegian national senior team annually since its notable achievements began. In the year preceding this study, five athletes from the program were selected for the junior national team, and a total of 13

medals was awarded to these athletes at the Norwegian Youth Championships. The program is recognized for its effective transition of athletes from the junior ranks to the senior elite level.

Description of the environment

Steinkjer upper secondary school boasts a dedicated track and field program in Norway, recognized for its ambition and success for a long time. In 2017, it was designated as the national high school program for track and field. Situated in a town of around 24,000 residents, the school has fostered a partnership with Steinkjer Friidrettsklubb (Track and field club), the town's sole track and field club, to provide top-tier facilities for both indoor and outdoor training. The program supports 33 athletes, guided by five full and part-time coaches. The study focuses on one event category within this interconnected environment, where athletes and coaches collaborate closely in their daily training and life, both in school and in their local club.

Participants

The study engaged track and field athletes aged 17-18 with 5-9 years of active participation, two coaches averaging 52.5 years with a collective 75 years in coaching and competing, and a department leader with a background in teaching, leadership, and athletics. This diverse group provided a comprehensive view of the factors influencing the Talent Development Environment at Steinkjer Upper Secondary School.

Design

A qualitative research design utilizing in-depth interviews was employed to examine the research question. The in-depth interview is a favorable method for collecting rich data about the informant's lived experiences (Brinkmann & Kvale, 2015). Through in-depth interviews, researchers can achieve a holistic understanding, consistent with the ecological focus of the TDE, while capturing the subjective experiences and aspirations of athletes. The flexible nature of interviews accommodates unexpected, yet relevant themes, enhancing the richness of the data (Brinkmann & Kvale, 2015). The knowledge from interviews is produced through the interplay between informant and researcher, acknowledging that the researcher's perspectives, cultural background, and experiences shape the final research knowledge.

Procedure

The recruitment of informants was conducted via Teams, beginning with an agreement with the head of sports and track and field to assess interest. The head of track and field then selected informants meeting the criteria which was motivated athletes within one discipline, training in the same environment, as track and field consists of many different disciplines and different coaches. This resulted in three athletes, two coaches, and a department leader. A pilot interview was conducted beforehand to ensure the interview guide was fit for purpose (Creswell & Creswell, 2018). Interviews were adapted as needed to improve flow and quality. Athlete interviews were conducted in person in Steinkjer to foster trust, as in-depth interviews can be sensitive. Coaches and the department leader were interviewed via Teams, using video to create a natural setting. Only audio was recorded. The focus was clarified to be on the training environment rather than training content. The study concluded with an agreement to present findings to the participants and their environment. The interviews main categories included their closest social and competitive environment, environmental success factors, coaching, communication, holistic perspectives, and support system.

Analytical

process

In this study on talent environment development in track and field, a hybrid methodological approach was used, grounded in the theoretical frameworks of Henriksen et al. (2010) and Martindale et al. (2010). The data were transcribed and analyzed using thematic analysis as outlined by Braun & Clarke (2022). The analysis proceeded through six reflexive stages. Initially, the data were familiarized, with notes taken to inform subsequent analysis. Coding then systematically identified the meaning within interview excerpts, capturing the explicit content. Following this, patterns within these codes were explored to subcategories, which informed the development of overarching themes. Subsequently, these themes were reviewed to ensure they corresponded with the coded data and subcategories, providing a rigorous check on the thematic structure's validity. Each theme was named to offer clarity and linked to the research question for relevance. The final step involved distilling these themes into a coherent report, presenting the findings in a manner aligned with the research objectives and the scholarly context of talent development. The analysis in this study was carried out through a flexible and iterative approach (Braun & Clarke, 2022). The six main dimensions from the thematic analysis are: 1) Supportive Social Environment, 2) Developmental Focus, 3) Individualization, 4) Organizational Structure, 5) Role Modeling, and 6) Environmental Support. The categories were examined in multiple rounds to ensure a comprehensive

understanding of the data. This method allowed for different perspectives to be considered, leading to a more detailed and precise interpretation of the findings.

Ethical implications

The investigation conformed to the Norwegian University of Science and Technology's protocols for data collection. Embracing the principle of data minimization, only audio recordings were securely stored via NTNU and Nettskjema services. The project was officially registered and received ethical clearance from the Norwegian Centre for Research Data (NSD number: 358153). Informed consent was obtained from all participants, who also retained the right to review their data and withdraw from the study at any point. Consent was unanimous, and retention was complete among the participants. To ensure confidentiality, a decision was made to anonymize the events associated with the informants to mitigate the risk of identification. The study was carefully designed to prevent any potential repercussions for the participants due to their participation, adhering to recognized ethical research practices (Brinkmann & Kvale, 2015).

Results

The objective of the article was to survey the talent development environment within the track and field program at Steinkjer Upper Secondary School from a athlete and coach perspective. By undertaking a thematic analysis, six central themes associated with the talent development milieu at the institution were identified. I employed a hybrid approach, integrating both deductive and inductive reasoning. Guided by the theoretical underpinnings of Henriksen et al. (2010) and Martindale et al. (2010), I established initial categories, while simultaneously remaining receptive to emergent themes that surfaced directly from my interview data, ensuring a comprehensive understanding of the findings. The six main dimensions from the thematic analysis are: 1) Supportive Social Environment, 2) Developmental Focus, 3) Individualization, 4) Organizational Structure, 5) Role Modeling, and 6) Environmental Support. All informants provided commentary on each primary theme, albeit to varying extents across the different categories. The primary themes depicted are a blend of elements that emerged from the results and align with Martindale's TDEQ (Talent Development Environment Questionnaire) and Henriksen et al. ATDE (Athletic Talent Development Environment) framework, focusing on the micro environment. It is pertinent to note that the analysis does not specifically interpret the findings considering a singular theoretical framework, but rather in the context of the broader

research field on Talent Development Environments (TDE). The results are summarized in model 1.

In the synthesis of Henriksen et al. (2010) and Martindale et al. (2010), an optimal TDE is characterized by a composite structure where relational dynamics, developmental strategies, and organizational principles are paramount. The interplay of a supportive social milieu and effective communication underpins the nurturing of athletes, echoing the principle that development flourishes within a network of robust support. A long-term developmental ethos, acknowledging the temporal arc of maturation, aligns with a process-oriented approach, eschewing short-term outcomes in favor of sustained growth.

Personalization of training and development reflects an understanding of the athlete as an individual, with unique needs and trajectories necessitating bespoke planning. The organizational infrastructure must embody a coherent culture that supports both athletic and personal progression, a holistic ideology advocated by both Henriksen and Martindale. Mentorship and the exemplification of role models, including the crucial athlete-coach rapport, furnish athletes with tangible pathways to success and aspirational benchmarks.

Further, environmental support extends beyond the immediate sporting context to incorporate lifestyle balance, ensuring athletes are equipped with the necessary resources and support systems to thrive. This comprehensive framework posits that an athlete's potential is best realized within an ecosystem that cooperatively combines these elements, each reinforcing the other to foster an environment conducive to the emergence and nurturing of sporting talent.



Model 1: Athlete-Centered Development

Supportive Social Environment

This category encompasses social factors that lay the foundation for building a strong talent development environment. It includes subcategories such as Training Groups, Effective Communication, and a Positive Milieu.

The composition of a **Training Group** in track and field significantly shapes the Supportive Social Environment within a TDE. A diverse, yet harmonious group fosters camaraderie, mutual respect, and collective motivation, enhancing the overall development and well-being of each athlete. Several athletes characterize their training group as a setting where they can engage in light-hearted banter and express their true selves and personalities, while simultaneously facing competitive challenges in their daily training regimen.

A1: "This equilibrium between seriousness and humor is reflected in both our training methods and the way we discuss training and daily life. All these elements contribute to our unique dynamic".

Nonetheless, one of the athletes expresses a longing for a more competition-oriented environment, with peers capable of matching their level in daily training sessions.

A2: It is profoundly inspiring to observe committed athletes, and I believe that being part of such an environment could enhance the benefits of my training. Incorporating such a dedicated approach into daily practice can indeed make a significant difference.

One of the coaches elucidates his approach to fostering a competitive environment in training, aiming to maximize its impact and encourage athletes to perform at their best.

C1: Competition can act as a catalyst for pushing an athlete to their utmost capabilities, especially in challenging situations where they might otherwise hold back. Varied training can create unique opportunities to introduce competitive elements. This provides a chance for athletes from different disciplines to challenge each other across various forms of training. It fosters a dynamic where athletes do not necessarily compete directly against each other based on their specialized skills, but rather a general competitive mentality that motivates them to strive for improvement.

Effective Communication in a TDE is pivotal for fostering a supportive social environment. It ensures clear understanding, aligns goals, resolves conflicts, and strengthens relationships, thereby nurturing a cohesive community where athletes can thrive and collaborate towards shared objectives. One of the coaches conveys that communication and accessibility constitute foundational pillars of his coaching philosophy.

C2: I always tell them that if something is troubling them, it's better to address it immediately rather than to ponder on it for weeks. When I join them for runs, I feel that I can read them well. Even though I could wait in the hall while they train, I value the opportunity to be in close proximity.

Another coach also emphasizes the importance of communication in streamlining the holistic execution of the athletes' daily training regimen.

C1: Communication is key. I now serve as the primary liaison between the two environments. This role enables me to convey information and establish the parameters for how processes should be executed to a much greater extent than before. Previously, we often relied on assumptions about how things were done. But now, as I coach many of the athletes in the club and am concurrently a coaching colleague of Coach 2 – who effectively leads the entire track and field environment at the school – collaboration has become more straightforward.

A **Positive Milieu** fosters a nurturing and inclusive atmosphere, promoting well-being and cooperation. This supportive climate encourages athletes to engage, share experiences, and develop resilience, enhancing both individual and collective growth in the sporting environment. Several athletes report that the social environment contributes to their daily anticipation and enthusiasm for training sessions.

A1: The social environment is highly valued, so I look forward to training sessions to engage with my peers. They are all great friends, which contributes to a positive atmosphere. I anticipate the moments to catch up with them during warm-ups; these are the moments I look forward to. The other two athletes agrees

One of the athletes also expresses similar enthusiasm for the environment but feels the absence of having more peers of the same age and competitive level.

A2: It became challenging, especially when they stopped training, as I lost a part of the positive environment. This atmosphere is what I most look forward to at training. Making decisions in training, like staying focused, becomes easier when surrounded by close peers... I miss the times when I arrived at training and was immediately included and pulled through the whole session.

The coaches also emphasize that well-being and a positive environment foster joy in training and motivation in their work.

C1: I place significant emphasis on the coach and athlete collaboratively finding a training method that engages the athlete. It should not be solely motivated by results, but also by the joy of the training itself and the collaborative process.

Developmental Focus

This category encompasses factors identified by the informants as critical components of their developmental focus within the realm of track and field athletics. It comprises two subcategories: Long-Term Development and Process Orientation.

In a talent development environment, **Long-term Development** focuses on nurturing athletes' growth over time, emphasizing skill-building and psychological maturation rather than immediate success. This approach advocates for a sustainable sporting journey, mindful of each athlete's individual pace, reducing burnout and injury risks, and laying a foundation for enduring achievement and enjoyment in the sport. The coaches convey that they consistently endeavor to instill in athletes the value of a long-term perspective.

C1: When we converse with them, the long-term perspective is always the focal point... we all agree that it is not a given that one will become a world champion during their time in upper secondary school. It takes time, and that investment will yield returns later on... Some of the athletes who come to us have clearly received the impression that they are on a fast track to success.

Process Orientation focuses on the journey of skill acquisition and personal growth, rather than just outcomes. It encourages athletes to value continuous learning, skill refinement, and resilience in the face of challenges. This approach helps athletes to stay motivated, embrace improvement, and develop a deeper understanding of the sport, contributing to their long-term

success and enjoyment. The coaches continuously endeavor to teach the athletes that progress requires time. In this case, one coach uses himself as an exemplar.

C2: However, I do not believe they fully comprehend that things take time, or they often have a somewhat different perception of time. And I say to them that when I attended upper secondary school here, 30 years ago, my goal was to participate in an international championship. It took me 15 years from the time I was here to achieve that.

Individualization

This category encompasses qualities within a Talent Development Environment (TDE) that are crucial for the customization and ongoing monitoring of an athlete's daily training regimen. It includes elements such as Personalized Development, Individualized Training, and the accommodation of Unique Needs.

Personalized Development refers to crafting training plans and developmental strategies tailored to the individual attributes, goals, and progression rates of each athlete. This facet of individualization ensures that every athlete receives focused attention and resources aligned with their personal journey in sport. One of the athletes exemplifies that developing an individualized plan for every athlete is not always straightforward, as athletes possess distinct characteristics and abilities related to their sport.

A3: One athlete in our group is undeniably an exceptional talent, who manages to meet the qualification standards even on an off day. As for myself, I must be in peak condition to fulfill these requirements. It has been challenging to train according to an annual plan that targets peak performance towards the end of July and August. This implies that performance levels may not be at their highest in the midwinter, which can feel like a setback

Individualized training involves customizing workout regimens, recovery protocols, and competitive schedules to fit the unique physiological and psychological profiles of each athlete, thereby optimizing their development and performance in track and field. One athlete feels that sometimes his needs take a back seat, and his desire for tailored technical training is not always satisfied.

A2: It can sometimes feel as though the training is more tailored to those new to the sport, which can pose a challenge for someone like myself who may desire a more specific approach. Although this is not necessarily a significant issue, it occasionally means that I do not receive the optimal training that I need.

Conversely, one of the coaches' states that they are always seeking ways to enable all athletes, regardless of level, to develop based on their individual characteristics.

C2: My primary focus is that each athlete should have the opportunity to develop within their sport, whether the goal is to become the world's best or a regional champion, based on their individual level and prerequisites.

Organizational Structure

This category addresses the Organizational Structure that underpins the prerequisites for development within a talent development environment. The category encompasses the following two subcategories: Organizational Culture and Holistic Development.

Organizational Culture profoundly influences a talent development environment by shaping the ethos and practices within which athletes grow. A positive, goal-oriented culture fosters dedication and resilience, while clear values and expectations guide behavior. Such a culture creates a supportive ecosystem that promotes holistic athlete development and optimal performance outcomes. One of the coaches emphasizes the importance of nurturing the personal development of their athletes, particularly in terms of their conduct and interactions with peers.

C1: In our athlete relations, we have endeavored to instill the value of being more concerned with others than oneself. Even when all attention should rightfully be on them, they recognize the value of our efforts on their behalf, as well as the environment and fellow athletes with whom they are surrounded. This extends to coaches, the club, and other involved parties. Although it may not be an explicitly stated mantra, fundamental respect, and the manner in which we treat one another are essential.

Holistic Development necessitates an organizational structure that supports multifaceted growth, integrating mental, physical, and social development programs. It influences the organization to adopt a comprehensive approach, ensuring that all aspects of an athlete's development are addressed, thereby aligning resources and strategies to cater to the athlete's entire well-being. The department leader articulates a commitment to holistic development, emphasizing the school's dedication to educating individuals who are not only athletes but well-rounded persons.

DL: Although sport is central, we must also ensure that they complete their schooling and all subjects. It is vital that they have a solid foundation. We regard sport as more than mere competition; it is also about personal growth.

This perspective is reinforced by an athlete who affirm that his coach is concerned with his athletes as individuals and with their well-being beyond the realm of training.

A1: He emphasizes the importance of my well-being in daily life, not just during training. It is important to him that my well-being is not limited to the training context but extends to my daily life, ensuring I feel good outside of training as well.

One of the coaches also underscores the importance of teaching athletes to make their own decisions, to facilitate their development as individuals.

C2: It largely involves aiding them in becoming independent, prompting them to reflect on their choices, and engaging them in discussion and challenges. I believe they are deeply concerned with the holistic view. Even though they may be intensely focused on their sport, they must understand that sometimes it is necessary to engage in activities beyond their initial desires.

Role Models

This category encompasses influential figures, including proximal role models and the coach-athlete relationship, which significantly impact an athlete's development, motivation, and skill acquisition.

Proximal Role Models are typically close associates, like peers or senior athletes, who provide direct, relatable examples of desirable behaviors and skills. Their proximity allows for regular observation and interaction, fostering a more immediate and influential impact on younger or less experienced athletes. These models offer tangible benchmarks for success and practical strategies for overcoming challenges, enhancing the learning and developmental process. One of the coaches relates how one of the athletes serves as a role model for the rest of the training group.

C1: When I observe that they perform an exercise better than before, I emphasize the clear progress made. They are informed that continual improvement will ensue, albeit over time. Athlete 2 serves as an invaluable support during this process. He engages them in his journey, sharing the extensive time he invested to attain his proficiency. Thus, he acts not only as a role model for the group but also as a mentor. When Toril and I provide advice or instructions, he can reinforce them with his own experience, telling them: 'I have faced the same challenges, and it took years for me to reach where I am now.'

The **Coach-Athlete Relationship** holds significant importance. Coaches are integral role models, profoundly impacting athletes' developmental trajectories, motivational levels, and attitudinal formation. They offer more than technical expertise, extending their mentorship to life skills and ethical values. This relationship is crucial for fostering holistic growth in athletes and creating a nurturing and inspirational training atmosphere.

C2: It is essential for my presence during evening training sessions to monitor the athletes' progress consistently. While the training itself is of importance, I believe that being constantly available to them is crucial. I have always endeavored to be there for them, particularly when it pertains to transitioning into living independently in a dormitory. This phase involves numerous complex factors related to nutrition,

accommodation logistics, and associated responsibilities. I aim to be accessible to them throughout this process.

One of the athletes reflects on how his long-standing coach-athlete relationship has influenced him:

A2: While he does not intrude significantly into my personal affairs, I sense that he has profoundly influenced me as an individual. This is particularly evident now that our relationship has grown closer. He stands as one of my dearest friends and has maintained this role for an extended duration. Our acquaintance began when I was twelve years old, making him the longest-standing friend I currently have.

Environmental Support

This category is crucial for shaping the athlete's external environment beyond training, aimed at fostering holistic development and facilitating peak performance. It includes the subcategories: lifestyle balance, strong support systems, and resource availability.

Lifestyle balance is essential for sustaining athlete well-being and performance. It ensures that athletes' training demands are harmonized with their personal life, education, and rest, preventing burnout, and promoting longevity in the sport, which is critical for an athlete's continuous growth and success. Both the coaches and the department leader are involved in establishing a sustainable balance for the athletes participating in their program.

C1: The communication around the athlete's lifestyle balance certainly has room for enhancement, or at the very least, potential for improvement. However, this is not necessarily due to deliberate mishandling. Primarily, it stems from a lack of understanding of the situation. It concerns the optimization of the athletes' overall workload, wherein lies the potential for improvement.

Support Systems provides athletes with emotional, logistical, and professional backing, which is essential for enduring the rigors of training, competition, and balancing personal commitments. Crucial roles in an athlete's support system can consist of coaches, family, physiotherapists, and teachers. This network is the bedrock of resilience and long-term athlete development. The athletes indicate that familial support is pivotal to their sporting careers.

A1: Without my family, I would not be able to pursue my athletic career as I am now. While I am the one committing to the sport, they provide unwavering support for my goals. They maintain that the decision to commit is mine, but they assist wherever necessary to help me realize my ambitions. The other two athletes communicate the same feeling of support.

One coach also references their efforts to establish an easily accessible support network within the local community.

C2: Proactive engagement, especially in collaboration with physicians and physiotherapists, is crucial. This facilitates rapid intervention. The network I have curated is meticulously chosen to optimize communication and ensure swift assistance.

Resource Availability plays a crucial role in shaping the quality of environmental support. Adequate resources, such as funding, facilities, and expert personnel, enable the provision of tailored training, advanced equipment, and comprehensive athlete support services. The athletes and coaches acknowledge that access to high-quality facilities is one of the significant strengths of the environment.

A1: What really drew me were primarily two factors. One was Coach 2, and the other was the comprehensive offerings here. Everything is centralized in one location: the school, the indoor facility, the outdoor track, the store. This conserves both time and energy, as it eliminates the need to travel extensively. It is exceedingly practical to have everything so closely situated.

Although the quality of the facilities is commendable, one of the coaches express a need for greater predictability in the utilization of these facilities, as well as for enhanced financial resources.

C2: We must strive for greater predictability. Work becomes simpler when outcomes are foreseeable. I contend that with increased predictability, we could redirect our energy towards other critical facets. This quest for predictability is arduous. We could instead be investing our energy in the youth. Currently, we are in a constant battle for resources.

Discussion

The primary objective of the study was to investigate the factors that are pivotal in fostering a sustainable and high-quality Talent Development Environment (TDE) within the context of the national program for track and field at Steinkjer Upper Secondary School. We conducted qualitative in-depth interviews with three athletes, two coaches, and the department leader of the program. The theoretical framework for this research is grounded in Henriksen et al. (2010) work on ATDE and Martindale et al. (2010) work on TDEQ and Kleinert et al. (2012), who highlight the aspirational influence of committed peers, thereby suggesting that competitive environments can catalyze training benefits.

Effective communication within these environments ensures clarity, goal alignment, conflict resolution, and relationship strengthening, which is essential for fostering a cohesive community, as supported by Jowett & Cramer (2010). The accessibility and approachability of coaches underscore the importance of relational coaching, which is crucial for athlete

development, a sentiment echoed by Sargent Megicks et al. (2022) and Vealey (2005). Furthermore, the positive milieu reported by athletes and coaches contributes to a nurturing and inclusive atmosphere that bolsters well-being and cooperation. This aligns with the findings of Henriksen & Stambulova (2023) and Gould & Carson (2008), who contend that such an environment is imperative for cultivating daily training anticipation, engagement, and resilience, thus enhancing both individual and collective growth. The emphasis placed by coaches on the joy of training and intrinsic motivation resonates with research positing these factors as critical for sustained athlete development, as outlined by Ford et al. (2009), Martindale et al. (2010), and Henriksen et al. (2023). The intrinsic rewards of training are crucial for maintaining athletes' commitment over time. In synthesis, the study suggests that to optimize athlete development, TDEs in track and field should actively cultivate a supportive social environment. This involves integrating strategies that bolster communication, foster a positive milieu, and balance competitive and cooperative elements within the training group dynamics. These strategies are vital for facilitating holistic development and enhancing the prospects of success for athletes.

The Developmental Focus within track and field Talent Development Environments (TDEs) is integral to shaping athletes' progression, with a particular emphasis on Long-Term Development, Athlete Maturation, and Process Orientation. This study highlights the importance of a long-term developmental approach, upholding the position against early specialization that disregards individual differences—a practice that may lead to burnout and injury, as suggested by Côté et al. (2009) and Durand-Bush & Salmela (2002). Coaches' alignment with a longitudinal view of athlete development echoes the foundational principles proposed by Ford et al. (2011) and Gangsø et al. (2021), suggesting that sports success is akin to a marathon, wherein success unfolds over various developmental stages.

Process Orientation, a cornerstone of this focus, emphasizes the journey of skill acquisition and personal growth over immediate outcomes. Such an approach parallels Small and Smith (2003), who champion a mastery climate that values skill enhancement and personal achievements, steering away from comparative benchmarks. This methodology, favoring continuous learning and the ability to recover from difficulties, is vital for enduring success and enjoyment in sports. It corroborates Martindale et al. (2010) findings that prioritize intrinsic motivation and athlete retention through a process-centric ethos. Coaches employ narratives that convey patience and a realistic timeline for achieving sporting goals, thus instilling a sense of temporal progression toward high-level success. These narratives are instrumental in managing expectations and promoting a patient, persistent pursuit of athletic prowess (Gould

& Carson; Smith & Sparkes, 2009). In summary, it is imperative for track and field TDEs to perpetuate a developmental focus that champions a long-term, process-oriented methodology. Such a focus is conducive to fostering sustainable athletic careers, enhancing overall well-being, and is in harmony with the comprehensive objectives of athlete development in the domain of sports.

In the domain of track and field, the individualization concept within TDEs stands out as a fundamental principle in optimizing each athlete's training regimen to their unique developmental journey. Highlighted by Martindale et al. (2010), the necessity for individualized support systems that adapt to the evolving nature of an athlete's development is critical, underscoring a commitment to personalizing development plans and strategies. Training plans within the TDE are meticulously aligned with personal attributes, goals, and the rates at which athletes progress, exemplifying the essence of this individualized approach. Reflecting on the hurdles of reaching peak performance, athletes within the TDE reveal the importance of customizing training to match individual peak conditions and schedules. This perspective, supported by Henriksen et al. (2010; 2023), promotes the view that individual characteristics and abilities must be at the forefront when crafting training programs and shaping their environments. For athletes who might not as readily meet qualification standards, this tailored approach becomes even more critical, requiring personalized performance targets and training loads that are sensitive to mental health considerations, thereby preventing issues before they can manifest (Henriksen et al., 2023; Henriksen & Stambulova, 2023). Addressing the unique physiological and psychological makeup of each athlete, customized workout regimens and recovery protocols are imperative. This individual-centric method extends beyond mere physical optimization; it encompasses athletes' feedback, emphasizing the need for specialized technical training. Such personalization is especially crucial for advanced athletes who may feel their specific needs are eclipsed by broader, more generic training approaches in a heterogenous TDE. The responsibility of coaches within TDEs is thus magnified as they strive to balance group dynamics with individual aspirations. A coach's dedication to individualized coaching practices reflects a deep-seated commitment to an environment where every athlete's development is fostered according to their own prerequisites, whether aiming for world-class achievement or regional success. In conclusion, the implementation of individualized feedback and adaptable coaching styles is paramount in addressing the distinctive developmental needs of each athlete. The approach, as delineated by Henriksen & Stambulova (2023) and further supported by Jayanthi et al. (2022) and Martindale et al. (2010), ensures that the unique physical and psychological aspects of athlete development

are catered to. This personalized methodology is not simply a feature of TDEs but the foundation upon which the full potential of athletes is realized, allowing them to achieve their individual goals and reach the apex of their sporting capabilities.

The influence of Organizational Culture within Talent Development Environments (TDEs) extends far beyond the boundaries of athletic training, infusing the ethos and practices with values that shape the athletes' development holistically. The emphasis on instilling respect and concern for others underpins the culture within the TDE, resonating with Martindale et al.'s (2010) advocacy for a positive and goal-oriented culture that nurtures resilience and dedication. This cultural framework supports not just physical prowess but also moral and ethical growth, aligning with Henriksen et al.'s (2010) perspective on the importance of a supportive and respectful culture in the holistic development of athletes (Passaportis et al., 2022). The findings underscore the necessity for an organizational structure that promotes holistic development, one that weaves together the mental, physical, and social aspects of an athlete's journey. This is embodied in the commitment to fostering well-rounded individuals who thrive in both sports and education, reflecting the comprehensive approach advocated by Henriksen et al. (2010; 2023) and Martindale et al. (2010). This philosophy accords with contemporary theories that posit success in sport should not be pursued at the cost of overall personal development. Athletes' insights on well-being stretch into the domain of life balance, underscoring the significance of nurturing well-being in daily life alongside physical training. This viewpoint aligns with a comprehensive development approach that considers athlete well-being as foundational to their success (Jowett & Cockerill, 2003; Towlson et al., 2018; Ford et al., 2009). Furthermore, the coaching strategy empowers athletes to make their own decisions, fosters independence and reflective thinking (Gould & Carson, 2008). Encouraging athletes to explore activities beyond their initial desires aligns with the holistic development model, promoting a more rounded growth experience. In summary, the Organizational Culture within TDEs plays a crucial role in athlete development, emphasizing the value of a respectful, supportive community. A comprehensive, balanced approach to development, one that considers the athlete's personal growth alongside their sports career, is vital. This ethos aligns with the contemporary theories in sports science, affirming that holistic development is essential for nurturing well-rounded, successful athletes (Henriksen et al., 2023, 2010; Henriksen & Stambulova, 2023; Martindale et al., 2010; Gould & Carson, 2008; Hauser et al., 2022). The integration of these principles into the fabric of TDEs is key to realizing the full potential of athletes as both individuals and competitors.

In Talent Development Environments (TDEs) for track and field, the influence of Proximal Role Models, like peers or senior athletes, is instrumental in shaping the developmental journey of emerging athletes (Hauser et al., 2022; Flatgård Larsen & Sæther, 2020). Through regular observation and interaction, these role models provide a direct, relatable demonstration of desirable behaviors and skills that have a tangible and immediate impact on younger or less experienced athletes (Martindale et al., 2010; Henriksen et al., 2010, 2023). Athlete 2's mentorship, detailing his journey and the dedication required to achieve proficiency, offers practical strategies and benchmarks for success. This real-world illustration of skill mastery and overcoming obstacles resonates with Martindale et al. (2010), emphasizing the significance of role models in athletes' social learning and motivational processes.' Complementing the role of peer models, the Coach-Athlete Relationship stands as a pivotal aspect of athlete development (Vealey, 2005; Jowett & Cramer, 2010; Jowett & Cockerill, 2003). Coaches impart more than technical expertise; they mentor life skills and ethical values, greatly influencing athletes' developmental trajectories, motivation, and attitudes. The enduring and intimate coach-athlete relationship is central to holistic development, which Henriksen et al. (2010) identify as essential for an optimal developmental environment. The 'motivational climate' created by the coach-athlete relationship, as described by Jowett and Cockerill (2003), profoundly affects an athlete's experience and performance. Coaches often guide athletes through critical life phases, such as transitioning to independent living, highlighting their role in personal and life skill development, beyond the bounds of athletic training.

Within Talent Development Environments (TDEs), the role of environmental support is recognized as a significant factor that extends beyond the confines of physical training to shape the athlete's broader context. This support includes crucial aspects like lifestyle balance, the presence of a strong support network, and the availability of resources—all of which are orchestrated to enhance holistic development and enable athletes to reach their peak performance levels (Wylleman & Reints, 2010; Duckworth et al., 2007). Lifestyle balance is a key component of this environmental support, essential for maintaining the well-being and performance of athletes. It requires a harmonious integration of the rigorous demands of training with the necessities of personal life, education, and adequate rest. Such balance is instrumental in preventing burnout and ensuring the longevity of an athlete's career, which is indispensable for ongoing growth and success (Henriksen et al., 2023, 2010; Thomas et al., 2021). The recognition that discussions around lifestyle balance need to be more comprehensive reflects the complexity of managing an athlete's total workload, as articulated by Martindale et al. (2010) as well as Smith (1986) and Raedeke (1997). They argue for the necessity of a TDE

framework that can skillfully navigate the intricate relationship between an athlete's training regime and their personal life commitments to optimize overall well-being and performance. The support system within a TDE is the cornerstone upon which athletes can build resilience and progress in their athletic journey. This system is not unidimensional; it encompasses coaches, family, healthcare professionals, and educators, all contributing to the athlete's success (Wylleman & Reints, 2010; Sargent Megicks et al., 2022). Athletes' acknowledgments of the multifaceted support they receive—be it familial or from local community resources like physicians and physiotherapists—underline the importance of a collaborative support network. Such a network is not only conducive to quick intervention but also crucial for the sustained development of the athlete, as shown in the proactive engagement with various stakeholders within the TDE (Sargent Megicks et al., 2022; Henriksen & Stambulova, 2023; Henriksen, 2010). Resource availability, including access to funding, facilities, and specialized expertise, profoundly impacts the quality of support within a TDE, as indicated by Gesbert et al. (2021) and Wylleman & Reints (2010). State-of-the-art facilities provide the necessary infrastructure for tailored training programs and comprehensive support services (Pearson et al., 2006; Smith et al., 2007). The centralized location of such facilities, as illustrated by the Växjö track club in Henriksen's (2010) study, streamlines the athletes' routines, allowing them to make efficient use of time and energy, which is particularly beneficial in smaller communities where a close-knit environment can enhance focus and facilitate support. Nevertheless, the expressed need for more predictable resource allocation and increased financial support points to ongoing challenges within TDEs. The quest for predictability and adequate resources underscores a gap between theoretical models of TDEs and the practical realities that athletes and coaches face, suggesting that these models may require refinement to more accurately reflect and accommodate the lived experiences of those within the TDE framework (Hauser et al., 2022).

The findings from this study may be relevant for coaches, athletes, sports psychologists, family and the athletes close support network. Firstly, the insights could enhance understanding of the various influencing factors on the TDE in the developing years. These insights can enable coaches and athletes to identify these factors and implement measures that promote a robust TDE. It is crucial to note that TDE is dynamic and multidimensional, with its various aspects potentially influencing each other and the overall TDE. While the study has explored and described these factors individually, it argues for a holistic comprehension where they are considered collectively as a toolkit to achieve a strong TDE. For athletes, recognizing these aspects could be beneficial as they contribute to a more nuanced understanding of group dynamics. The study's findings offer valuable insights into performance enhancement within

high school track and field teams, aiming to deepen the understanding of TDE. This research contributes to the nuanced body of knowledge regarding the functionality and optimization of TDEs in high school settings.

The study acknowledges several limitations. Primarily, it focused on a single track and field event in high school, which may limit the applicability of its findings to other sports contexts. The sample comprised three athletes, two coaches, and one department leader for sports, which could have been expanded to include more participants for broader insights; however, additional informants did not meet the selection criteria to contribute new relevant information. The researcher's prominence in the national track and field milieu may risk influencing interview responses, potentially affecting data reliability due to social desirability bias. It is imperative to scrutinize the data to ensure authenticity of the findings.

TDE are dynamic and multidimensional, and longitudinal observational studies could provide more in-depth analysis of changes and developments over time. Future research should streamline the exploration of Talent Development Environments (TDEs) in high school sports by integrating varied athletic events, diverse athlete demographics, and extending the observation period. A nuanced approach would involve comparative studies to reveal how TDEs differ between rural and urban high schools, potentially influenced by location and local culture. Urban settings may afford better facilities or more competitive opportunities, aspects which could critically shape talent nurturing.

Additionally, adopting longitudinal methodologies would allow for the tracking of athletes' progress over time, offering a dynamic view of their developmental trajectories within these environments. Such studies could draw from newer frameworks like the Athletic Career Transition Model, which considers the ongoing interaction between athletes and their environments (Wylleman et al., 2004).

Furthermore, examining the financial structures that support TDEs is vital. Understanding how funding, resource allocation, and economic stability contribute to the success of these programs can offer insights into the sustainability of high school sports. Contemporary research in this area could consider the Economic Theory of Professionalism in Sports, which discusses the allocation of financial resources in the development of athletes (Collins, 2011; Houlihan & Green, 2008). This focused yet comprehensive research agenda will not only validate the current study's findings but also illuminate the multifaceted nature of athlete development in high school sports environments.

Conclusion

The primary objective of the study was to investigate the factors that are pivotal in fostering a sustainable and high-quality Talent Development Environment (TDE) within the context of the national program for track and field at Steinkjer Upper Secondary School. This is a complex field with numerous influencing factors, and it is acknowledged that the findings from the study do not provide a definitive formula for success but contribute to illuminating the field with concrete insights from one particular environment in the Norwegian elite sport context. A strong social milieu is cherished by athletes and coaches alike, underpinning the importance of communal relations in athletic progression. Facilities and the holistic integration of club and school training programs form the backbone of a supportive infrastructure. Coaches' concern for the athletes' physical and mental health, along with their long-term developmental outlook—although not always fully grasped by the athletes—reflects a profound commitment to nurturing talent. The imperative for financial stability emerges as a crucial enabler of consistent athlete support. Family and support networks are pivotal, providing the emotional and logistical backing necessary for athletes' dedication. Competitive settings are recognized as essential for development, while heterogeneity in athletes' abilities and ambitions presents challenges in ensuring individualized support. This thesis underscores the complexity of fostering a thriving environment for track and field athletes, advocating for a balanced and inclusive approach to talent development. In conclusion, Steinkjer Upper Secondary School is advised to bolster its social support and stakeholder communication, thereby nurturing a collaborative and supportive athletic environment. A focus on holistic development is essential, arming athletes with skills for independence in life and sport. Employing a responsive, evidence-based approach that evolves with the athletes' needs is key to fostering their all-encompassing growth. Through ongoing evaluation and strategy adaptation, the school can establish a resilient and flourishing talent development ecosystem. The findings of this study may be relevant to talent development environments in athletics as well as in other sports disciplines.

References

- Baker, J., Cobley, S., & Schorer, J. (2012). Talent Identification and Development in Sport: International Perspectives. *International Journal of Sports Science & Coaching*, 7(1), 177–180. <https://doi.org/10.1260/1747-9541.7.1.177>
- Baker, J., Wilson, S., Johnston, K., Dehghansai, N., Koenigsberg, A., de Vegt, S., & Wattie, N. (2020). Talent Research in Sport 1990–2018: A Scoping Review. *Frontiers in Psychology*, 11, 607710–607710. <https://doi.org/10.3389/fpsyg.2020.607710>
- Bandura, A. (1986). *Social foundations of thought and action : a social cognitive theory* (pp. XIII, 617). Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy : the exercise of control* (pp. IX, 604). Freeman.
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology (Washington, D.C.)*, 9(1), 3–26. <https://doi.org/10.1037/qup0000196>
- Brinkmann, S., & Kvale, S. (2015). *InterViews : learning the craft of qualitative research interviewing* (3rd ed., pp. XVIII, 405). Sage.
- Coakley, J. J. (2017). *Sports in society : issues and controversies* (12th ed., pp. XVII, 656). McGraw-Hill Education.
- Côté, J. (1999). The influence of the family in the development of talent in sport. *The Sport Psychologist*, 13(4), 395–417. <https://doi.org/10.1123/tsp.13.4.395>
- Côté, J., Lidor, R., & Hackfort, D. (2009). ISSP position stand: To sample or to specialize? Seven postulates about youth sport activities that lead to continued participation and elite performance. *International Journal of Sport and Exercise Psychology*, 7(1), 7–17. <https://doi.org/10.1080/1612197X.2009.9671889>
- Côté, J., Turnnidge, J., & Evans, M. B. (2014). THE DYNAMIC PROCESS OF DEVELOPMENT THROUGH SPORT/DINAMICNI PROCES RAZVOJA PREK SPORTA. *Kinesiologia Slovenica*, 20(3), 14–26.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Csikszentmihalyi, M., Whalen, S., Wong, M., & Rathunde, K. (1993). *Talented teenagers: The roots of success and failure*. New York: Cambridge
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Springer US. <https://doi.org/10.1007/978-1-4899-2271-7>
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit. *Journal of*

- Personality and Social Psychology*, 92(6), 1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Durand-Bush, & Salmela, J. H. (2002). The Development and Maintenance of Expert Athletic Performance: Perceptions of World and Olympic Champions. *Journal of Applied Sport Psychology*, 14(3), 154–171. <https://doi.org/10.1080/10413200290103473>
- Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363–406.
- Flatgård, G., Larsen, C. H. & Sæther, S.A. (2020). Talent development environment in a professional football club in Norway. <https://doi.org/https://doi.org/10.7146/sjsep.v2i0.114470>
- Fraser-Thomas, J. L., Côté, J., & Deakin, J. (2005). Youth sport programs: an avenue to foster positive youth development. *Physical Education and Sport Pedagogy*, 10(1), 19–40. <https://doi.org/10.1080/1740898042000334890>
- Ford, P. R., Ward, P., Hodges, N. J., & Williams, A. M. (2009). The role of deliberate practice and play in career progression in sport: the early engagement hypothesis. *High Ability Studies*, 20(1), 65–75. https://doi.org/10.1080/1359813090286072_1
- Ford, P., De Ste Croix, M., Lloyd, R., Meyers, R., Moosavi, M., Oliver, J., Till, K., & Williams, C. (2011). The Long-Term Athlete Development model: Physiological evidence and application. *Journal of Sports Sciences*, 29(4), 389–402. <https://doi.org/10.1080/02640414.2010.536849>
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331–362. <https://doi.org/10.1002/job.322>
- Gangsø, K., Aspvik, N. P., Mehus, I., Høigaard, R., & Sæther, S. A. (2021). Talent Development Environments in Football: Comparing the Top-Five and Bottom-Five-Ranked Football Academies in Norway. *International Journal of Environmental Research and Public Health*, 18(3), 1321. <https://doi.org/10.3390/ijerph18031321>
- Gesbert, V., von Roten, F. C., & Hauw, D. (2021). Reviewing the role of the environment in the talent development of a professional soccer club. *PloS One*, 16(2), e0246823–e0246823. <https://doi.org/10.1371/journal.pone.0246823>
- Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough? *Field Methods*, 18(1), 59–82. <https://doi.org/10.1177/1525822X05279903>
- Gould, D., & Carson, S. (2008). Life skills development through sport: current status and future directions. *International Review of Sport and Exercise Psychology*, 1(1), 58–78. <https://doi.org/10.1080/17509840701834573>

- Gould, D., Dieffenbach, K., & Moffett, A. (2002) Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14, 172-204.
- Gould, D., Feltz, D., Horn, T., & Weiss, M. (1982). Reasons for attrition in competitive youth swimming. *Journal of Sport Behavior*, 5(3), 155.
- Harwood, C. G., Knight, C. J., Thrower, S. N., & Berrow, S. R. (2019). Advancing the study of parental involvement to optimise the psychosocial development and experiences of young athletes. *Psychology of Sport and Exercise*, 42, 66–73. <https://doi.org/10.1016/j.psychsport.2019.01.007>
- Hauser, L.L., Harwood, C. G., Höner, O., O'Connor, D., & Wachsmuth, S. (2022). Talent development environments within sports: a scoping review examining functional and dysfunctional environmental features. *International Review of Sport and Exercise Psychology*, ahead-of-print(ahead-of-print), 1–27. <https://doi.org/10.1080/1750984X.2022.2129423>
- Haugan, J.A., & Østerås, M.O. (2022). *Trøndermodellen, Spisset Toppidrett*. f(IPLs rapportserie Nr. 6/2022). Institutt for Pedagogikk og livslang læring. <https://www.ntnu.no/documents/1266706089/1283906963/Rapport+nr.+6+Tr%C3%B8ndermodellen+-+Spisset+toppidrett+-+Utredning+del+1+-+Kunnskapsgrunnlag.pdf/6d75ce4e-81fc-dfcf-6438-01d0dfb544a6?t=1662099456729>
- Hayashi, C. T. (1996). Weinberg, R. S., & Gould, D. *Foundations Of Sport And Exercise Psychology*. Champaign, IL: Human Kinetics, 1995. *Journal of Sport & Exercise Psychology*, 18, 336–338
- Holt, N. L., Hoar, S., & Fraser, S. N. (2005). How does coping change with development? A review of childhood and adolescence sport coping research. *European Journal of Sport Science*, 5(1), 25–39. <https://doi.org/10.1080/17461390500076915>
- Henriksen, K., Diment, G., & Kuettel, A. (2023). The Team Denmark applied model of athlete mental health. *International Journal of Sport and Exercise Psychology*, 1–17. <https://doi.org/10.1080/1612197X.2023.2281525>
- Henriksen, K., & Stambulova, N. (2023). The social environment of talent development in youth sport. *Frontiers in Sports and Active Living*, 5, 1127151–1127151. <https://doi.org/10.3389/fspor.2023.1127151>
- Henriksen, K., Stambulova, N., & Roessler, K. K. (2010). Successful talent development in

- track and field: considering the role of environment. *Scandinavian Journal of Medicine & Science in Sports*, 20(s2), 122–132. <https://doi.org/10.1111/j.1600-0838.2010.01187.x>
- Ivarsson, A., Stenling, A., Fallby, J., Johnson, U., Borg, E., & Johansson, G. (2015). The predictive ability of the talent development environment on youth elite football players' well-being: A person-centered approach. *Psychology of Sport and Exercise*, 16, 15–23. <https://doi.org/10.1016/j.psychsport.2014.09.006>
- Jayanthi, N., Schley, S., Cumming, S. P., Myer, G. D., Saffel, H., Hartwig, T., & Gabbett, T. J. (2022). Developmental Training Model for the Sport Specialized Youth Athlete: A Dynamic Strategy for Individualizing Load-Response During Maturation. *Sports health*, 14(1), 142–153. <https://doi.org/10.1177/19417381211056088>
- Jowett, S., & Cramer, D. (2010). The prediction of young athletes' physical self from perceptions of relationships with parents and coaches. *Psychology of Sport and Exercise*, 11(2), 140–147. <https://doi.org/10.1016/j.psychsport.2009.10.001>
- Jowett, S., & Cockerill, I. M. (2003). Olympic medallists' perspective of the athlete-coach relationship. *Psychology of Sport and Exercise*, 4(4), 313–331. [https://doi.org/10.1016/S1469-0292\(02\)00011-0](https://doi.org/10.1016/S1469-0292(02)00011-0)
- Kleinert, J., Ohlert, J., Carron, B., Eys, M., Feltz, D., Harwood, C., Linz, L., Seiler, R., & Sulprizio, M. (2012). Group dynamics in sports: An overview and recommendations on diagnostic and intervention. *The Sport Psychologist*, 26(3), 412–434. <https://doi.org/10.1123/tsp.26.3.412>
- Larsen, C. H., Storm, L. K., Pyrdol, N., Sæther, S. A. & Henriksen, K. (2020). *A world class academy in professional football: The case of Ajax Amsterdam*. <https://doi.org/https://doi.org/10.7146/sjsep.v2i0.119746>
- Lauer, L., Gould, D., Roman, N., & Pierce, M. (2010). Parental behaviors that affect junior tennis player development. *Psychology of Sport and Exercise*, 11(6), 487–496. <https://doi.org/10.1016/j.psychsport.2010.06.008>
- Li, C., Wang, C. K. J., & Pyun, D. Y. (2017). Impacts of talent development environments on athlete burnout: a self-determination perspective. *Journal of Sports Sciences*, 35(18), 1838–1845. <https://doi.org/10.1080/02640414.2016.1240370>
- Martindale, R. J. J., Collins, D., & Abraham, A. (2007). Effective Talent Development: The Elite Coach Perspective in UK Sport. *Journal of Applied Sport Psychology*, 19(2), 187–206. <https://doi.org/10.1080/10413200701188944>

- Martindale, R. J., Collins, D., & Daubney, J. (2005). Talent Development: A Guide for Practice and Research Within Sport. *Quest (National Association for Kinesiology in Higher Education)*, 57(4), 353–375. <https://doi.org/10.1080/00336297.2005.10491862>
- Martindale, R. J., Collins, D., Wang, J. C., McNeill, M., Lee, K. S., Sproule, J., & Westbury, T. (2010). Development of the talent development environment questionnaire for sport. *Journal of Sports Sciences*, 28(11), 1209–1221. <https://doi.org/10.1080/02640414.2010.49599>
- Morris, R., Cartigny, E., Ryba, T. V., Wylleman, P., Henriksen, K., Torregrossa, M., Lindahl, K., & Erpič, S. C. (2021). A taxonomy of dual career development environments in European countries. *European Sport Management Quarterly*, 21(1), 134–151. <https://doi.org/10.1080/16184742.2020.1725778>
- Nikander, J. A. O., Ronkainen, N. J., Korhonen, N., Saarinen, M., & Ryba, T. V. (2022). From athletic talent development to dual career development? A case study in a Finnish high performance sports environment. *International Journal of Sport and Exercise Psychology*, 20(1), 245–262. <https://doi.org/10.1080/1612197X.2020.1854822>
- Passaportis, M. J. R., Brown, D. J., Wagstaff, C. R. D., Arnold, R., & Hays, K. (2022). Creating an environment for thriving: An ethnographic exploration of a British decentralised Olympic and Paralympic Sport Organisation. *Psychology of Sport and Exercise*, 62, 102247. <https://doi.org/10.1016/j.psychsport.2022.102247>
- Pearson, D. T., Naughton, G. A., & Torode, M. (2006). Predictability of physiological testing and the role of maturation in talent identification for adolescent team sports. *Journal of Science and Medicine in Sport*, 9(4), 277–287. <https://doi.org/10.1016/j.jsams.2006.05.020>
- Polman, R. C. J., & Houlahan, K. (2004). A cumulative stress and training continuum model: A multidisciplinary approach to unexplained underperformance syndrome. *Research in Sports Medicine: An International Journal*, 12, 301–316.
- Raedeke, T. D. (1997). Is athlete burnout more than just stress? A sport commitment perspective. *Journal of Sport & Exercise Psychology*, 19(4), 396–417. <https://doi.org/10.1123/jsep.19.4.396>
- Rongen, F., McKenna, J., Cogley, S., & Till, K. (2018). Are youth sport talent identification and development systems necessary and healthy? *Sports Medicine - Open*, 4(1), 1–4. <https://doi.org/10.1186/s40798-018-0135-2>
- Roulston, K. (2010). Reflective Interviewing. In *Reflective Interviewing: A Guide to Theory*

- and Practice (1st ed.). SAGE Publications, Limited.
<https://doi.org/10.4135/9781446288009>
- Sargent Megicks, B., Till, K., Rongen, F., Cowburn, I., Gledhill, A., Mitchell, T., Emmonds, S., & Lara-Bercial, S. (2022). Examining European Talent Development Environments: Athlete, Parent and Coach Perceptions. *Journal of Sports Sciences*, 40(22), 2533–2543. <https://doi.org/10.1080/02640414.2023.2172800>
- Smith, R. E. (1986). Toward a Cognitive-Affective Model of Athletic Burnout. *Journal of Sport Psychology*, 8(1), 36–50. <https://doi.org/10.1123/jsp.8.1.36>
- Smith, B., & Sparkes, A. C. (2009). Narrative inquiry in sport and exercise psychology: What can it mean, and why might we do it? *Psychology of Sport and Exercise*, 10(1), 1–11. <https://doi.org/10.1016/j.psychsport.2008.01.004>
- Smith, R. E., Smoll, F. L., & Cumming, S. P. (2007). Effects of a motivational climate intervention for coaches on young athletes' sport performance anxiety. *Journal of Sport & Exercise Psychology*, 29(1), 39–59. <https://doi.org/10.1123/jsep.29.1.39>
- Smoll, Frank L., & Smith, Ronald E. Children and Youth in Sport: a Biopsychosocial Perspective.(Brief Article). (2003). *Adolescence*, 38(150), 404.
- Thomas, C. E., Gastin, P. B., Abbott, G., & Main, L. C. (2021). Impact of the talent development environment on the wellbeing and burnout of Caribbean youth track and field athletes. *European Journal of Sport Science*, 21(4), 590–603. <https://doi.org/10.1080/17461391.2020.1775894>
- Tjora, A. H. (2021). *Kvalitative forskningsmetoder i praksis* (4. utgave.). Gyldendal.
- Towson, C., Cogley, S., Parkin, G., & Lovell, R. (2018). When does the influence of maturation on anthropometric and physical fitness characteristics increase and subside? *Scandinavian Journal of Medicine & Science in Sports*, 28(8), 1946–1955. <https://doi.org/10.1111/sms.13198>
- Vallerand, R. J., Rousseau, F. L., Grouzet, F. M. E., Dumais, A., Grenier, S., & Blanchard, C. M. (2006). Passion in sport: A look at determinants and affective experiences. *Journal of Sport & Exercise Psychology*, 28(4), 454–478. <https://doi.org/10.1123/jsep.28.4.454>
- Van den Berg, L., Jonck, P., & Surujlal, J. (2021). Investigating the Youth Sports Development Pathway Within a South African Context. *Frontiers in Psychology*, 12, 694548–694548. <https://doi.org/10.3389/fpsyg.2021.694548>
- Vazou, S., Ntoumanis, N., & Duda, J. L. (2006). Predicting young athletes' motivational indices as a function of their perceptions of the coach- and peer-created climate. *Psychology of Sport and Exercise*, 7(2), 215–233. <https://doi.org/10.1016/j.psychsport.2005.08.007>

- Vealey, R. (2005). *Coaching for inner edge*. Morgantown, WV: Fitness Information Technology.
- Weiss, M. R. (2008). 2007 C. H. McCloy Lecture. *Research Quarterly for Exercise and Sport*, 79(4), 434–449. <https://doi.org/10.1080/02701367.2008.10599510>
- Wolfenden, L. E., & Holt, N. L. (2005). Talent Development in Elite Junior Tennis: Perceptions of Players, Parents, and Coaches. *Journal of Applied Sport Psychology*, 17(2), 108–126. <https://doi.org/10.1080/10413200590932416>
- Wylleman, P., Alfermann, D., & Lavallee, D. (2004). Career transitions in sport: European perspectives. *Psychology of Sport and Exercise*, 5(1), 7–20. [https://doi.org/10.1016/S1469-0292\(02\)00049-3](https://doi.org/10.1016/S1469-0292(02)00049-3)
- Wylleman, P., & Reints, A. (2010). A lifespan perspective on the career of talented and elite athletes: Perspectives on high-intensity sports. *Scandinavian Journal of Medicine & Science in Sports*, 20(s2), 88–94. <https://doi.org/10.1111/j.1600-0838.2010.01194.x>
- Xiang, C., Dong, W., Kamalden, T. F. T., Ismail, N., & Luo, H. (2023). Structural analysis of environmental factors of sports talent development. *Current Psychology (New Brunswick, N.J.)*. <https://doi.org/10.1007/s12144-023-04803-x>
- Zajonc, R. B. (1965). Social Facilitation. *Science (American Association for the Advancement of Science)*, 149(3681), 269–274. <https://doi.org/10.1126/science.149.3681.269>